We make communication technology work, by serving you in every way to realize your leading edge network solution

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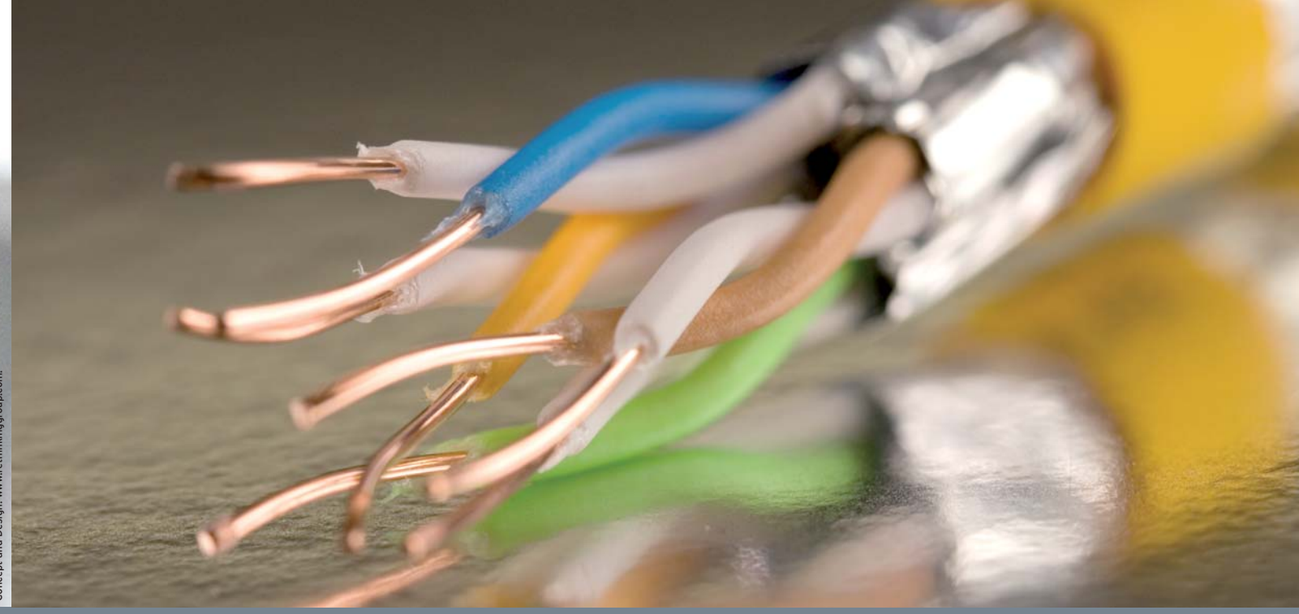
www.draka.com

We are an equal opportunity employer

Draka



Be ready for the future: Draka Office Network Solution

Modern networks face stiff demands. They must be fast and reliable, resist fire and not interfere with other equipment.

Draka Office Network

UC Data Cable – a fast, reliable and ubiquitous part of the **Draka Office Network Solution**

Draka

About Draka Communication

In a nutshell, we believe that connectivity helps make life at home, work and on teh move better and more rewarding.
That's why we are proud of the role we play in developing, manufacturing and building teh network that brings people, data and systems together. All over the world, we provide the backbone for today's communication solutions.
And tomorrow's, too. How do we do this? On the one hand, we combine market insight with technological know-how, on the other we build strong, long-lasting relationships with our customers. In this way, we can help you and your customers to stay ahead, enhancing connectivity with advanced office network solutions and services that are designed to last.

Cable concepts with future prospects

For many decades, we have been designing, developing, manufacturing and selling a variety of high-quality copper and optical fibre cables in order to offer you cable solutions for present and future challenges – let it be standard products or tailor-made special cables.

In the communication infrastructure, our well proven products are always in use wherever it is a question of professional and undisturbed data, voice, audio and video transmission.

The range of Universal Cables as described in this brochure has been designed for data transmission and offers a high-capacity and flexible cable concept with best future prospects to our customers from within the industry, trade and service sector.

High speed
The demands on modern networks are very high. Speed and transmission reliability are of utmost priority. In this respect, Gigabit Ethernet offers an enormous potential for the future.

For many years, we have been a partner to companies from within the industry, trade and service sector. Thus we are well aware of our customers' needs.

Planning reliability is an important factor for you and for us, as today's cable concepts must also meet the requirements of tomorrow's developments. The Universal Cable range of Draka Comteq has the physical potential to support structured networking for future requirements.

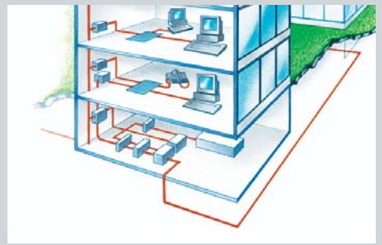
Our product range (Cat.5e, Cat.6, Cat.7 and multimedia cables) has been adjusted to a variety of applications and allows highest transmission ratios. For high-end applications, our UC900 up to UC1500 series offer important reserve capacity. Our cable series have been designed to also allow cable sharing between all categories on the level of the lower category.

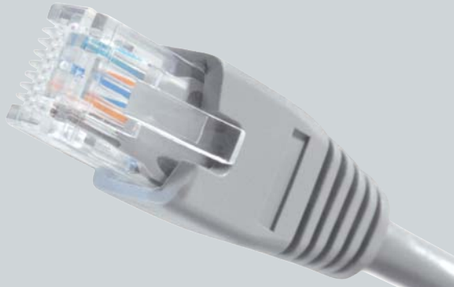
Flexibility
Our high-quality UC cables are always in use wherever it is a question of high-speed data transmission in local networks (LAN). They are used for standardized and manufacturer-independent networks – e.g. Token Ring, Ethernet, ISDN, TPDDI, Fast Ethernet 1000BaseT or 10GbE.

Aside from voice and data communication, our solutions are also applicable for video communication. Among others, our product range comprises installation and patch cables which have been tested as to their compatibility with common components. Thus, we can guarantee maximum transmission reliability.

Free choice
The right equipment for all applications: Whether high transmission capacity, electromagnetic compatibility (EMC) or best fire retardancy characteristics: We can offer the optimum data cable for every application.
All our products are certainly manufactured at the highest quality standards. And it is no question that we will be pleased to advise you as to the installation. Short delivery times and best service guaranteed.

