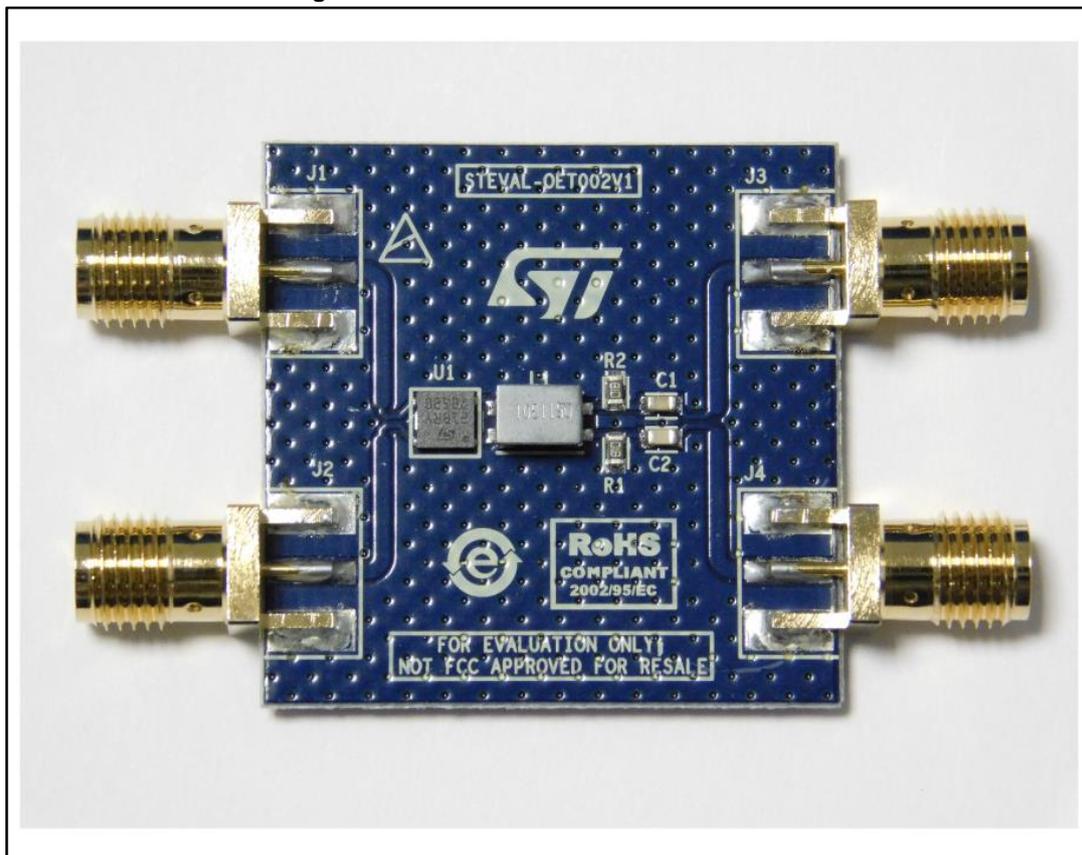

Using the STEVAL-OET002V1 MDI BRR board with EMIF02-01OABRY

Introduction

The STEVAL-OET002V1 is a medium-dependent interface (MDI) board which includes the EMIF02-01OABRY filter, in compliance with BroadR-Reach™ specifications for EMI, ESD and differential impedance. BroadR-Reach™ (BRR) is an Ethernet, two unshielded twisted pair (UTP) wire protocol for data communication

The STEVAL-OET002V1 board is able to filter parasitic and undesirable common and differential signals.

Figure 1: STEVAL-OET002V1 MDI BRR board



Contents

1	STEVAL-OET002V1 MDI BRR board	5
1.1	Overview	5
1.2	Connections	5
1.3	Using the board.....	6
2	STEVAL-OET002V1 Sddxx curves	7
3	References.....	10
4	Revision history	11

List of tables

Table 1: Document revision history 11

List of figures

Figure 1: STEVAL-OET002V1 MDI BRR board	1
Figure 2: STEVAL-OET002V1 circuit schematic	5
Figure 3: STEVAL-OET002V1 Sdd11 curve	7
Figure 4: STEVAL-OET002V1 Sdd22 curve	7
Figure 5: STEVAL-OET002V1 Sdd21 curve	8
Figure 6: STEVAL-OET002V1 Scd21 curve.....	8
Figure 7: STEVAL-OET002V1 Sdc21 curve.....	9

1 STEVAL-OET002V1 MDI BRR board

1.1 Overview

Key features of the STEVAL-OET002V1 MDI BRR board include:

- EMIF02-01OABRY highly integrated solution designed to suppress EMI noise and protect against ESD
- Attenuation profile compliant with BroadR Reach™ requirements, from - 40 °C to 125 °C
- Compliant with ISO10605, ISO7637-3 standards
- RoHS compliant

The demo board consists of:

