

Project Number: G104239938

Date Issued: 6/13/2022

ETL Verified Certificate of Conformance number: 2034143CRT-003

Test Report Number: 104239938CRT-009b



**Applicant:**

Berk-Tek LLC  
132 White Oak Rd  
New Holland, PA 17557

**Manufacturer:**

Berk-Tek LLC  
132 White Oak Rd  
New Holland, PA 17557

**Applicant Contact:** Mr. Michael Boland

**Mfg. Contact:** Mr. Michael Boland

Dear Mr. Boland

Intertek is pleased to provide this letter report covering the testing of your 4-pair, 23 AWG, U/UTP, CMR, horizontal (solid) cable covered by ETL Verified certificate of conformance number 2034143CRT-003. The sample was randomly selected by an Intertek inspector from your manufacturing facility, Berk-Tek LLC, on 2/1/2022 for Quarter 1 2022 follow-up testing.

The testing was performed at Intertek located in Cortland, NY from 2/9/2022 through 2/9/2022, to the ANSI/TIA-568.2-D; ISO/IEC 11801-1 and LM-2000 standard(s) for category 6 and passed the applicable requirements.

We have appreciated this opportunity to be of service to you. If there are any questions regarding this letter or any other services offered by Intertek, Please do not hesitate to contact us.

Sincerely,

A handwritten signature in black ink that reads "Antoine Pelletier".

Antoine Pelletier  
Project Engineer  
Global Cabling Products Testing  
e-mail: antoine.pelletier@intertek.com  
Phone: (607) 758-6718

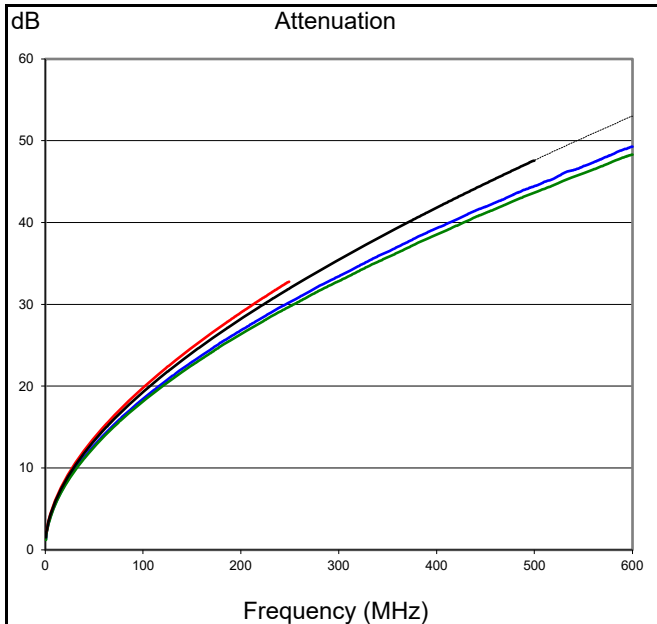
A handwritten signature in black ink that reads "Craig L. Williams".

Craig L. Williams  
Technician  
Global Cabling Products Testing  
Phone: (607) 758-6321

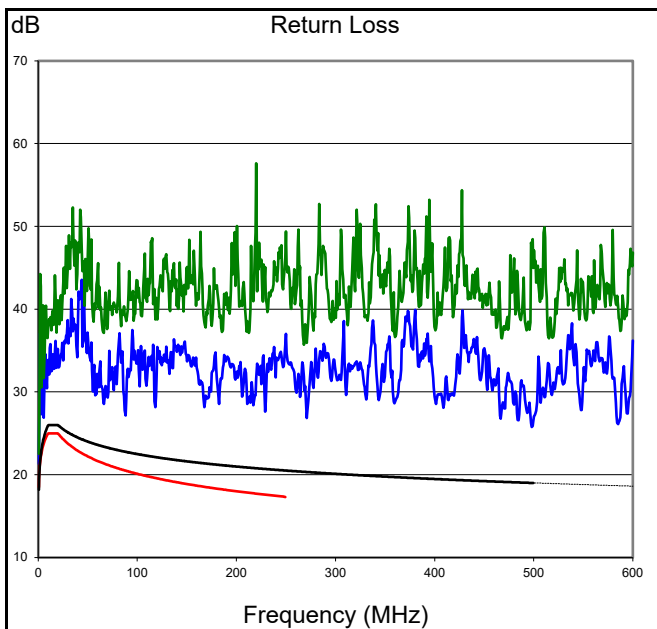
Summary

**Client** Berk-Tek LLC  
**Specifications** Berk-Tek LM-2000  
 ANSI/TIA-568.2-D, Category 6  
 ISO/IEC 11801-1, Category 6  
**Part Number** LM-2000 CMR UTP  
**Description** **Berk-Tek LM-2000 CMR**  
 4X23 UTP-CMR-Solid