Types	Frequency MHz	EN 50173	ISO/IEC 11801 2 ed
UC300	100	Cat 5e Class D	Cat 5e Class D
UC400	250	Cat 6 Class E	Cat 6 Class E
UC500	500	Cat 6a Class Ea	Cat 6a Class Ea
UC900	600	Cat 7 Class F	Cat 7 Class F
UC1000	1000	Cat 7a Class Fa	Cat 7a Class Fa
UC1200	1200	Cat 7+	Cat 7+
UC1500	1500	Multimedia	Multimedia





Cabling for future requirements

The data transmission according to Gigabit-Ethernet 1000BaseT is based on a "full-duplex principle" – i.e. via all cable pairs at the same time and parallel in both directions (bi-directional). This results in numerous closely tolerated transmission characteristics for cabling in future requirements. The most important characteristics for the future are: PS-NEXT, PS-ELFEXT and PS-ACR.

Convincing PowerSum

The major reason for interference in local networks is the NEXT (Near End Crosstalk). This effect is caused by mutual influence (coupling) of pairs next to each other.

The higher the transmission performance the stronger the interference. In modern network applications being based on a bi-directional data transmission, the interference increases. Power Sum (PS) values can be calculated for all relevant characteristics. In times of high data rates they allow indications of the performance and transmission capabilities of a data cable.

For example, a high PS-NEXT is important for users. Due to the core stranding and the patented foil screening, the high-end cables of our UC1500 series reach values being nearly 30 dB better than required by the CAT 7 standard. These resources are also for your benefit.

Standards

The received signal is decisive for all high-speed networks. Here, the FEXT (Far End Crosstalk) measures the crosstalk at the receiver. Due to the cable attenuation, the FEXT is substantially lower than the NEXT.

The more meaningful characteristics ELFEXT (Equal Level Far End Crosstalk) for the transmission performance can be obtained by deducting the insertion loss from the FEXT value. The resultant PowerSum then is PS-ELFEXT.

How can **we** help **you** build your network?

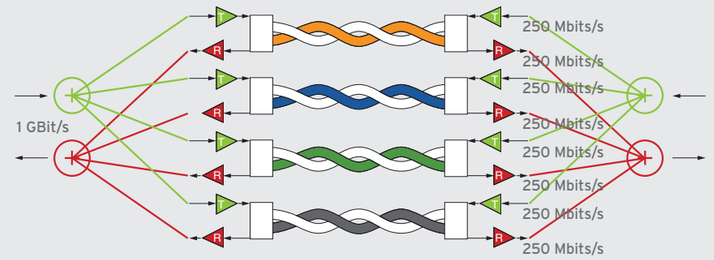
Undisturbed signals

The chart shows the inference caused by NEXT and FEXT under realistic conditions and with full utilisation of Gigabit Ethernet. A transfer of information is only possible when the encoded data can be recognised, i.e. the attenuated signal at the receiver must be considerably stronger than the constant interference signal NEXT. Only the application of data cables with optimum channel separation protects against unintended inference and thus represents the condition for the full utilisation of the advantages of modern network application.

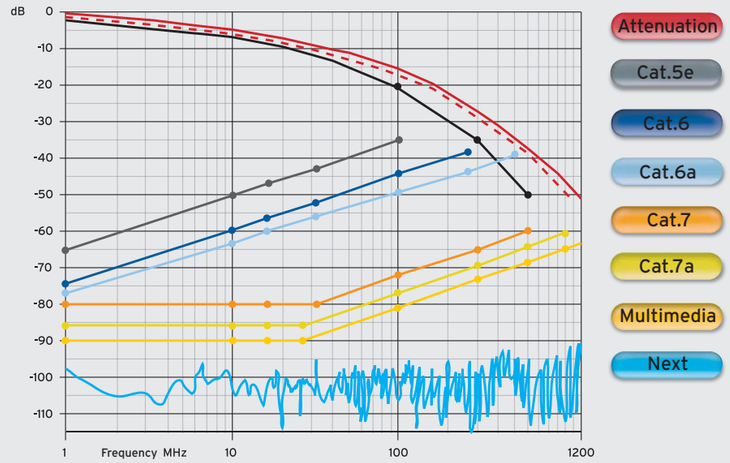
Relevant characteristics

The central characteristics of a passive network is the ACR (Attenuation Crosstalk Ratio). The ACR shows the attenuation ratio in proportion to the crosstalk ratio. The quality of the transmission is determined by the signal-to-noise ratio (sum of all interferences). Thus, the PS-ACR (cable signal-to-noise ratio) is the relevant characteristics for the assessment of the transmission capacity.

Interference due to NEXT and FEXT



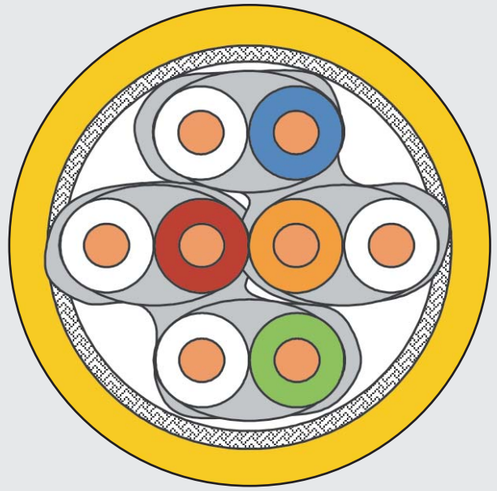
T = Transmitter
R = Receiver



Minimum ACR

A minimum ACR of 10 dB is required for highest signal frequencies. The higher the frequency the lower the ACR. Example: For our data cable UC1500, the measurement result shows that the near-end-crosstalk attenuation is on such a low level that it can hardly be traced.

Minimum ACR



10 GBASE-T Performance

10Giga bit Ethernet is simply the next protocol above 1000BaseT and is 10 times faster, 10 times more bandwidth, higher performance. Using the same full duplex systems copper cabling delivers bi-directional transmission rates at 250MHz per pair.

Transmission Parameters already laid out by 1000BaseT are enough for the increase with only one extra test required, Exogeneous (alien) Xtalk (electrical noise).

