

0.6/2.8AF

Videokabel 75 Ω



Einsatzgebiete

Composite, Componente, SDI, SDV, SDTI, HDTV

Flammwidrigkeit

- PVC: nicht für feste Verlegung in Gebäuden geeignet (no apto para instalación fija en edificios)
FRNC: IEC 60332-1; IEC 60754-2; IEC 61034 Class Eca
FRNC-C: zusätzlich IEC 60332-3-24 Class Dca (adicionalmente IEC 60332-3-24 Clase Dca)
FRNC-CC: zusätzlich IEC 60332-3-25 Class Dca (adicionalmente IEC 60332-3-25 Clase Dca)

Kabelaufbau

Leiter	Cu-Draht, massiv, blank, Durchmesser 0,6 mm
Isolierung	Geschäumtes PE, naturfarben, Durchmesser 2,8 mm
Gesamtschirm	Aluminium-beschichtete Kunststoffolie, längslaufend mit darüberliegendem, verzinnnten CU-Geflecht, Durchmesser 3,4 mm
Schutzmantel	FRNC oder PVC, Durchmesser 4,5 mm
Mantelfarbe	Grün, RAL 6018
Bedruckung	für FRNC: DRAKA - 0.6/2.8 AF - 75 Ω ± 1% - HDTV FRNC für PVC: DRAKA - 0.6/2.8 AF - 75 Ω ± 1% - HDTV

Mechanische Eigenschaften

Biegeradien	ohne Zugbelastung	≥ 25 mm
	mit Zugbelastung	

Elektrische Eigenschaften

bei 20°C

Schirmungsmaß	dB	> 100
Verkürzungsfaktor	%	78
Innenleiter	Ω/km	61
Außenleiter	Ω/km	17
Wellenwiderstand	Ω	(75 ± 0,75)
Kapazitätsbelag	pF/m	52.8
Rückflusdämpfung nominal	50 - 300 MHz	> 26 dB
	300 - 3000MHz	> 22 dB
	3000 - 3500MHz	> 18dB
	3500 - 5000MHz	> 15dB

0.6/2.8AF

Elektrische Daten (nominal)

bei 20°C

Dämpfung	1 MHz	dB/100m	1,1
	3 MHz	dB/100m	1,9
	5 MHz	dB/100m	2,4
	10 MHz	dB/100m	3,1
	30 MHz	dB/100m	5,4
	100 MHz	dB/100m	10,5
	200 MHz	dB/100m	14,8
	300 MHz	dB/100m	17,9
	500 MHz	dB/100m	23,1
	800 MHz	dB/100m	29,3
	1000 MHz	dB/100m	32,8
	1500 MHz	dB/100m	40,4
	2250 MHz	dB/100m	49,8
	3000 MHz	dB/100m	59,3
	3500 MHz	dB/100m	66,3
	4000 MHz	dB/100m	71,5
	4500 MHz	dB/100m	77,0
	5000 MHz	dB/100m	82,8

Atencion. - Según última revisión la atenuación a 1.000Mhz es de 32dB y 2.000Mhz es de 47Db

Conductor de cobre pulido rígido y con triple pantalla que garantice una cobertura del 100% y más de 100dB de atenuación frente a interferencias de naturaleza electromagnética.

Cable coaxial de video digital que soporte al menos los siguientes formatos:

- Formato estándar SD-SDI/SDTV hasta 107m.
- Formato de Alta Definición HD-SDI/HDTV hasta 116m.
- Formato de 3G-SDI/ HDTV hasta 90m.
- Formato de 12G-SDI/UHD/4K hasta 30m.
- Igualmente deberá soportar todos los estándares anteriores a éstos.

Deberá cumplir la normativa Rohs, así como la norma IEC 60332-3-25

Atenuación máxima de 32 dB a 1.000 MHz, 47 dB a 2.000Mhz.

Prestaciones seguridad según la CPR: Cca s1a,d0,a1. según EN50575

Capacidad Nominal: 54.52 PF/m.

Máxima Tensión de trabajo: 300 V.