**Test Started** 2/9/2022 11:29  
**Technician** Craig Williams  
**Report No.** 104239938CRT-009b  
**Length (m)** 100  
**Temperature** 22.5 °C  
**Test Status** **PASS**



| Attenuation         |            |         |              |          |              |
|---------------------|------------|---------|--------------|----------|--------------|
| Freq. MHz           | Worst Case | Average | LM-2000 Spec | TIA Spec | ISO/IEC Spec |
| 1                   | 2.0        | 1.9     | 2.0          | 2.0      | N/A          |
| 4                   | 3.6        | 3.5     | 3.7          | 3.8      | 3.8          |
| 8                   | 4.9        | 4.8     | 5.2          | 5.3      | 5.4          |
| 10                  | 5.6        | 5.5     | 5.8          | 6.0      | 6.0          |
| 16                  | 7.1        | 7.0     | 7.4          | 7.6      | 7.6          |
| 20                  | 7.9        | 7.8     | 8.2          | 8.5      | 8.5          |
| 25                  | 8.9        | 8.8     | 9.3          | 9.5      | 9.6          |
| 31.25               | 10.0       | 9.8     | 10.4         | 10.7     | 10.7         |
| 62.5                | 14.4       | 14.2    | 15.0         | 15.4     | 15.5         |
| 100                 | 18.5       | 18.2    | 19.3         | 19.8     | 19.9         |
| 250                 | 30.2       | 29.7    | 32.0         | 32.8     | 33.0         |
| 350                 | 36.4       | 35.7    | 38.7         |          |              |
| 500                 | 44.5       | 43.7    | 47.6         |          |              |
| 600                 | 49.3       | 48.3    |              |          |              |
| Limit Margin (dB) : |            |         | 0.17         | 0.23     | 0.35         |
| Frequency (MHz) :   |            |         | 1.25         | 1.25     | 5.00         |



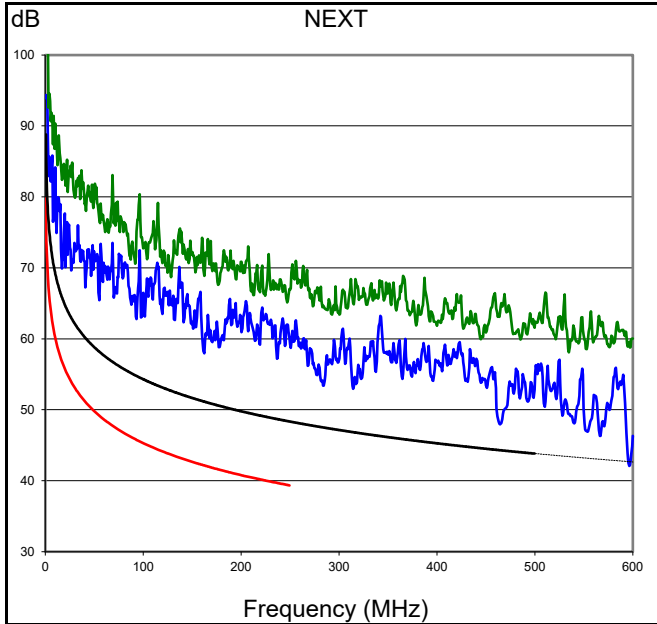
| Return Loss         |            |         |              |          |              |
|---------------------|------------|---------|--------------|----------|--------------|
| Freq. MHz           | Worst Case | Average | LM-2000 Spec | TIA Spec | ISO/IEC Spec |
| 1                   | 25.9       | 26.4    | 20.0         | 20.0     | N/A          |
| 4                   | 32.3       | 34.7    | 23.6         | 23.0     | 23.0         |
| 8                   | 33.1       | 40.4    | 25.4         | 24.5     | 24.5         |
| 10                  | 33.8       | 37.8    | 26.0         | 25.0     | 25.0         |
| 16                  | 32.8       | 40.2    | 26.0         | 25.0     | 25.0         |
| 20                  | 35.2       | 41.1    | 26.0         | 25.0     | 25.0         |
| 25                  | 33.8       | 43.0    | 25.5         | 24.3     | 24.3         |
| 31.25               | 37.0       | 48.9    | 25.0         | 23.6     | 23.6         |
| 62.5                | 33.7       | 39.9    | 23.5         | 21.5     | 21.5         |
| 100                 | 34.0       | 43.4    | 22.5         | 20.1     | 20.1         |
| 250                 | 35.7       | 46.2    | 20.5         | 17.3     | 17.3         |
| 350                 | 31.8       | 44.7    | 19.8         |          |              |
| 500                 | 27.0       | 47.1    | 19.0         |          |              |
| 600                 | 36.2       | 46.8    |              |          |              |
| Limit Margin (dB) : |            |         | 2.33         | 3.09     | 3.09         |
| Frequency (MHz) :   |            |         | 5.75         | 5.75     | 5.75         |

Legend : Blue - Worst Case; Green - Average; Red - TIA and ISO/IEC Specifications; Black - LM-2000 Specification