Error detection

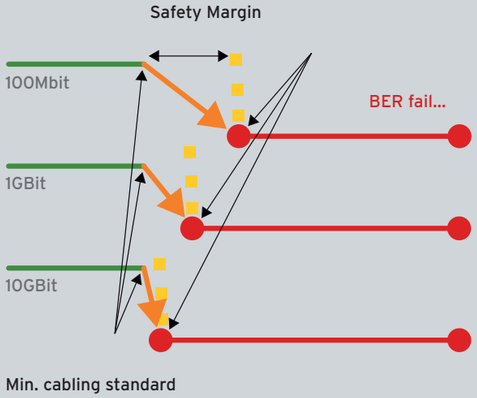
Ethernet works because of Error Detection Systems. The receiving end will poll until transmission is correct. If a system is noisy the error detection will retransmit the same information many times, slowing every transmission: there is a point at which the system will fail. 10G has the smallest safety (fail) margin. The components have to be good.

Margin

In standardisation the margin is built in to ensure plug and play works first time. 100m of cabling is guaranteed to work using components that are manufactured to the standard. The margin is steadily becoming smaller, 10G is almost non-existent, as the error detection systems cannot work above a certain noise level. As bandwidth increases so does noise,
no matter how good components are.
The min. cabling standard is the lowest minimum possible, the TIA being the lowest, and can always be improved which is Draka's intention.

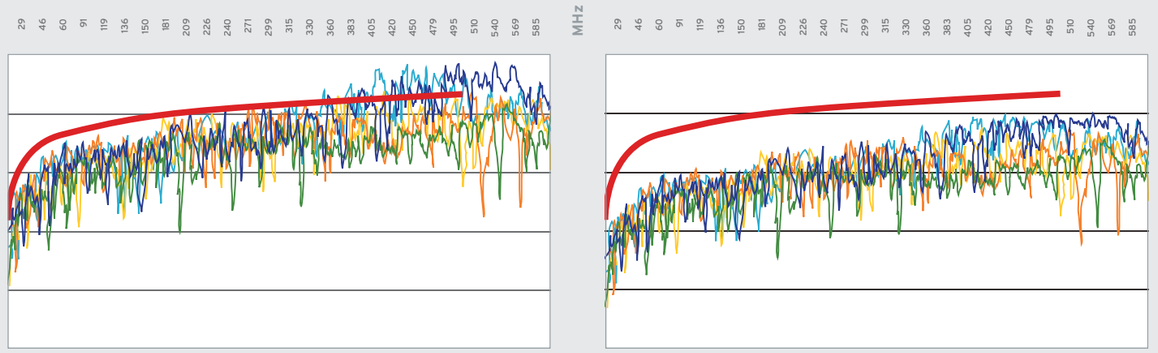
Exogenous (Alien) Xtalk

Alien Xtalk is the disturbance (noise) coupled onto a transmitting signal pair from all the other transmitting pairs (all other systems plus 10G). Space between the pairs does decrease the level of noise, and can be seen in the graph, that a U/UTP with help (distance increased) nearly passes the test.



Min. cabling standard

Performance



10G axtalk **Draka Comteq ZEBRA**

Screening

Methods to increase margin can involve screening. The exogenous Xtalk coupling devices can be fully deterred by earthing the mutual signal path. Patented foil systems already used by Draka deliver exactly the ultimate level of screening required. In this situation, and as written in the standards, the test for exogenous xtalk is unnecessary for screened cables with good screening attenuation performance.

UTP

Space was mentioned earlier as a method of lessening effects from coupling signals. Using imaginative shaped jacket's are possible to decrease signal interference, however the interference is still being allowed. Decreasing the expected signal interference might be successful in the lab but what of the real situation of installed cable with limited safety margin?

The patent Draka Technology: ZEBRA-Zero Earth-loop By Reflectorfoil Application

We understand how screening functions and lead in this market area. The world market is however U/UTP. With our ZEBRA technology Draka combines for the first time advantages of screened protection in an unscreened cable.

- protected by closely placed foil segments
- short foil segments avoid antenna effect
- avoidence of loop currents by segmentation isolation

This combination keeps the cable comparably small and easy to install – just like a U/UTP should be.

Perfection and Quality

Only a cable ensuring optimum ratios with all characteristics can offer the full performance spectrum. Our multimedia cables go through a constant manufacturing process with extremely close tolerances. With development and production, our emphasis lies on high-quality materials and the state-of-the-art manufacturing processes. Thus we are able to guarantee excellent performance and reliability.

Patented solutions

A compact and solid cable construction guarantees low attenuation and minimum reflections for the whole frequency range. Due to the high requirements on attenuation, crosstalk and consistency of the impedance, we only use stranded wires or larger copper conductors for the production of our UC cables.

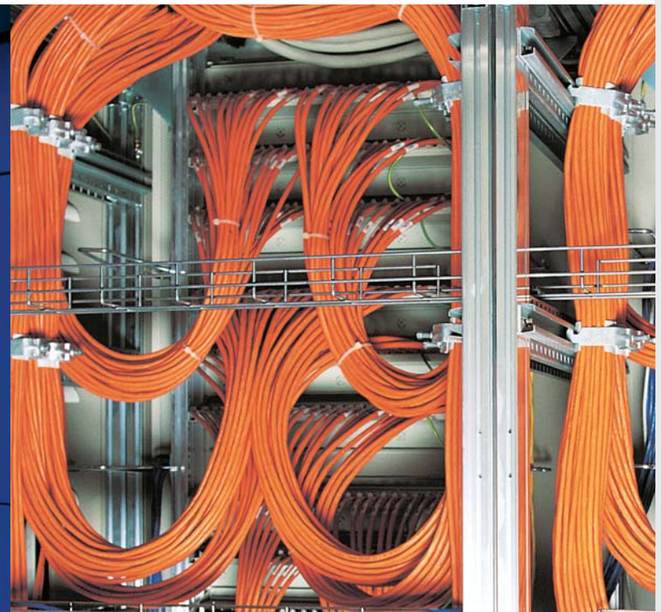
For Cable-Sharing, i.e. several applications on one cable, the pair and overall screening is the best cable construction. With its aluminium-laminated plastic foil and patented foil screening, our cables of series UC400, UC500 and UC1500 guarantee an optimum pair screening.