Se suministrará en **bobinas de 500 metros.**

COAXIAL CABLE

Four main components

- Inner Conductor d
- Dielectric D
- Shield
- Outer Jacket

Characteristic Impedance (Z)

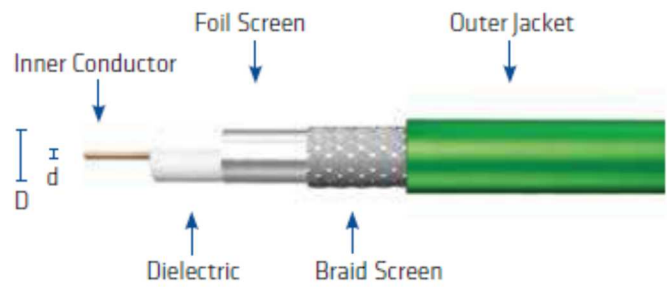
- 50 Ω for RF
- 75 Ω for Video and Community Antenna TV (CATV)

Foaming

- Chemical
- Physical

Skin Effect

- Current flows on the surface of the conductor at the high frequencies
- Reduces effective conductor area



$$Z = \frac{60}{\sqrt{\epsilon_r}} \ln \frac{D}{d}$$

Z = Characteristic Impedance

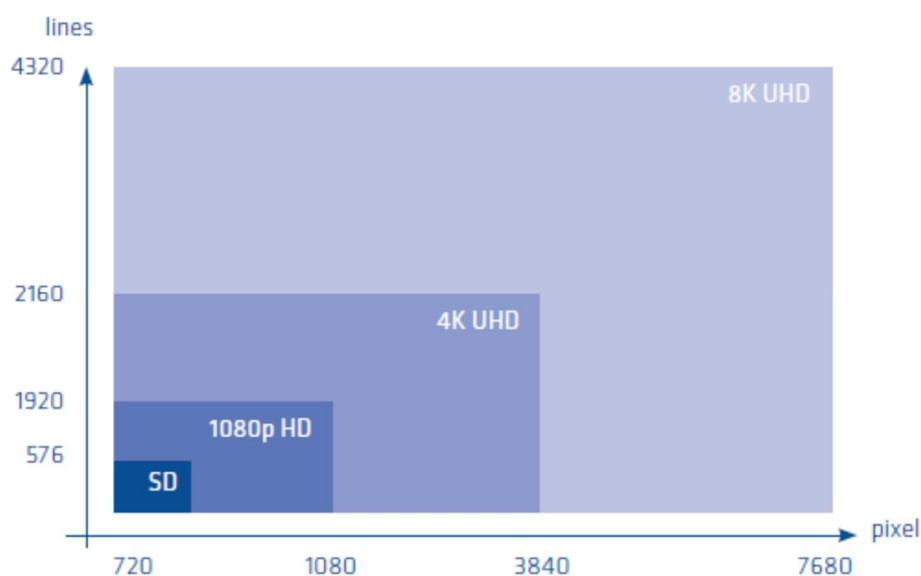
ϵ_r = Relative permittivity of the dielectric

D = Inner Diameter of the outer conductor, mm

d = Diameter of the inner conductor, mm

SIGNAL TYPES

Signal types			
720p	1080p	1080i	4K (2160p)
HD-SDI	HD-SDI	FULL HD	UHD
1280x720 pixel	1920x1080 pixel	1920x1080 pixel	3840x2160 pixel
SMPTE 292M (1.5G-SDI)	SMPTE 424M (3G-SDI)	SMPTE 292M (1.5G-SDI)	SMPTE ST 2082-1 (12G-SDI)
20 dB/100 m max.	20 dB/100 m max.	20 dB/100 m max.	40 dB/100 m max.



RESOLUTION 4K

3840 x 2160 progressive scan, the bit rate is 12Gb/s.
The high bandwidth of 12 Gb/s (4 times 3G /1080p) reduces the transmission length dramatically.

Three different 4K solutions for broadcast production are in discussion:

1. Single link (1x12Gb/s, 1/2 clock frequency = 6GHz)
2. Dual link (2x6Gb/s, 1/2 clock frequency = 3GHz)
3. Quad link (4x3Gb/s, 1/2 clock frequency =1.5GHz)

The dual link and quad link solutions will solve the issue with the high bandwidth for new installation. To know the 4K situation of an existing broadcast infrastructure, we have to look at the single solution.