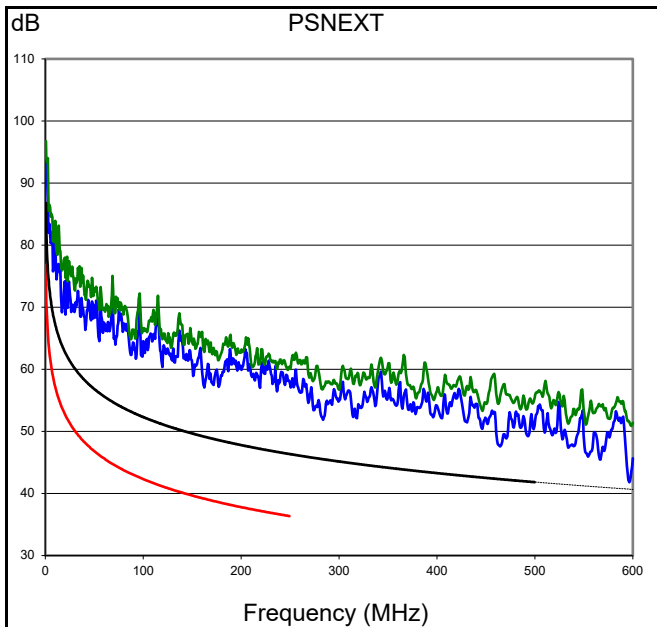
Summary

**Client** Berk-Tek LLC  
**Specifications** Berk-Tek LM-2000  
 ANSI/TIA-568.2-D, Category 6  
 ISO/IEC 11801-1, Category 6  
**Part Number** LM-2000 CMR UTP  
**Description** **Berk-Tek LM-2000 CMR**  
 4X23 UTP-CMR-Solid

**Test Started** 2/9/2022 11:29  
**Technician** Craig Williams  
**Report No.** 104239938CRT-009b  
**Length (m)** 100  
**Temperature** 22.5 °C  
**Test Status** **PASS**



| NEXT                |            |         |              |          |              |
|---------------------|------------|---------|--------------|----------|--------------|
| Freq. MHz           | Worst Case | Average | LM-2000 Spec | TIA Spec | ISO/IEC Spec |
| 1                   | 93.9       | 101.4   | 84.3         | 74.3     | N/A          |
| 4                   | 85.6       | 94.5    | 75.3         | 65.3     | 66.3         |
| 8                   | 76.5       | 87.4    | 70.8         | 60.8     | 61.8         |
| 10                  | 84.1       | 90.3    | 69.3         | 59.3     | 60.3         |
| 16                  | 72.7       | 84.3    | 66.3         | 56.2     | 57.2         |
| 20                  | 77.7       | 83.4    | 64.8         | 54.8     | 55.8         |
| 25                  | 72.9       | 83.4    | 63.3         | 53.3     | 54.3         |
| 31.25               | 72.3       | 80.3    | 61.9         | 51.9     | 52.9         |
| 62.5                | 69.1       | 76.1    | 57.4         | 47.4     | 48.4         |
| 100                 | 66.5       | 72.8    | 54.3         | 44.3     | 45.3         |
| 250                 | 60.1       | 67.0    | 48.3         | 38.3     | 39.3         |
| 350                 | 57.8       | 66.4    | 46.2         |          |              |
| 500                 | 55.2       | 62.4    | 43.8         |          |              |
| 600                 | 46.3       | 60.0    |              |          |              |
| Limit Margin (dB) : |            |         | 3.62         | 14.07    | 13.07        |
| Frequency (MHz) :   |            |         | 464.36       | 16.99    | 16.99        |



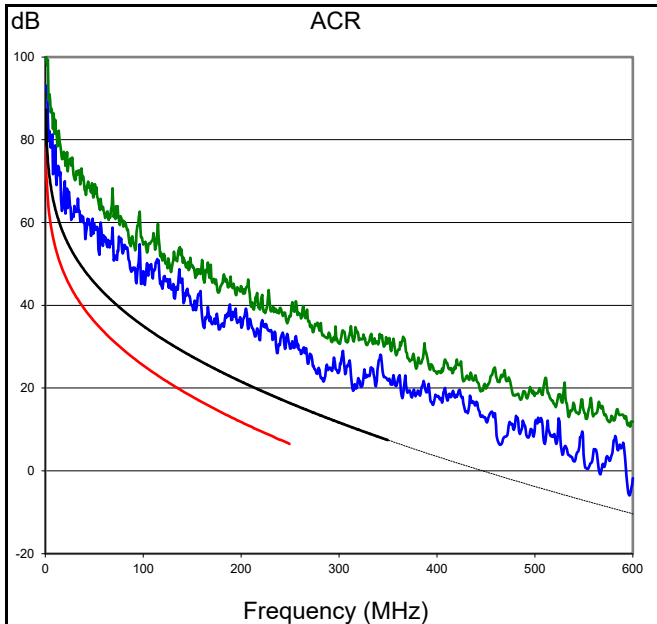
| PSNEXT              |            |         |              |          |              |
|---------------------|------------|---------|--------------|----------|--------------|
| Freq. MHz           | Worst Case | Average | LM-2000 Spec | TIA Spec | ISO/IEC Spec |
| 1                   | 91.7       | 94.0    | 82.3         | 72.3     | N/A          |
| 4                   | 83.4       | 86.5    | 73.3         | 63.3     | 63.3         |
| 8                   | 75.8       | 80.6    | 68.8         | 58.8     | 58.8         |
| 10                  | 81.5       | 83.9    | 67.3         | 57.3     | 57.3         |
| 16                  | 71.7       | 76.9    | 64.3         | 54.2     | 54.2         |
| 20                  | 74.1       | 78.0    | 62.8         | 52.8     | 52.8         |
| 25                  | 72.0       | 76.0    | 61.3         | 51.3     | 51.3         |
| 31.25               | 70.8       | 74.6    | 59.9         | 49.9     | 49.9         |
| 62.5                | 66.3       | 70.5    | 55.4         | 45.4     | 45.4         |
| 100                 | 64.5       | 66.3    | 52.3         | 42.3     | 42.3         |
| 250                 | 58.0       | 60.4    | 46.3         | 36.3     | 36.3         |
| 350                 | 55.4       | 60.4    | 44.2         |          |              |
| 500                 | 51.9       | 55.9    | 41.8         |          |              |
| 600                 | 45.7       | 51.4    |              |          |              |
| Limit Margin (dB) : |            |         | 5.27         | 15.30    | 15.30        |
| Frequency (MHz) :   |            |         | 464.36       | 16.99    | 16.99        |