With conductor diameters of 0.56 mm (AWG23) and 0.64 (AWG22), foam-skin core insulations enable us to achieve lowest core diameters. We are of course certified according to ISO 9001, additionally we practise environmental management in line with ISO EN 14001.

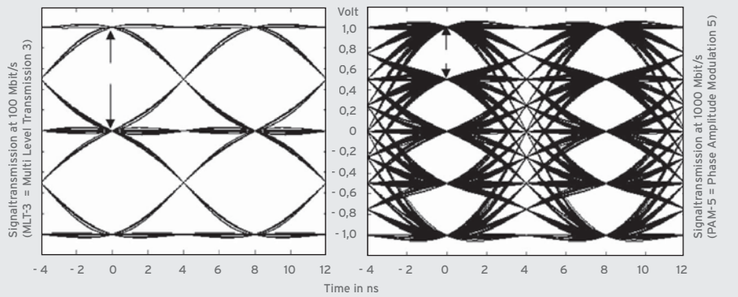
Return Loss

Modern network applications require high-quality cables as manufactured here at Draka Comteq.

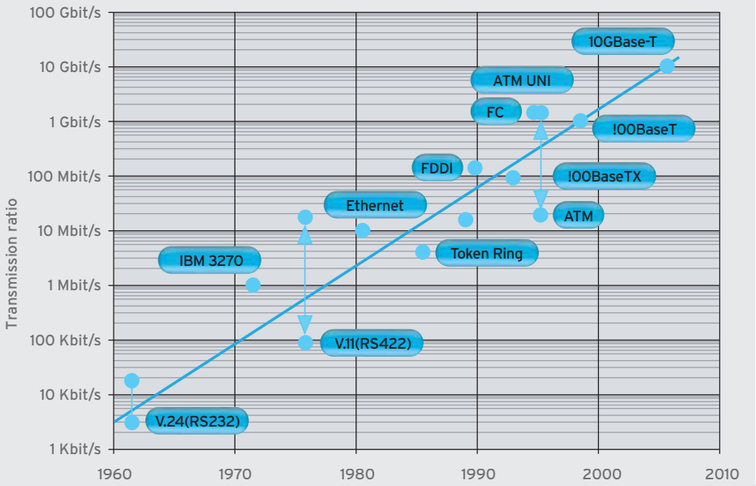
Slight deviations within the insulation material lead to irregularities on the transmission link and cause reflections. This 'return loss' arises when parts of the transmission signal at the deviation are returned to the transmitter due to reflection.



Performance



„Standard Growth" continues to be the trend



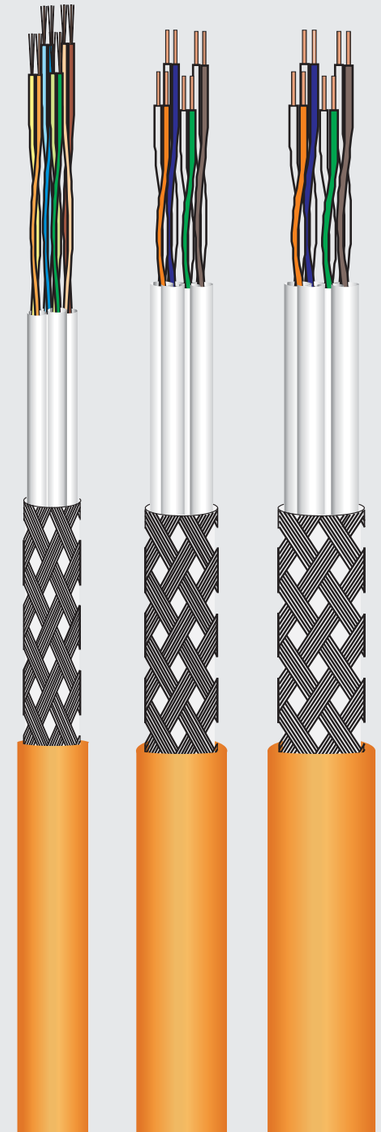
Propagation Delay and Delay Skew

Due to the increased requirements on Gigabit Ethernet the propagation delay and the delay skew become more important. The delay skew is the transmission time difference of two or more pairs.

With the twisted lengths designed by us, our UC data cables achieve a minimum propagation delay and delay skew of less than 12 ns/100m. Also with great application lengths, this means full capacity for high-speed applications with synchronous transmission over all 4 pairs.

Transmission reliability

Due to the high data rates, data transmission is increasingly subject to interferences. Low quality cables generate additional interferences and the risk of transmission failure increases. Despite high-speed applications, existing data rates and the network capacity are not fully used. Therefore, you can rely now on our high-quality data cables with hardly any risk of interference. So – invest in the power of your network to meet future requirements.



Reliability and Noise Immunity

For many years, "electromagnetic compatibility" (EMC) has been a must for electric equipment. So far the main problem was external interferences influencing system's causing failure. With high-quality cabling a new problem arises: the Alien Crosstalk (crosstalk of one cable's transmission on all pairs next to another cable's receiving signal path on a single pair).

Screening efficiency
EMC stands for the capability of a system to work without having a negative influence (emission of interference) on other systems.

With our Universal Cable series we offer a wide range of installation and connection cables with an optimum screening factor. This ensures the compliance with EMC regulations and the protection of your system.

Noise Immunity
Our screened symmetric cables are known for their high noise immunity and low emission of interference – as shown by the standards EN 55022 Class B and EN 50082-1.

