

A Brand of Prysmian Group

0.8/3.7AF Video Cable 75 Ω

STUDIO BROADCAST AND EVENT

Standards

For analogue and digital video signals (Composite, Component, SDI, SDV, SDTI, HDTV, 4K, SMPTE 259M, SMPTE 292M, SMPTE 424M, SMPTE 2082)

Flame resistance

PVC	Not for fixed installation in construction works
FRNC	IEC 60332-1, IEC 60754, IEC 61034, Class E _{ca} s1 d1 a1
FRNC-C	additionally IEC 60332-3 -24, Class D _{ca} s1 d1 a1

Construction

Inner conductor	solid copper wire, bare, diameter 0.8 mm
Insulation	Foam-PE, diameter 3.7 mm
Outer conductor	Al-PET-Al-foil under tinned copper braid, diameter 4.5 mm
Sheath	FRNC, FRNC-C or PVC, diameter 5.9 mm, green RAL 6018
Printing	DRAKA - 0.8/3.7 AF - 75 Ω ± 1%

Electrical data at 20°C (nominal)

Attenuation (dB/100m)		Return loss (dB)	
Frequency (MHz)		Frequency (MHz)	
1	0.9	50 - 300	≥ 26
5	1.9	300 - 3000	≥ 22
10	2.5	3000 - 3500	≥ 18
100	8.2	3500 - 6000	≥ 15
200	11.2	6000 - 12000	≥ 15
750	22.5		
1000	25.5		
1500	32.0		
3000	45.9		
6000	67.1		
9000	82.2		
12000	94.9		

Product Code Table

Product Description	PG Reference Code	PG Part Number
DR 0.8/3.7AF FRNC-C blue	60011524	60011524
DR 0.8/3.7AF FRNC-C green	60011526	60011525
DR 0.8/3.7AF FRNC-C black	60014456	60014459
DR 0.8/3.7AF FRNC-C blue	60011524	60014463
DR 0.8/3.7AF FRNC-C violet	60011523	60014467
DR 0.8/3.7AF PVC blue	60011501	60021890
DR 0.8/3.7AF PVC yellow	--	60026072
DR 0.8/3.7AF PVC orange	60011500	60011500
DR 0.8/3.7AF PVC green	60011502	60013908
DR 0.8/3.7AF PVC violet	60009199	60013914
DR 0.8/3.7AF PVC black	60013915	60013918
DR 0.8/3.7AF PVC red	60013919	60013919

COAXIAL CABLE



Four main components

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

Characteristic Impedance (Z)

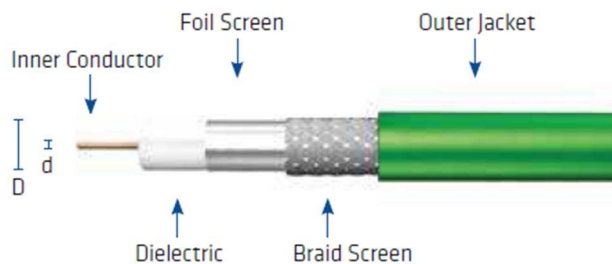
- 50 Ω for RF
- 75 Ω for Video and Community Antenna TV (CATV)

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

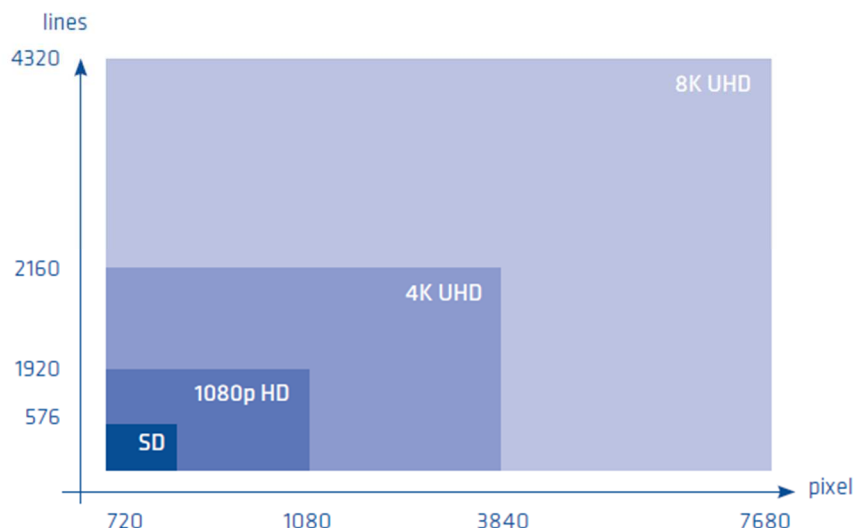
d = Diameter of the inner conductor, mm

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.