Legend : Blue - Worst Case; Green - Average; Red - TIA and ISO/IEC Specifications; Black - LM-2000 Specification

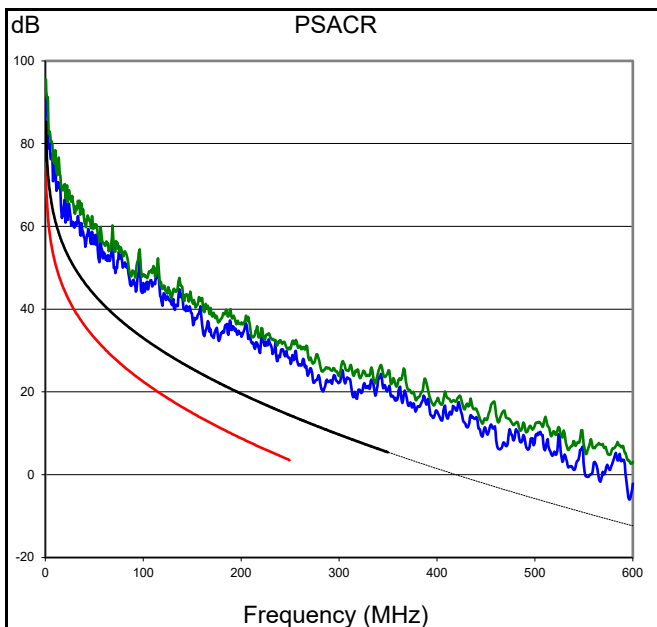
Summary

**Client** Berk-Tek LLC  
**Specifications** Berk-Tek LM-2000  
 ANSI/TIA-568.2-D, Category 6  
 ISO/IEC 11801-1, Category 6  
**Part Number** LM-2000 CMR UTP  
**Description** **Berk-Tek LM-2000 CMR**  
 4X23 UTP-CMR-Solid

**Test Started** 2/9/2022 11:29  
**Technician** Craig Williams  
**Report No.** 104239938CRT-009b  
**Length (m)** 100  
**Temperature** 22.5 °C  
**Test Status** **PASS**



| ACR                 |            |         |              |          |              |
|---------------------|------------|---------|--------------|----------|--------------|
| Freq. MHz           | Worst Case | Average | LM-2000 Spec | TIA Spec | ISO/IEC Spec |
| 1                   | 92.0       | 99.5    | 82.3         | 72.3     | N/A          |
| 4                   | 82.1       | 91.0    | 71.6         | 61.5     | 62.4         |
| 8                   | 71.6       | 82.6    | 65.6         | 55.4     | 56.4         |
| 10                  | 78.6       | 84.8    | 63.5         | 53.3     | 54.3         |
| 16                  | 65.7       | 77.4    | 58.9         | 48.7     | 49.6         |
| 20                  | 70.0       | 75.7    | 56.6         | 46.3     | 47.3         |
| 25                  | 64.1       | 74.6    | 54.1         | 43.8     | 44.8         |
| 31.25               | 62.5       | 70.5    | 51.5         | 41.2     | 42.1         |
| 62.5                | 54.9       | 62.1    | 42.4         | 32.0     | 32.9         |
| 100                 | 48.2       | 54.7    | 35.0         | 24.5     | 25.4         |
| 250                 | 30.5       | 37.4    | 16.4         | 5.5      | 6.3          |
| 350                 | 21.9       | 30.8    | 7.4          |          |              |
| 500                 | 11.7       | 18.9    |              |          |              |
| 600                 | -1.8       | 11.9    |              |          |              |
| Limit Margin (dB) : |            |         | 4.50         | 14.72    | 13.78        |
| Frequency (MHz) :   |            |         | 16.99        | 16.99    | 16.99        |