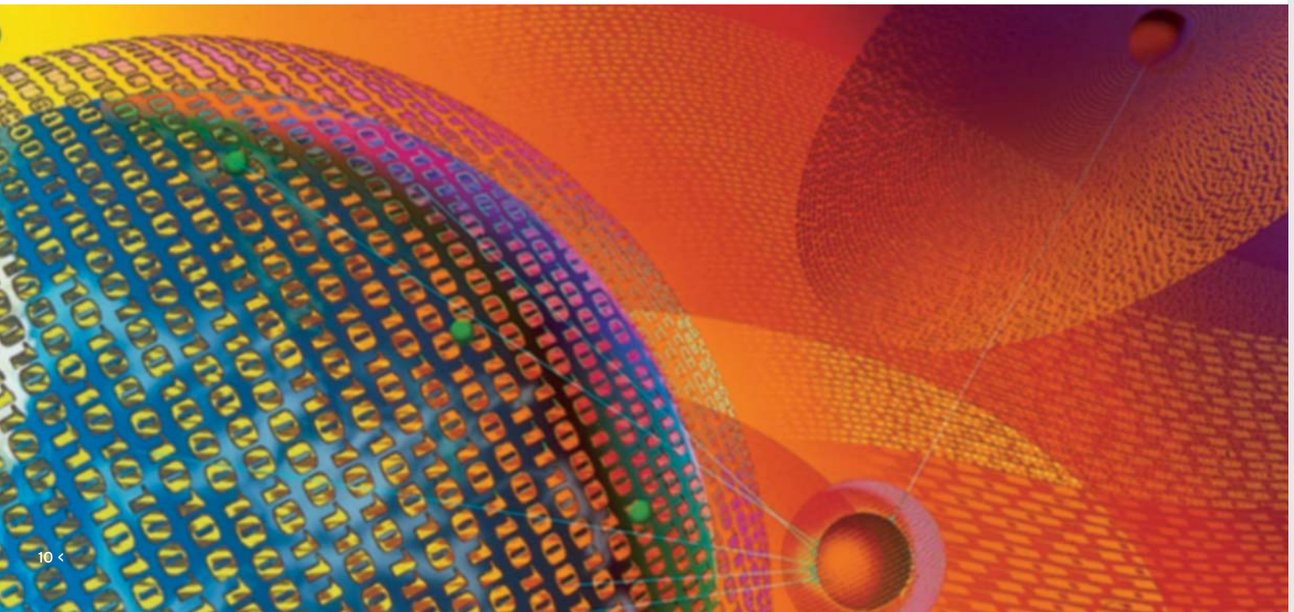
Moreover, leading manufacturers of LAN components certify that there is no emission of interference and a high network reliability with our Cat.5e to Cat.7 cables when applied at 100 Mbit/s.

Screening factors
The application of high-quality materials and the screening factor are decisive for an optimum screening.

Complying with the respective EMC requirements, our screened UC cables are available in the following quality options:

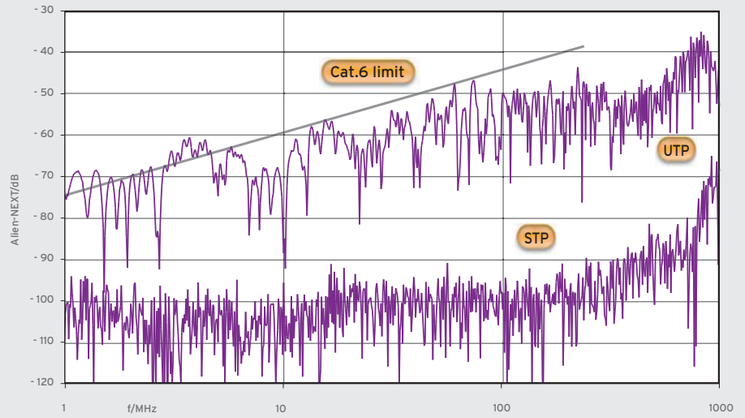
- S (Screen):
  Overall screen of aluminium-laminated foil
- HS (High Screen):
  Highly screened with aluminium-laminated foil and tinned copper braid
- SS (Super Screen):
  Pair screen with aluminium-laminated foil and overall screen with tinned copper braid

The application of highly screened cables saves adjustments in case of further installations. This means for you a very cost effective cabling solution for now and the future.

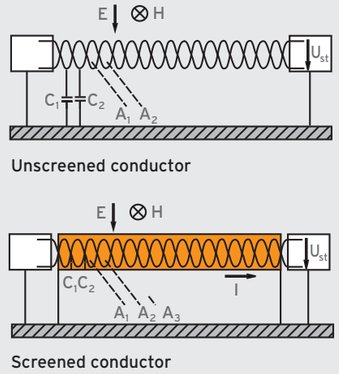


EMV

Alien crosstalk requires screening



Optimum transfer impedance



E = Electrical field
H = Magnetic field
A = Field of conductor loop
C = Grounding capacity
Ust = Interference
I = Screen current

Transfer impedance shows screening factor

The transfer model of a screened (below) and unscreened (above) conductor clearly shows: In this case of an electromagnetic wave reaching the cable from outside leads to interference due to induction. With relatively low frequencies, this effect may be limited by symmetric transmission elements.

With high frequencies, however, a screen is indispensable. It conducts the interfering current to the ground contact of the cabinet and thus protects the signal carrying conductor. The effect of the screen is measured as transfer impedance at the cable.

Uninfluenced
More and more important in practice: The interference of reliable data transmission by mutual influence of unscreened and undefined communication cables. The degree of the mutual influence is called "Alien Crosstalk". Although this value is not recorded with link tests, it reduces the ACR like a normal NEXT.

At 100 MHz, the Alien Crosstalk of two unscreened Cat.6 cables laid in parallel amounts to 55 dB, whereas it reaches 95 dB with screened cables. This can be of relevance at the patch panel where a tight bundling of the cables is necessary.

Prevention with future prospects

For many years, flame retardance has been among the minimum requirements of indoor cables. Some PVC cables were often used in the past – PVC is less flammable than other materials, but they do not prevent a spread of fire. They release toxic and corrosive gases when burnt. The alternative: High-quality LSZH (Low-Smoke-Zero-Helogen) materials with considerably improved properties in case of fire.

Protecting LSZH sheath

All UC cables are also available with halogen-free and flame retardant LSZH sheath. Excellent materials guarantee best electrical and mechanical properties of the cable.

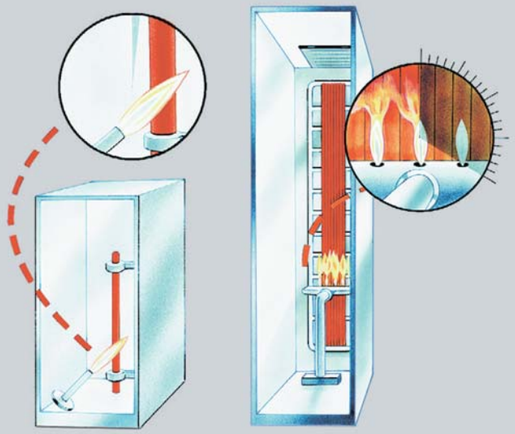
The ability of our cables to avoid a spread of fire is documented by two standardized test methods: The fire characteristics of a single cable is determined according to IEC 60332-1. Test method C of IEC 60332-24 C tests the characteristics of cable bundles. These tests are performed under realistic conditions in the field of structured cabling in buildings, e.g. in the distribution room or void. All our UC cables with LSFRZH sheath fully comply with this significantly stricter standard (test method C).