- DC decoupling capacitors
- a termination resistor
- a common filter
- a low pass filter and ESD protection (EMIF02-01OABRY)
- four RF SMA connectors

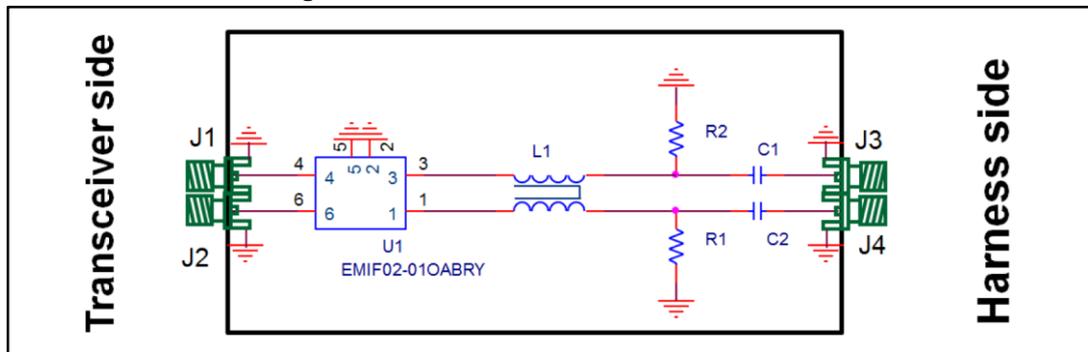
The EMIF02-01OABRY low pass filter ensures that ESD and transient voltages on the MDI do not result in transceiver failure.

The four RF SMA connectors allow you to connect the board to a vector network analyser (VNA) for Sddxx curve assessment.

One board is required for each BRR transceiver.

1.2 Connections

Figure 2: STEVAL-OET002V1 circuit schematic



The figure above shows:

- C1 and C2: AC coupling capacitors 100 nF
- R1 and R2: termination resistor 1 kΩ
- L1: common filter (ACT45L-201-2P)
- U1: low pass filter and ESD protection (EMIF02-01OABRY)
- J1, J2, J3 and J4: RF SMA connectors.

1.3 Using the board

To use the board, connect:

1. to transceiver side (J1, J2): BroadR-Reach transceiver wires (TRD_N and TRD_P pins) and GND
2. to harness side (no GND needed) (J3, J4): UTP

Now, communication data (e.g., from camera to display) can be transmitted using the BRR protocol with EMI, ESD and transient voltage immunity.

