Cheetah

DRS AUDIO ROUTER SERIES

TECHNICAL ADDENDUM
ADDRESSING
OPTICAL LOSS BUDGET PARAMETER
FOR THE
DRS SERIES AUDIO ROUTERS

January, 2007

Technical Addendum For Cheetah DRS Series Audio Routers

1. PURPOSE

This Technical Addendum (TA) addresses the Optical Loss Budget parameter when using fiber optic cable for interconnection of DRS DXE Frames in an expanded audio routing system.

2. APPLICATION

This TA is an addendum to the DRS Series Technical Manual and should be read and observed at installation of any expanded DRS system using multiple DXE frames. When installing any Cheetah DRS system using multiple DXE frames, it is imperative for proper system operation that you calculate the optical loss of the interconnecting cables. The optical loss budget for each fiber module in the DRS system is 12dB. This means that the total loss of any interconnecting path from DXE to DXE CAN NOT exceed 12dB.

DXE frames may be interconnected using a single length of optical cable from point to point. This application is illustrated in Figure 1 and a procedure for calculating loss is provided in Paragraph 3, below.

While a single interconnect cable is the most common configuration, certain installations may follow a cable path from one DXE through a jack field or interconnect panel before reaching the interconnecting DXE frame. In such installations it is very likely that the DXE to DXE path will not be made by a single cable, but by two or more cables routed through auxiliary equipment. In calculating the total optical loss of each DXE to DXE interconnect path, loss factors must be considered for every piece of cable used plus any losses introduced by auxiliary equipment. This application is illustrated by Figure 2 and a procedure for calculating loss provided in Paragraph 4, below.

3. Calculating Loss for Single Cable DXE to DXE Installation

Refer to Figure 1 when performing the following steps. Calculate the optical loss as follows:

1. Refer to the manufacturers' specification sheet and find the optical loss parameter given for Fiber Connector A.

2. Refer to the manufacturers' specification sheet and find the optical loss parameter given for Fiber Connector B.

3. Refer to the manufacturers' specification sheet for the optical cable you are using and locate the optical loss parameter. This will usually be given as a loss factor for a particular length of cable. Use that parameter and the length of your cable run to calculate the optical loss for the cable length.

4. Add these three factors together to arrive at the total optical loss parameter for the cable.

5. This calculated value CAN NOT exceed 12 dB loss for the DRS application.

6. If the value you calculate does exceed 12 dB, consider using a different type of cable with a lower loss value, different connectors, re-routing to reduce cable length or a combination of all these methods.

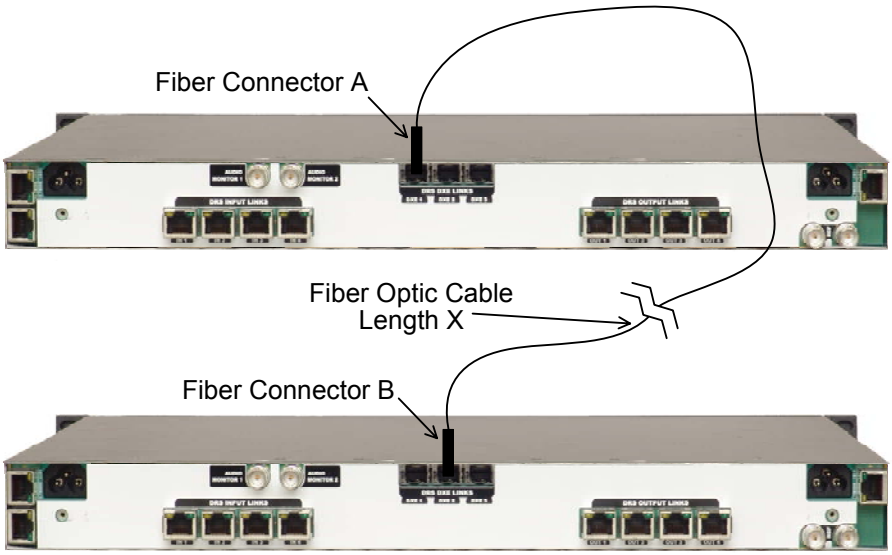

Figure 1 – Fiber Optic Cable Loss Elements – Single Cable Run

4. Calculating Loss for DXE to DXE Installation Using Multiple Cables and/or Auxiliary Equipment

Refer to Figure 2 when performing the following steps. Calculate the total optical loss of the interconnect path as follows:

1. Calculate cable loss for cable length X and its associated end connectors A and B in accordance with the single cable procedure presented in Paragraph 3, above.

2. Calculate cable loss for cable length Y and its associated end connectors A and B in accordance with the single cable procedure presented in Paragraph 3, above.

3. Refer to the manufacturer's specification sheet for any and all auxiliary equipment placed in the DXE to DXE interconnect cable path, such as a jack field or interconnect panel, and locate the optical loss parameter for each piece of equipment.

4. Add all of these loss factors together to arrive at the total optical loss parameter for the interconnect path.

5. This total calculated value CAN NOT exceed 12 dB loss for proper operation in the DRS application.

6. If the value you calculate does exceed 12 dB, consider using a different type of cable with a lower loss value, different connectors, re-routing to reduce cable length or a combination of all these methods.

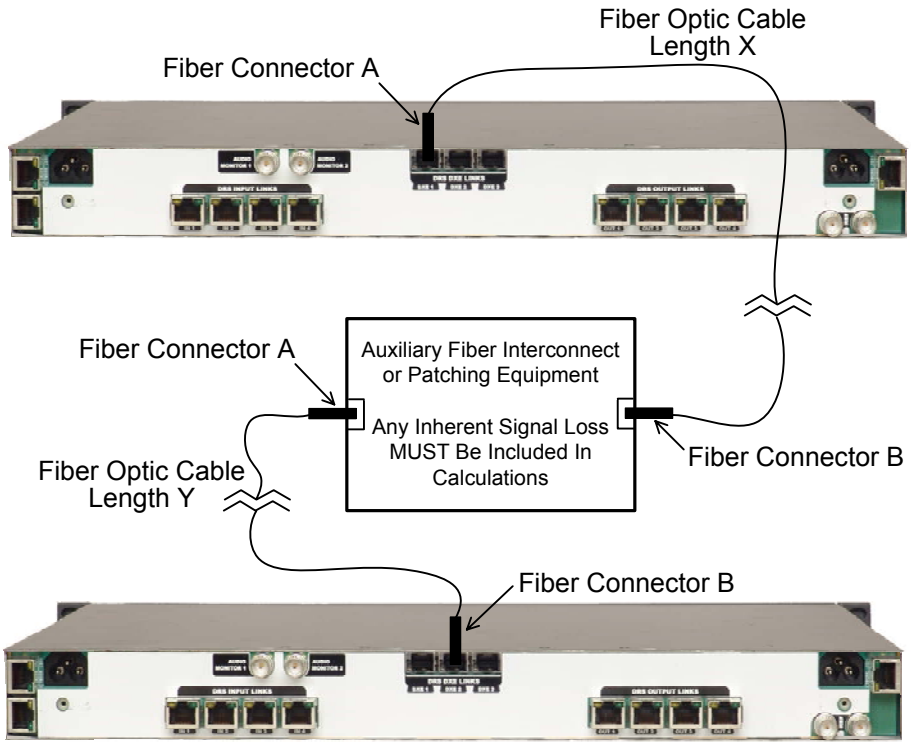

Figure 2 – Fiber Optic Cable Loss Elements – Cable Run With Auxiliary Equipment

This addendum should be considered as part of your technical documentation package for the DRS Router. Please retain this data with the technical manual.