It is dependent on the respective building or field of application whether to decide for a data transmission cable according to test method B or C. In case of any doubt, however, security ranks first and you should prefer the data cable with the flame retardant properties.

Improved fire protection characteristics

- No spread of (fire propagation), e.g. transmission of the local fire alongside the cables
- No emission of corrosive gases, possibly creating acid with extinguishing water
- Very low smoke development
- No Dioxin in the fire remains
- Considerably low toxicology of fire gases

Test method B **Test method C**



Fire Protection

Fire characteristics	International standard	Data cable with PVC sheath	UC-Data cable with LSFRZH sheath
Specific fire characteristics/ fire propagation of a single piece of cable	IEC 60332-1	●	●
Fire propagation of a cable bundle	IEC 60332-3 Cat. C		●
Corrosivity of fire gases	IEC 60754-2		●
Measurement of smoke density	IEC 61034-1		●

Test method C passed

A cable bundle is exposed to a 20kW flame for 20 minutes in a 4 meter high cabinet. The cables burn within the range of the propane gas flame (up to 1 meter), however, the cable bundle extinguishes itself and the remaining cable length remains without damage: No fire propagation, no excessive smoke development which would, in case of emergency, obstruct chances to escape. For comparison: Under the same conditions, some PVC cables burn completely within 5 minutes over the entire length.

Safety

Highest precautionary measures as to the cabling apply at crowded places (e.g. hospitals, airports, schools, department stores, hotels), in buildings with a high concentration of commodity values and wherever a breakdown would involve high expenses (e.g. industrial plants, power stations, EDP centres, banks) as well as in alarm, signal and control sytems.

Material of the future

Currently, the application of fluorinated polymers as insulation material is under discussion. It is known for its extremely high thermal stability and flame retardance. However, in case of emergency this material releases highly toxic and corrosive fire gases despite the considerably improved fire resistance compared to PVC. Also in future, only LSZH materials represent a responsible alternative.

Electrical properties

Transmission performance

UC300 26 Cat.5e U/UTP — Patch Cable

	MHz	1	10	100	250	300
Attenuation**	dB	0,3	0,9	3,0	4,4	4,8
NEXT	dB	71,0	56,0	41,0	35,0	34,0
PS-NEXT	dB	68,0	53,0	38,0	32,0	31,0
PS-ELFEXT	dB	65,0	45,0	25,0	17,0	13,0

UC300 24 Cat.5e U/UTP — Installation Cable

	MHz	1	10	100	250	300
Attenuation*	dB	1,9	6,0	19,8	29,2	32,0
NEXT	dB	71,0	56,0	41,0	35,0	34,0
PS-NEXT	dB	68,0	53,0	38,0	32,0	31,0
ACR	dB	69,1	50,0	21,2	5,8	2,0
PS-ACR	dB	63,1	47,0	18,2	2,8	- 1,2
PS-ELFEXT	dB	65,0	45,0	25,0	17,0	13,0

UC300 S24 Cat.5e F/UTP — Installation Cable

	MHz	1	10	100	250	300
Attenuation*	dB	1,9	6,0	19,8	29,2	32,0
NEXT	dB	71,0	56,0	41,0	35,0	34,0
PS-NEXT	dB	68,0	53,0	38,0	32,0	31,0
ACR	dB	69,1	50,0	21,2	5,8	1,8
PS-ACR	dB	66,1	47,0	18,2	2,8	-1,2
PS-ELFEXT	dB	65,0	45,0	25,0	17,0	13,0

UC300 HS24 Cat.5e SF/UTP — Installation Cable

	MHz	1	10	100	250	300
Attenuation*	dB	1,9	6,0	19,8	29,2	32,0
NEXT	dB	71,0	56,0	41,0	35,0	34,0
PS-NEXT	dB	68,0	53,0	38,0	32,0	31,0
ACR	dB	69,1	50,0	21,2	5,8	2,0
PS-ACR	dB	66,1	47,0	18,2	2,8	-1,0
PS-ELFEXT	dB	65,0	45,0	25,0	17,0	13,0

EMC properties

Impedance	Ω	100±5
Loop resistance	Ω/km	≤260
NVP***	%	ca. 67
Capacitance	nF/km	nom. 48

Impedance	Ω	100±5
Loop resistance	Ω/km	≤165
NVP***	%	ca. 67
Capacitance	nF/km	nom. 48

Impedance	Ω	100±5
Loop resistance	Ω/km	≤190
NVP***	%	ca. 67
Capacitance	nF/km	nom. 48
Transfer impedance		mΩ/m
	at 1 MHz	20
	at 10 MHz	30
	at 30 MHz	40
	at 100 MHz	200

Impedance	Ω	100±5
Loop resistance	Ω/km	≤190
NVP***	%	ca. 67
Capacitance	nF/km	nom. 48
Transfer impedance		mΩ/m
	at 1 MHz	20
	at 10 MHz	30
	at 30 MHz	40
	at 100 MHz	200

Mechanical properties

Fire protection characteristics****		
Overall diameter	mm	5,2
Weight	kg/km	25
Fire load	MJ/km	324
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	100

Fire protection characteristics****		
Overall diameter	mm	5,0
Weight	kg/km	35
Fire load	MJ/km	336
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	100

Fire protection characteristics****		
Overall diameter	mm	5,9
Weight	kg/km	37
Fire load	MJ/km	396
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	100

Fire protection characteristics****		
Overall diameter	mm	6,4
Weight	kg/km	47
Fire load	MJ/km	433
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	120

Duplex Cable available on request.