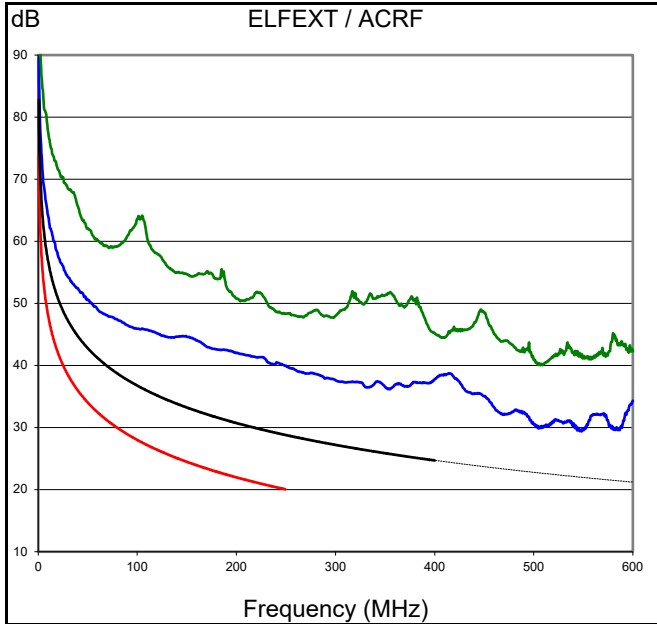
| PSACR               |            |         |              |          |              |
|---------------------|------------|---------|--------------|----------|--------------|
| Freq. MHz           | Worst Case | Average | LM-2000 Spec | TIA Spec | ISO/IEC Spec |
| 1                   | 89.9       | 92.1    | 80.3         | 70.3     | N/A          |
| 4                   | 79.9       | 83.0    | 69.6         | 59.5     | 59.4         |
| 8                   | 70.9       | 75.8    | 63.6         | 53.4     | 53.4         |
| 10                  | 76.0       | 78.4    | 61.5         | 51.3     | 51.3         |
| 16                  | 64.8       | 69.9    | 56.9         | 46.7     | 46.6         |
| 20                  | 66.5       | 70.2    | 54.6         | 44.3     | 44.3         |
| 25                  | 63.3       | 67.2    | 52.1         | 41.8     | 41.8         |
| 31.25               | 61.0       | 64.8    | 49.5         | 39.2     | 39.1         |
| 62.5                | 52.1       | 56.3    | 40.4         | 30.0     | 29.9         |
| 100                 | 46.3       | 48.2    | 33.0         | 22.5     | 22.4         |
| 250                 | 28.2       | 30.7    | 14.4         | 3.5      | 3.3          |
| 350                 | 20.3       | 24.6    | 5.4          |          |              |
| 500                 | 9.0        | 12.3    |              |          |              |
| 600                 | -2.2       | 3.1     |              |          |              |
| Limit Margin (dB) : |            |         | 5.74         | 15.95    | 16.01        |
| Frequency (MHz) :   |            |         | 16.99        | 16.99    | 16.99        |

Legend : Blue - Worst Case; Green - Average; Red - TIA and ISO/IEC Specifications; Black - LM-2000 Specification

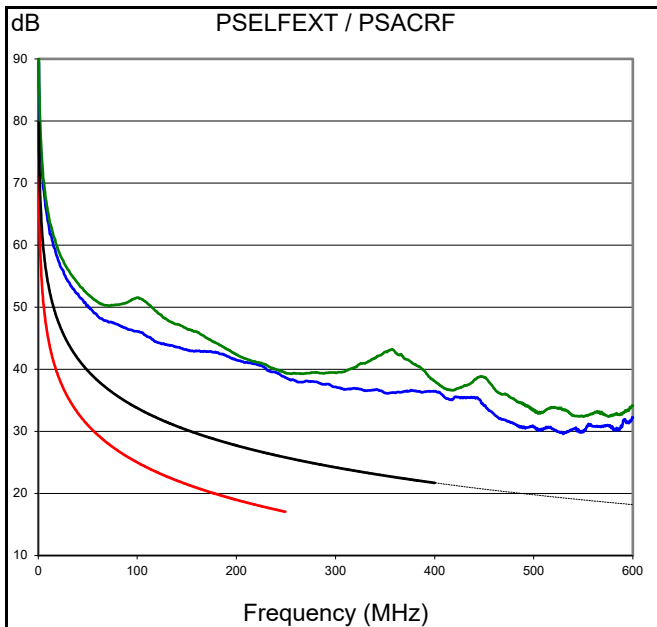
Summary

**Client** Berk-Tek LLC  
**Specifications** Berk-Tek LM-2000  
 ANSI/TIA-568.2-D, Category 6  
 ISO/IEC 11801-1, Category 6  
**Part Number** LM-2000 CMR UTP  
**Description** **Berk-Tek LM-2000 CMR**  
 4X23 UTP-CMR-Solid