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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.



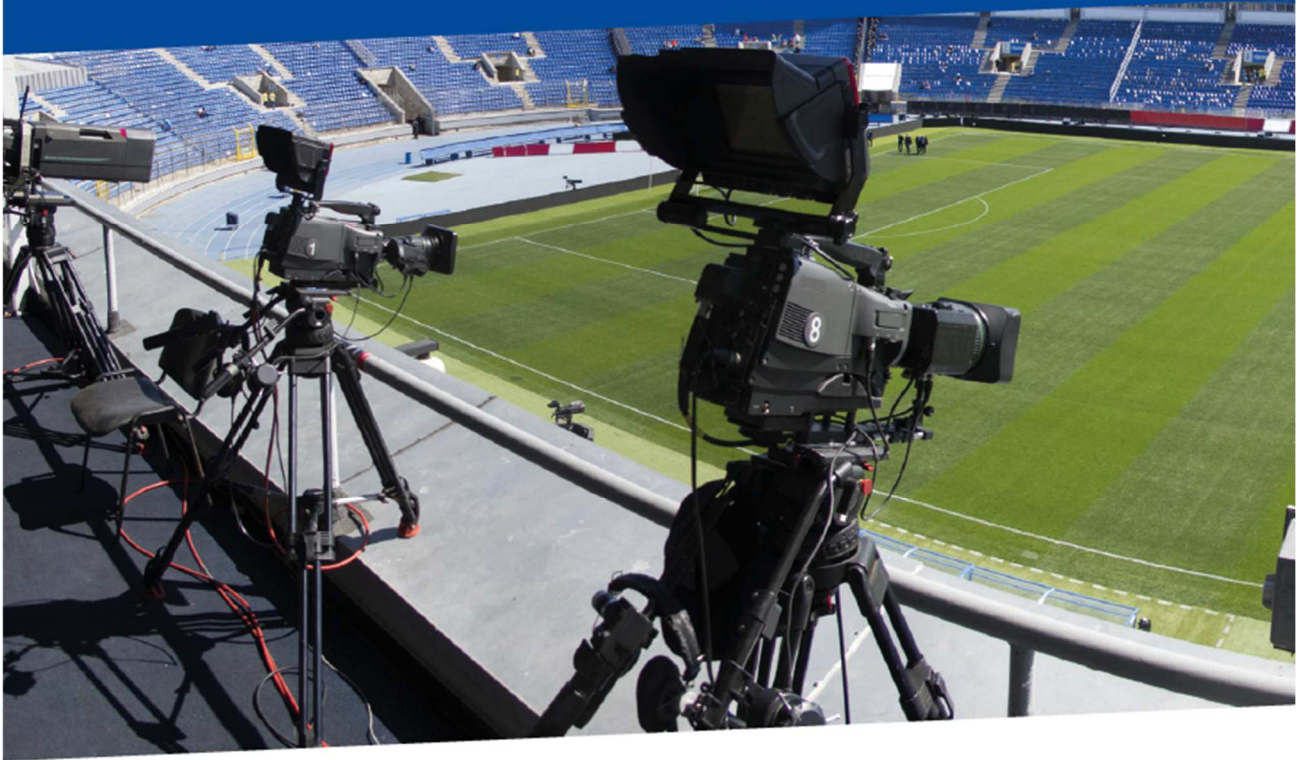
MATRIX TO DETERMINE MAX. TRANSMISSION LENGTH

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 2081 3Gbit/s	Dual Link SMPTE ST 2081 6Gbit/s	Single Link SMPTE ST 2081 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

MAXIMUM TRANSMISSION DISTANCE AT 12GB/S UHD (4K)



Coaxial cables for UHD (4K) use.

With the increasing demand for bandwidth in the broadcasting field, studios and broadcasters realized that many cables are not suitable for UHD. The practical test is a guide and tool to determine the calculated and maximum transmission distance for 12Gb/s UHD (4K).

The SMPTE ST2082 and the calculated transmission distance of 4K



Compared to 1.5Gb/s (SMPTE 292M) and 3Gb/s (SMPTE 424M) the calculation of the max. length at 12Gb/s is different: 40dB max. loss at half clock frequency (SMPTE 292M and 424M = 20dB max. loss at half clock frequency)