Transmission performance

UC400 26 Cat.6 U/UTP — Patch Cable

	MHz	1	10	100	250	300	400
Attenuation**	dB	0,30	0,90	3,00	4,90	5,20	6,00
NEXT	dB	74,0	60,0	45,0	39,0	38,0	37,0
PS-NEXT	dB	71,0	56,0	42,0	36,0	35,0	34,0
PS-ELFEXT	dB	66,0	46,0	26,0	19,0	18,0	17,0

UC400 S27 Cat.6 U/FTP — Patch Cable

	MHz	1	10	100	250	300	400
Attenuation**	dB	0,3	1,0	3,3	5,1	5,6	6,5
NEXT	dB	87,0	72,0	57,0	51,0	50,0	48,0
PS-NEXT	dB	84,0	69,0	54,0	48,0	47,0	45,0
PS-ELFEXT	dB	72,0	72,0	52,0	44,0	42,0	40,0

UC400 23 Cat.6 U/UTP — Installation Cable

	MHz	1	10	100	250	300	400
Attenuation*	dB	1,9	5,6	19,0	32,0	36,0	42,0
NEXT	dB	81,0	74,0	48,0	44,0	41,0	39,0
PS-NEXT	dB	78,0	71,0	45,0	41,0	38,0	36,0
ACR	dB	79,0	68,0	29,0	12,0	5,0	-3,0
PS-ACR	dB	76,0	65,0	26,0	9,0	2,0	-6,0
PS-ELFEXT	dB	77,0	57,0	39,0	27,0	26,0	25,0

UC400 S23 Cat.6 U/FTP — Installation Cable

	MHz	1	10	100	250	300	400
Attenuation*	dB	2,0	5,7	19,0	31,0	35,0	43,0
NEXT	dB	90,0	90,0	90,0	86,0	86,0	86,0
PS-NEXT	dB	87,0	87,0	87,0	83,0	83,0	83,0
ACR	dB	88,0	84,0	71,0	55,0	51,0	43,0
PS-ACR	dB	85,0	81,0	68,0	52,0	48,0	40,0
PS-ELFEXT	dB	82,0	76,0	56,0	48,0	46,0	41,0

EMC properties

Impedance	Ω	100±15
Loop resistance	Ω/km	≤195
NVP***	%	ca. 67
Capacitance	nF/km	nom. 52

Impedance	Ω	100±15
Loop resistance	Ω/km	≤340
NVP***	%	ca. 79
Capacitance	nF/km	nom. 43
Transfer impedance		mΩ/m
	at 1 MHz	50
	at 10 MHz	100
	at 30 MHz	200

Impedance	Ω	100±5
Loop resistance	Ω/km	≤176
NVP***	%	ca. 68
Capacitance	nF/km	nom. 48

Impedance	Ω	100±5
Loop resistance	Ω/km	≤145
NVP***	%	ca. 75
Capacitance	nF/km	nom. 45
Transfer impedance		mΩ/m
	at 1 MHz	50
	at 10 MHz	100
	at 100 MHz	200

Mechanical properties

Fire protection characteristics****		
Overall diameter	mm	5,6
Weight	kg/km	34
Fire load	MJ/km	342
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	70

Fire protection characteristics****		
Overall diameter	mm	5,7
Weight	kg/km	26
Fire load	MJ/km	342
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	70

Fire protection characteristics****		
Overall diameter	mm	6,2
Weight	kg/km	46
Fire load	MJ/km	329
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	100

Fire protection characteristics****		
Overall diameter	mm	7,3
Weight	kg/km	45
Fire load	MJ/km	542
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	100

* Nominal value measured at 100 m (Velocity of Propagation)

** Nominal value Patch Cable measured at 10 m

*** NVP = Nominal Velocity of Propagation

**** LSOH

Electrical properties

Transmission performance | **EMC properties** | **Mechanical properties**

UC500 S27 Cat.6a U/FTP — Patch Cable

	MHz	1	10	100	250	300	400	500
Attenuation**	dB	0,3	1,0	3,3	5,1	5,6	6,5	7,3
NEXT	dB	87,0	72,0	57,0	51,0	50,0	48,0	46,0
PS-NEXT	dB	84,0	69,0	54,0	48,0	47,0	45,0	43,0
PS-ELFEXT	dB	72,0	72,0	52,0	44,0	42,0	40,0	37,0

Impedance	Ω	100±15
Loop resistance	Ω/km	≤340
NVP***	%	ca. 79
Capacitance	nF/km	nom. 43
Transfer impedance		mΩ/m
at 1 MHz		50
at 10 MHz		100
at 30 MHz		200

Fire protection characteristics****		
Overall diameter	mm	5,7
Weight	kg/km	26
Fire load	MJ/km	342
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	50

UC500 23 Cat.6a U/UTP — Installation Cable

	MHz	1	10	100	250	300	400	500
Attenuation*	dB	2,0	5,9	19,0	31,1	34,2	40,0	45,3
NEXT	dB	75,3	60,3	45,3	39,3	38,1	36,3	34,8
PS-NEXT	dB	72,3	57,3	42,3	36,3	35,1	33,3	31,8
ACR	dB	73,0	54,0	26,0	8,2	3,9	-3,7	-10,5
PS-ACR	dB	70,0	51,0	23,0	5,2	0,9	-6,7	-13,5
PS-ELFEXT	dB	65,0	45,0	25,0	17,0	15,5	13,0	11,0

Impedance	Ω	100±5
Loop resistance	Ω/km	≤145
NVP***	%	ca.67
Capacitance	nF/km	nom. 48

Fire protection characteristics****		
Overall diameter	mm	8,9
Weight	kg/km	73
Fire load	MJ/km	1075
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	100

UC500 S23 Cat.6a U/FTP — Installation Cable

	MHz	1	10	100	250	300	400	500
Attenuation*	dB	2,0	5,7	19,0	31,0	35,0	43,0	44,0
NEXT	dB	90,0	90,0	90,0	86,0	86,0	86,0	84,0
PS-NEXT	dB	87,0	87,0	87,0	83,0	83,0	83,0	81,0
ACR	dB	88,0	84,0	71,0	55,0	51,0	43,0	40,0
PS-ACR	dB	85,0	81,0	68,0	52,0	48,0	40,0	37,0
PS-ELFEXT	dB	82,0	76,0	56,0	48,0	46,0	41,0	39,0