**Test Started** 2/9/2022 11:29  
**Technician** Craig Williams  
**Report No.** 104239938CRT-009b  
**Length (m)** 100  
**Temperature** 22.5 °C  
**Test Status** **PASS**



| ELFEXT / ACRF       |            |         |              |          |              |
|---------------------|------------|---------|--------------|----------|--------------|
| Freq. MHz           | Worst Case | Average | LM-2000 Spec | TIA Spec | ISO/IEC Spec |
| 1                   | 82.5       | 95.0    | 76.8         | 67.8     | N/A          |
| 4                   | 71.4       | 84.6    | 64.7         | 55.8     | 56.0         |
| 8                   | 66.0       | 80.4    | 58.7         | 49.7     | 49.9         |
| 10                  | 63.9       | 77.2    | 56.8         | 47.8     | 48.0         |
| 16                  | 59.9       | 73.0    | 52.7         | 43.7     | 43.9         |
| 20                  | 57.6       | 71.6    | 50.7         | 41.8     | 42.0         |
| 25                  | 55.9       | 70.3    | 48.8         | 39.8     | 40.0         |
| 31.25               | 54.1       | 68.3    | 46.9         | 37.9     | 38.1         |
| 62.5                | 48.6       | 59.8    | 40.8         | 31.9     | 32.1         |
| 100                 | 45.9       | 63.6    | 36.8         | 27.8     | 28.0         |
| 250                 | 39.9       | 48.3    | 28.8         | 19.8     | 20.0         |
| 350                 | 36.6       | 51.3    | 25.9         |          |              |
| 500                 | 30.4       | 40.8    |              |          |              |
| 600                 | 34.4       | 42.3    |              |          |              |
| Limit Margin (dB) : |            |         | 6.81         | 15.76    | 15.56        |
| Frequency (MHz) :   |            |         | 11.74        | 11.74    | 11.74        |



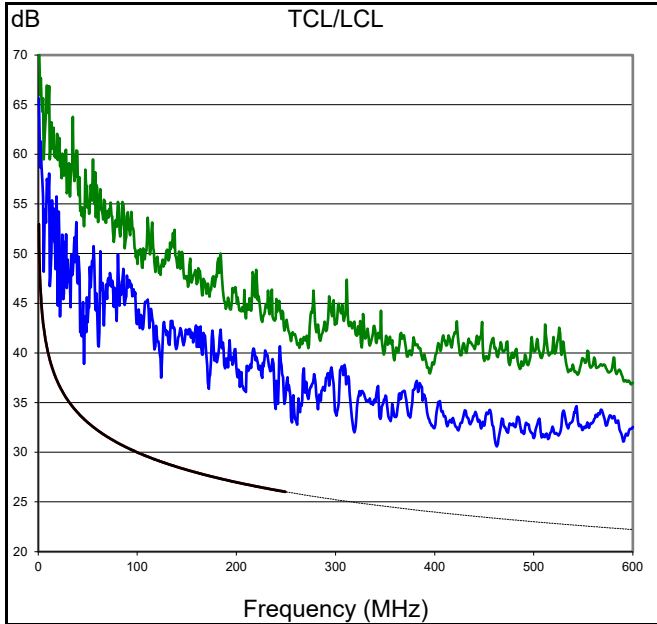
| PSELFEXT / PSACRF   |            |         |              |          |              |
|---------------------|------------|---------|--------------|----------|--------------|
| Freq. MHz           | Worst Case | Average | LM-2000 Spec | TIA Spec | ISO/IEC Spec |
| 1                   | 82.1       | 83.4    | 73.8         | 64.8     | N/A          |
| 4                   | 71.1       | 72.6    | 61.7         | 52.8     | 53.0         |
| 8                   | 65.6       | 67.1    | 55.7         | 46.7     | 46.9         |
| 10                  | 63.5       | 65.0    | 53.8         | 44.8     | 45.0         |
| 16                  | 59.5       | 61.2    | 49.7         | 40.7     | 40.9         |
| 20                  | 57.6       | 59.2    | 47.7         | 38.8     | 39.0         |
| 25                  | 55.9       | 57.5    | 45.8         | 36.8     | 37.0         |
| 31.25               | 54.0       | 55.8    | 43.9         | 34.9     | 35.1         |
| 62.5                | 48.2       | 50.5    | 37.8         | 28.9     | 29.1         |
| 100                 | 46.1       | 51.5    | 33.8         | 24.8     | 25.0         |
| 250                 | 38.7       | 39.4    | 25.8         | 16.8     | 17.0         |
| 350                 | 36.2       | 42.8    | 22.9         |          |              |
| 500                 | 30.6       | 33.3    |              |          |              |
| 600                 | 32.3       | 34.1    |              |          |              |
| Limit Margin (dB) : |            |         | 9.45         | 18.40    | 18.20        |
| Frequency (MHz) :   |            |         | 11.74        | 11.74    | 11.74        |

Legend : Blue - Worst Case; Green - Average; Red - TIA and ISO/IEC Specifications; Black - LM-2000 Specification