MATRIX TO DETERMINE MAX. TRANSMISSION LENGTH

Draka Video Cables	SDI/SDV SMPTE 259M 270Mbit/s	720p/1080i SMPTE 292M 1.5Gbit/s	1080p SMPTE 424M 3Gbit/s	Quad Link SMPTE ST 208i 3Gbit/s	Dual Link SMPTE ST 208i 6Gbit/s	Single Link SMPTE ST 208i 12Gbit/s
Max. Attenuation	30dB	20dB	20dB	40dB	40dB	40dB
0.41/1.9AF	127	44	33	65	45	31
0.6/2.8AF	227	66	47	94	65	45
0.65/2.8AF C _{ca}	258	70	49	99	66	46
0.8/3.7AF	315	89	63	125	87	60
0.8L/3.7Dz	263	67	49	89*	58*	40*
1.0/4.8AF	386	109	75	151	104	70
RG6 C _{ca}	404	111	76	151	104	70
1.0L/4.8Dz	285	80	51	92*	61*	43*
1.2L/4.8Dz	323	94	63	113*	74*	50*
1.4/5.8AF UHD	566	154	103	205	140	95
1.4/6.6AF	566	154	105	211	144	96
RG11 C _{ca}	654	171	119	237	149	97
1.6/7.3AF	662	175	118	236	152	107
HD PRO 0.6/2.8 AF	258	70	51	99	66	46
HD PRO 0.8/3.7 AF	327	90	64	127	86	56
HD PRO 1.0/4.8 AF	424	115	80	160	107	71
UHD 50	258	74	50	102	72	49
UHD 100	487	127	91	182	129	87
UHD 150	744	210	144	288	197	141
1.2/5.0 UHD Flex	438	116	80	144*	98*	62*

*Patch/Flex cables with head room

The maximum transmission distances are based on the maximum loss at half frequency mentioned in the corresponding specification. Today's devices use equalizers mainly designed for 20dB loss (see SMPTE 292M and SMPTE 424M).For the technical realization it is essential to check the equipment e.g. equalizers if they are suitable for the maximum values

1. VIDEO CABLES 75 Ω

In the Broadcast industry, the following cable constructions are used to transmit video content:

- Installation cables: coaxial 75 Ω , foam PE dielectric, foil and braid
- Patch cables: coaxial 75 Ω , foam PE dielectric, two braids

Standard Installation video cables portfolio:

- 041/1.9AF
- 0.6/2.8AF
- 0.65/2.8AF C_{Ca} s1a d1 /Mini RG59
- 0.8/3.7AF
- 1.0/4.8AF
- RG6 C_{Ca} s1a d1 (1.0/4.8AF)
- 1.4/6.6AF
- 1.6/7.3AF
- RG11 C_{Ca} s1a d1 (1.6/7.3AF)
- UHD 50
- UHD 100

Video patch:

- 0.8L/3.7Dz
- 1.0/4.8Dz
- 1.2L/4.8Dz



Today's broadcasters' infrastructure is designed for 720p, 1080i or even 1080p video content. The important question for broadcasters is what will be the future content and will it affect my infrastructure.

For example, the typical infrastructure of an outside broadcast truck is the coaxial cable 0.6/2.8AF. For a stadium it is the coaxial 1.4/6.6AF or 1.6/7.3AF.

Video content 1.5G:

The HD-SDI signal is defined by SMPTE292M. This content is like the SDI signal an uncompressed component signal, serial transmitted via one coaxial cable. The resolution of 1080i is 1080 lines x 1920 pixel. The resolution of 720p is of course 720 lines x 1280 pixel and the bit rate is 1.485Gbit/s. Based on the SMPTE 292M specification a maximum transmission distance of an 0.6/2.8AF is 70m plus a headroom. Practical tests showed 90m.

Video content 3G:

The HD-SDI signal is defined by SMPTE424M. The resolution is 1080 lines x 1920 pixel, the scan is progressive; the bit rate is 3Gbit/s. Identical to SMPTE292M, the maximum transmission length is specified at maximum 20dB attenuation at half clock frequency. Based on these key points, the maximum transmission distance of a 0.6/2.8AF network is 47m plus headroom, practical test 80m.

Looking at the next generation of possible video contents we would like to look at 4K.