2 STEVAL-OET002V1 Sddxx curves

Figure 3: STEVAL-OET002V1 Sdd11 curve



Figure 4: STEVAL-OET002V1 Sdd22 curve



Figure 5: STEVAL-OET002V1 Sdd21 curve

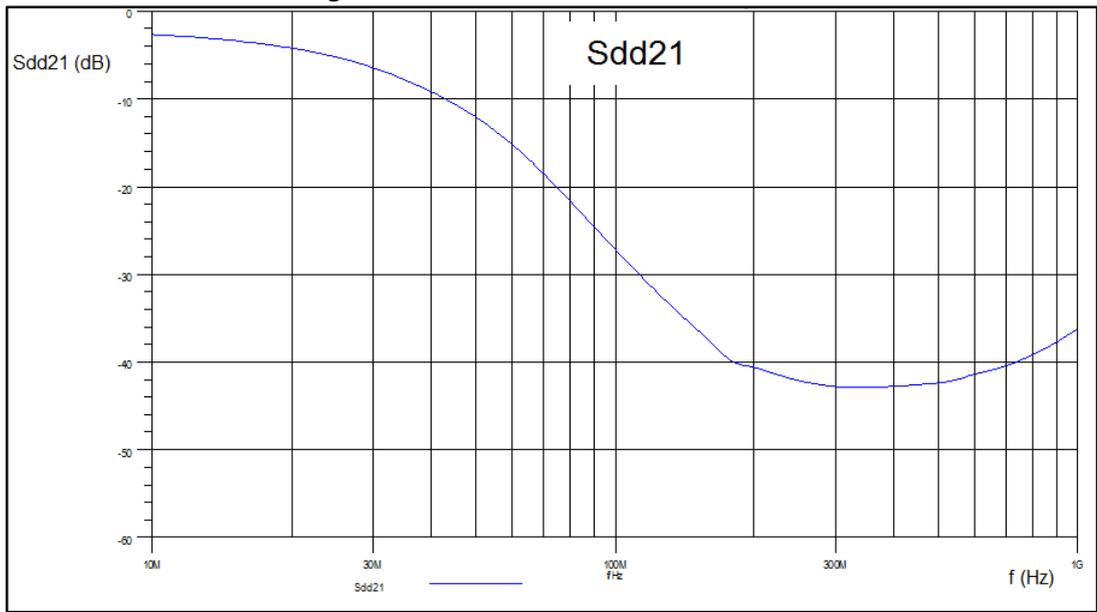


Figure 6: STEVAL-OET002V1 Scd21 curve

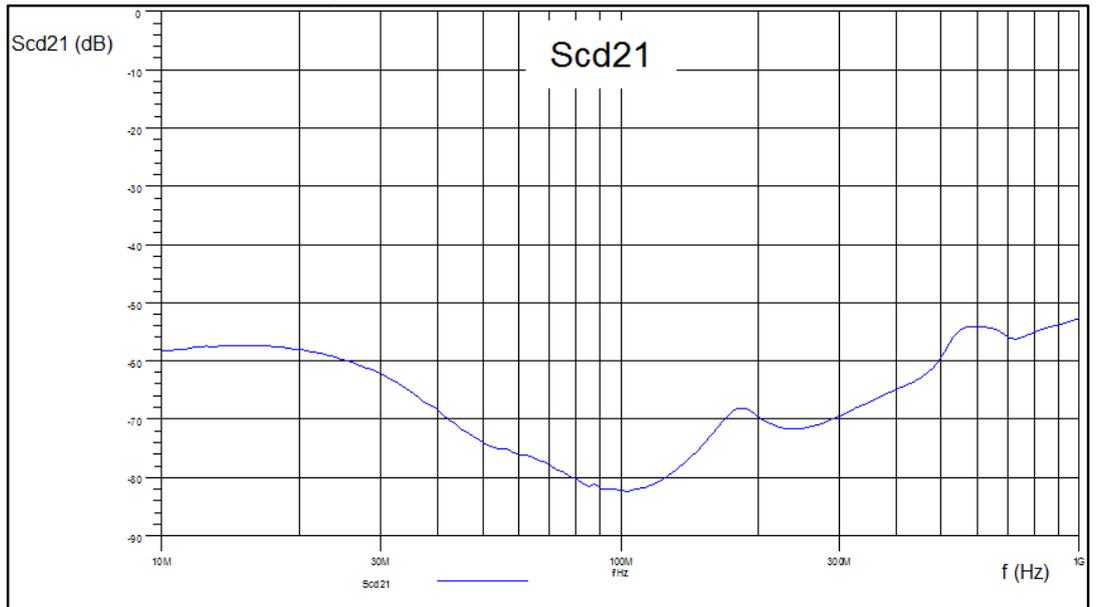
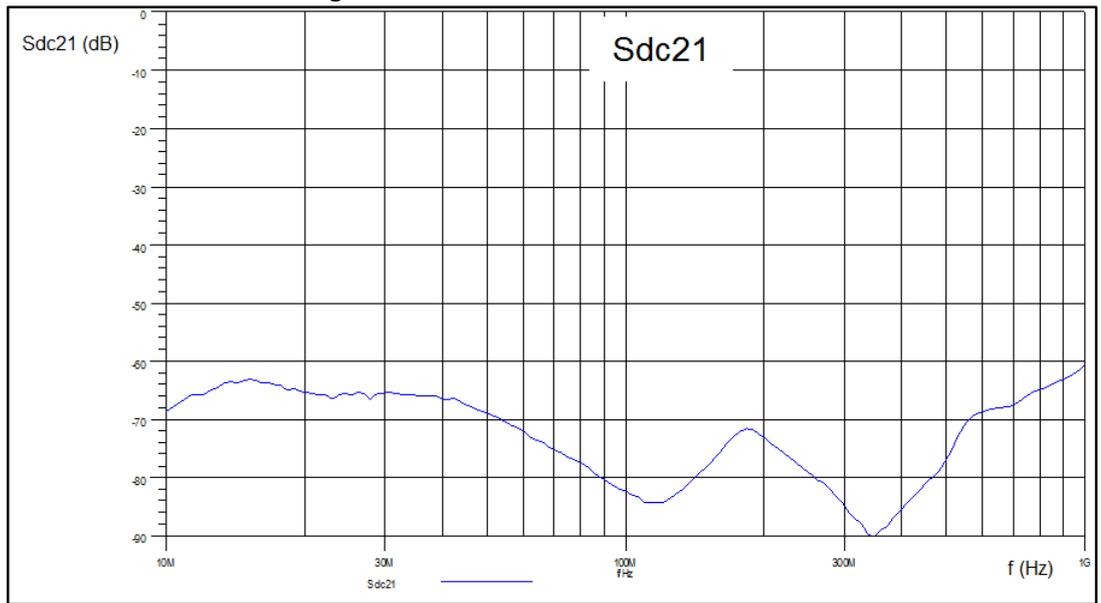


Figure 7: STEVAL-OET002V1 Sdc21 curve



3 **References**

EMC Test Specification for BroadR-Reach® Transceivers

4 Revision history

Table 1: Document revision history

Date	Version	Changes
13-Jul-2016	1	Initial release.

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers' products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2016 STMicroelectronics – All rights reserved