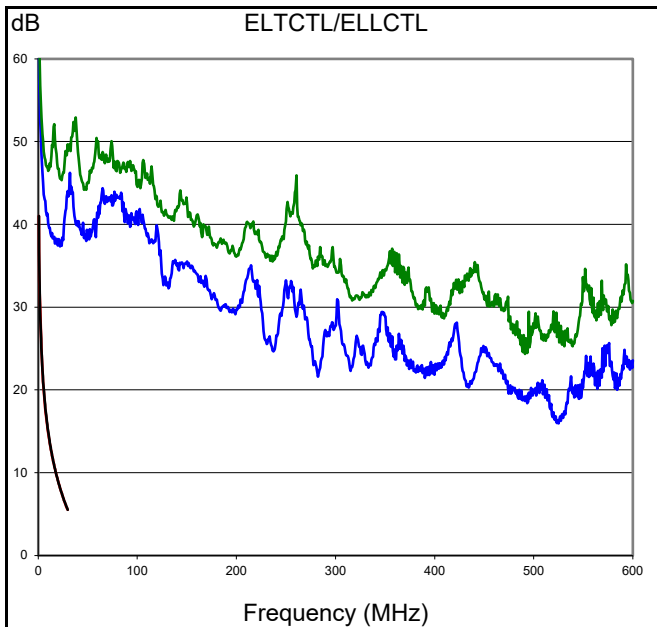
Summary

**Client** Berk-Tek LLC  
**Specifications** Berk-Tek LM-2000  
 ANSI/TIA-568.2-D, Category 6  
 ISO/IEC 11801-1, Category 6  
**Part Number** LM-2000 CMR UTP  
**Description** **Berk-Tek LM-2000 CMR**  
 4X23 UTP-CMR-Solid

**Test Started** 2/9/2022 11:29  
**Technician** Craig Williams  
**Report No.** 104239938CRT-009b  
**Length (m)** 100  
**Temperature** 22.5 °C  
**Test Status** **PASS**



| TCL/LCL             |            |         |              |          |              |
|---------------------|------------|---------|--------------|----------|--------------|
| Freq. MHz           | Worst Case | Average | LM-2000 Spec | TIA Spec | ISO/IEC Spec |
| 1                   | 63.9       | 70.3    | 50.0         | 40.0     | 50.0         |
| 4                   | 57.2       | 64.3    | 44.0         | 40.0     | 44.0         |
| 8                   | 53.1       | 64.0    | 41.0         | 40.0     | 41.0         |
| 10                  | 55.3       | 64.2    | 40.0         | 40.0     | 40.0         |
| 16                  | 51.2       | 59.8    | 38.0         | 38.0     | 38.0         |
| 20                  | 44.8       | 59.4    | 37.0         | 37.0     | 37.0         |
| 25                  | 45.4       | 59.4    | 36.0         | 36.0     | 36.0         |
| 31.25               | 47.5       | 59.1    | 35.1         | 35.1     | 35.1         |
| 62.5                | 50.2       | 56.5    | 32.0         | 32.0     | 32.0         |
| 100                 | 42.9       | 48.9    | 30.0         | 30.0     | 30.0         |
| 250                 | 35.4       | 42.7    | 26.0         | 26.0     | 26.0         |
| 350                 | 35.3       | 40.2    |              |          |              |
| 500                 | 31.4       | 40.2    |              |          |              |
| 600                 | 32.6       | 37.0    |              |          |              |
| Limit Margin (dB) : |            |         | 5.56         | 5.56     | 5.56         |
| Frequency (MHz) :   |            |         | 46.21        | 46.21    | 46.21        |



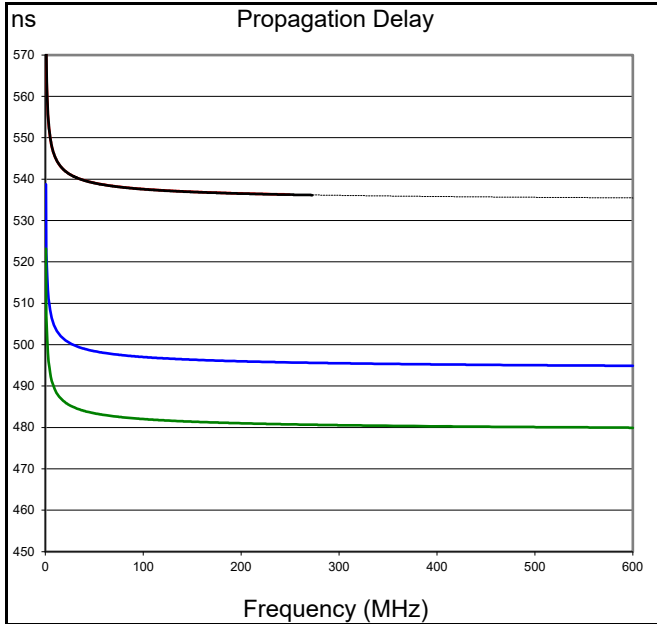
| ELTCTL/ELLCTL       |            |         |              |          |              |
|---------------------|------------|---------|--------------|----------|--------------|
| Freq. MHz           | Worst Case | Average | LM-2000 Spec | TIA Spec | ISO/IEC Spec |
| 1                   | 57.6       | 62.1    | 35.0         | 35.0     | 35.0         |
| 4                   | 46.3       | 50.9    | 23.0         | 23.0     | 23.0         |
| 8                   | 41.6       | 47.2    | 16.9         | 16.9     | 16.9         |
| 10                  | 40.1       | 46.5    | 15.0         | 15.0     | 15.0         |
| 16                  | 38.5       | 52.1    | 10.9         | 10.9     | 10.9         |
| 20                  | 37.5       | 46.7    | 9.0          | 9.0      | 9.0          |
| 25                  | 38.1       | 46.3    | 7.0          | 7.0      | 7.0          |
| 31.25               | 43.8       | 49.4    |              |          |              |
| 62.5                | 42.6       | 48.4    |              |          |              |
| 100                 | 41.1       | 44.5    |              |          |              |
| 250                 | 32.7       | 40.0    |              |          |              |
| 350                 | 28.9       | 34.5    |              |          |              |
| 500                 | 19.6       | 27.4    |              |          |              |
| 600                 | 23.6       | 30.8    |              |          |              |
| Limit Margin (dB) : |            |         | 23.47        | 23.47    | 23.47        |
| Frequency (MHz) :   |            |         | 2.00         | 2.00     | 2.00         |

