BELDEN
SENDING ALL THE RIGHT SIGNALS

Technical Bulletin

TB 101E

Belden exceeds the standards by delivering Installable Performance® and extending sweep testing of Brilliance® Precision Video Cables to 4.5 GHz, paving the way for 1080P HDTV/SDI format.

Belden Exceeds the Standards

Brilliance® broadcast video coaxes are designed for maximum bandwidth, minimum return loss and minimum attenuation loss. These cables already meet the very tight specifications for electrical properties and are ideally suited for both analog and digital video in broadcast, post-production and other critical video applications.

Belden Extends Sweep Testing to 4.5 GHz

Now Brilliance® broadcast video coaxes' performance specifications are extended from 3 GHz to 4.5 GHz. Every reel is sweep tested for return loss and certified to the new, higher frequency. This extension is designed to (re)assure broadcasters, leading edge broadcast equipment manufacturers and the standards bodies that Belden delivers performance and reliability, as they begin to migrate from the existing 1080i (interlaced) HD format to the emerging 1080p (progressive) format, protocols and equipment, which require twice the bandwidth of 1080i.

Belden is the first cable manufacturer to perform sweep testing and certification to meet this emerging format.

Requirements for 1088i vs. 1080p Line Formatting and Transmission Protocols:

Line Format	Image Resolution	Frames per Second	HDTV/SDI Video Operating Frequenzy	Test Frequency
1080i	1920 x 1080 pixels	60 interlaced	0.743 GHz	2.25 GHz
1080p	1920 x 1080 pixels	60 complete	1.485 GHz	4.5 GHz

Recent Sports Events brought HD to Europe

Recent international sports events' global coverage brought HD to Europe and include:

- Winter Olympics, Turin, Italy
- Commonwealth Games, Melbourne, Australia
- Football World Cup, Germany
- Athletics European Cup, Sweden
- Basketball World Cup, Japan
- Asian Games, Doha, Qatar

Several of these key sporting events attracted a huge global viewing audience and some, such as the 2006 Football World Cup, were broadcast worldwide in High Definition (HD) for very the first time. Leading-edge technology brought superior image quality stimulating a growing, and chosen interest around the world for HDTV viewing experience. With every major broadcaster looking to transmit at least one HD feed, the 2006 football tournament became the springboard for HD broadcasting worldwide setting standards and challenging the broadcaster to continue to meet and exceed viewer expectations in the future.

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Installable Performance®

Positive Test for Brilliance® Broadcast Video Coaxes

An independent test laboratory took an in-depth look at the HD performance of the video coaxes used in TV studios. Cables were tested for return loss, attenuation and maximum cable run on HD (1080i and 720p).

The most popular precision video coaxial cables for HDTV/SDI, Belden Brilliance® 179DT, 1855A, 1505A, 1505F, 1694A and 7731A were subjected to extended testing. In the end results all Belden products delivered performance values that are exceeding the standards.

Maximum Transmission Distance at Serial Digital Data Rates

Data Rate:	143 Mb/s		177 Mb/s		270 Mb/s		360 Mb/s		540 Mb/s		1.5 Gb/s		1.5 Gb/s			3.0 Gb/s	
Spec:	SMPTE 259M		ITU-R BT.601		SMPTE 259M		SMPTE 259M		SMPTE 344M		SMPTE 292M		Independent Test*			SMPTE 292M	
Application:	Composite NTSC		Composite PAL		Component Video		Component Widescreen		Component Widescreen		HDTV		HDTV			Prog. Scan HDTV	
Part No.:	ft.	m	ft.	m	ft.	m	ft.	m	ft.	m	ft.	m	ft.	m		ft.	m
179DT	500	152	450	137	380	116	340	104	280	85	110	34	132	40	+6	80	24
1855A	980	299	950	290	790	241	680	207	560	171	260	79	263	80	+1	150	46
1505A	1430	436	1360	415	1110	338	970	296	790	241	310	94	394	120	+26	220	67
1505F	1200	366	1071	327	857	261	732	223	588	179	225	69	328	100	+31	–	–
1694A	1880	573	1710	521	1430	436	1240	378	1010	308	400	122	459	140	+18	270	82
7731A	2750	838	2480	756	2040	622	1760	536	1430	436	550	168	656	200	+32	360	110

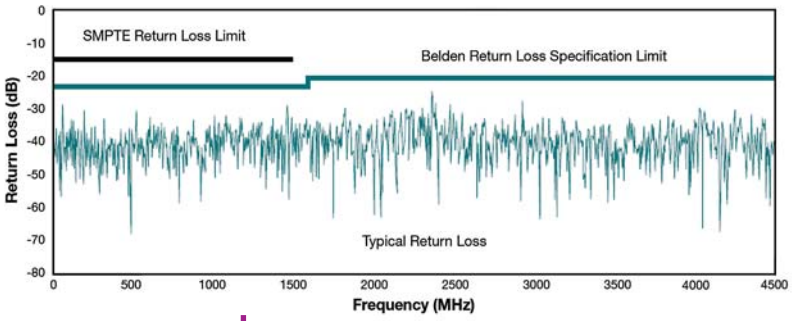
* more details available

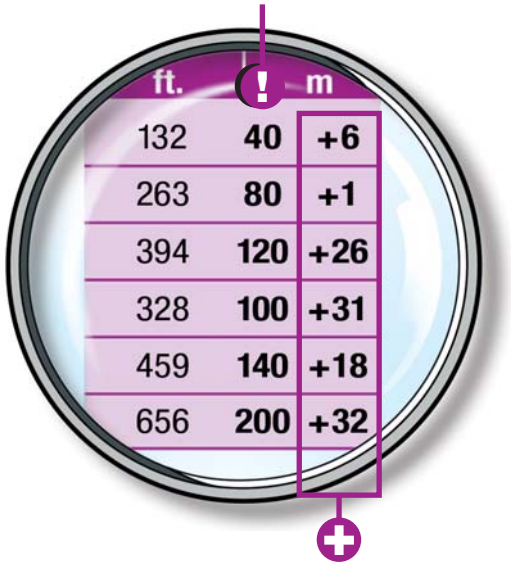
SMPTE 292M

New Test Results

The verdict:
BELDEN exceeds the listed values (SMPTE 292M).

Return Loss Headroom (1694A)





The key advantage:
Higher performance – Longer distances

There is no Equal!