Legend : Blue - Worst Case; Green - Average; Red - TIA and ISO/IEC Specifications; Black - LM-2000 Specification

Summary

**Client** Berk-Tek LLC  
**Specifications** Berk-Tek LM-2000  
 ANSI/TIA-568.2-D, Category 6  
 ISO/IEC 11801-1, Category 6  
**Part Number** LM-2000 CMR UTP  
**Description** **Berk-Tek LM-2000 CMR**  
 4X23 UTP-CMR-Solid

**Test Started** 2/9/2022 11:29  
**Technician** Craig Williams  
**Report No.** 104239938CRT-009b  
**Length (m)** 100  
**Temperature** 22.5 °C  
**Test Status** **PASS**



| Propagation Delay   |            |         |              |          |              |
|---------------------|------------|---------|--------------|----------|--------------|
| Freq. MHz           | Worst Case | Average | LM-2000 Spec | TIA Spec | ISO/IEC Spec |
| 1                   | 522.2      | 507.0   | 570.0        | 570.0    | N/A          |
| 4                   | 509.6      | 494.4   | 552.0        | 552.0    | 552.0        |
| 8                   | 505.4      | 490.3   | 546.7        | 546.7    | 546.7        |
| 10                  | 504.1      | 489.0   | 545.4        | 545.4    | 545.4        |
| 16                  | 502.0      | 486.9   | 543.0        | 543.0    | 543.0        |
| 20                  | 501.2      | 486.1   | 542.0        | 542.0    | 542.0        |
| 25                  | 500.4      | 485.3   | 541.2        | 541.2    | 541.2        |
| 31.25               | 499.7      | 484.7   | 540.4        | 540.4    | 540.4        |
| 62.5                | 497.9      | 482.9   | 538.6        | 538.6    | 538.6        |
| 100                 | 497.0      | 482.0   | 537.6        | 537.6    | 537.6        |
| 250                 | 495.7      | 480.8   | 536.3        | 536.3    | 536.3        |
| 350                 | 495.4      | 480.4   | 535.9        |          |              |
| 500                 | 495.0      | 480.1   | 535.6        |          |              |
| 600                 | 494.9      | 480.0   |              |          |              |
| Limit Margin (dB) : |            |         | 40.56        | 40.56    | 40.56        |
| Frequency (MHz) :   |            |         | 170.61       | 170.61   | 170.61       |

| Delay Skew |            |              |          |              |
|------------|------------|--------------|----------|--------------|
| Freq. MHz  | Worst case | LM-2000 Spec | TIA Spec | ISO/IEC Spec |
| 1-250      | 29.15      | 35           | 45       | 45           |

| Low frequency measurements   |            |         |         |        |        |        |         |        |
|--|------------|---------|---------|--------|--------|--------|---------|--------|
| Parameter  | Worst Case | Average | LM-2000 |        | TIA    |        | ISO/IEC |        |
|  |            |         | Spec    | Margin | Spec   | Margin | Spec    | Margin |
| Mutual capacitance (nF/100m)   | 4.74       | 4.57    | 5.60    | 0.86   | 5.60   | 0.86   | N/A     | N/A    |
| Maximum Capacitance Unbalance Pair-to-Ground (pF/100m)                 | 10.35      | 4.29    | 160.00  | 149.65 | 330.00 | 319.65 | 160.00  | 149.65 |
| Conductor DC resistance (Ω)  | 7.39       | 7.33    | 9.38    | 1.99   | 9.38   | 1.99   | 9.50    | 2.11   |
| DC Resistance Unbalance within a pair (%) using IEC calculation method | 0.19%      | 0.10%   | 1.50%   | 1.31%  | 2.50%  | 2.31%  | 2.00%   | 1.81%  |

Legend : Blue - Worst Case; Green - Average; Red - TIA and ISO/IEC Specifications; Black - LM-2000 Specification