Impedance	Ω	100±5
Loop resistance	Ω/km	≤145
NVP***	%	ca. 75
Capacitance	nF/km	nom. 45
Transfer impedance		mΩ/m
at 1 MHz		≤50
at 10 MHz		≤100
at 100 MHz		≤200

Fire protection characteristics****		
Overall diameter	mm	7,3
Weight	kg/km	45
Fire load	MJ/km	542
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	100

UC500 AS23 Cat.6a F/FTP — Installation Cable

	MHz	1	10	100	250	300	400	500
Attenuation*	dB	1,8	5,4	17,4	28,1	30,9	38,3	44,8
NEXT	dB	100,0	100,0	100,0	90,0	89,0	87,0	85,0
PS-NEXT	dB	97,0	97,0	97,0	87,0	86,0	84,0	82,0
ACR	dB	98,0	95,0	83,0	62,0	58,0	48,0	40,0
PS-ACR	dB	95,0	92,0	80,0	59,0	55,0	52,0	49,0
PS-ELFEXT	dB	30,0	30,0	30,0	24,0	24,0	23,0	22,0

Impedance	Ω	100±5
Loop resistance	Ω/km	≤176
NVP***	%	ca. 79
Capacitance	nF/km	nom. 43
Transfer impedance		mΩ/m
at 1 MHz		20
at 10 MHz		50
at 30 MHz		100

Fire protection characteristics****		
Overall diameter	mm	6,5
Weight	kg/km	44
Fire load	MJ/km	501
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	100

Duplex Cable available on request.

Transmission performance | **EMC properties** | **Mechanical properties**

UC900 SS27 Cat.7 S/FTP — Patch Cable

	MHz	1	10	100	250	300	450	600	900
Attenuation**	dB	0,3	1,0	3,2	5,1	5,6	6,9	7,9	9,7
NEXT	dB	90,0	90,0	87,0	81,0	80,0	77,0	75,0	72,0
PS-NEXT	dB	87,0	87,0	84,0	78,0	77,0	74,0	72,0	69,0
PS-ELFEXT	dB	77,0	77,0	57,0	49,0	47,0	44,0	41,0	38,0

Impedance	Ω	100±5
Loop resistance	Ω/km	≤340
NVP***	%	ca. 79
Capacitance	nF/km	nom. 43
Transfer impedance		mΩ/m
at 1 MHz		30
at 10 MHz		30
at 30 MHz		50
at 100 MHz		200

Fire protection characteristics****		
Overall diameter	mm	5,9
Weight	kg/km	39
Fire load	MJ/km	349
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	100

UC900 HS23 Cat.7 S/FTP — Installation Cable

	MHz	1	10	100	250	300	450	600	900
Attenuation*	dB	1,8	5,4	17,4	28,1	30,9	38,3	44,8	59,4
NEXT	dB	100,0	100,0	100,0	90,0	89,0	87,0	85,0	82,0
PS-NEXT	dB	97,0	97,0	97,0	87,0	86,0	84,0	82,0	79,0
ACR	dB	98,0	95,0	83,0	62,0	58,0	48,0	40,0	23,0
PS-ACR	dB	95,0	92,0	80,0	59,0	55,0	45,0	37,0	20,0
PS-ELFEXT	dB	105,0	94,0	74,0	66,0	64,0	61,0	58,0	55,0

Impedance	Ω	100±5
Loop resistance	Ω/km	≤165
NVP***	%	ca. 79
Capacitance	nF/km	nom. 43
Transfer impedance		mΩ/m
at 1 MHz		20
at 10 MHz		30
at 100 MHz		200

Fire protection characteristics****		
Overall diameter	mm	7,0
Weight	kg/km	65
Fire load	MJ/km	590
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	100

UC900 SS23 Cat.7 S/FTP — Installation Cable

	MHz	1	10	100	250	300	450	600	900
Attenuation*	dB	1,8	5,4	17,4	28,1	30,9	38,3	44,8	59,4
NEXT	dB	100,0	100,0	100,0	90,0	89,0	87,0	85,0	82,0
PS-NEXT	dB	97,0	97,0	97,0	87,0	86,0	84,0	82,0	79,0
ACR	dB	98,0	95,0	83,0	62,0	58,0	48,0	40,0	23,0
PS-ACR	dB	95,0	92,0	80,0	59,0	55,0	45,0	37,0	20,0
PS-ELFEXT	dB	105,0	94,0	74,0	66,0	64,0	61,0	58,0	55,0

Impedance	Ω	100±5
Loop resistance	Ω/km	≤150
NVP***	%	ca. 79
Capacitance	nF/km	nom. 43
Transfer impedance		mΩ/m
at 1 MHz		5
at 10 MHz		5
at 100 MHz		20

Fire protection characteristics****		
Overall diameter	mm	7,5
Weight	kg/km	75
Fire load	MJ/km	585
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	340

* Nominal value measured at 100 m (Velocity of Propagation)

** Nominal value Patch Cable measured at 10 m

*** NVP = Nominal Velocity of Propagation

**** LSOH

Electrical properties

Transmission performance

UC1000 SS23 Cat.7a S/FTP Installation Cable

	MHz	1	10	100	250	300	600	1000
Attenuation*	dB	1,8	5,4	17,4	28,1	30,9	44,8	58,4
NEXT	dB	100,0	100,0	100,0	90,0	87,0	85,0	82,0
PS-NEXT	dB	97,0	97,0	97,0	87,0	86,0	82,0	79,0
ACR	dB	98,0	95,0	83,0	87,0	86,0	40,0	24,0
PS-ACR	dB	95,0	92,0	80,0	59,0	55,0	37,0	21,0
PS-ELFEXT	dB	105,0	94,0	74,0	66,0	64,0	58,0	54,0

EMC properties

Impedance	Ω	100±5
Loop resistance	Ω/km	≤133
NVP***	%	ca. 79
Capacitance	nF/km	nom. 44
Transfer impedance		mΩ/m
	at 1 MHz	5
	at 10 MHz	5
	at 100 MHz	20

Mechanical properties

Fire protection characteristics****		
Overall diameter	mm	7,8
Weight	kg/km	65
Fire load	MJ/km	589
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	100

UC1200 SS22 Cat.7+ S/FTP Installation Cable

	MHz	1	10	100	250	450	600	1000	1200
Attenuation*	dB	1,7	5,1	16,3	25,8	34,7	40,2	52,1	57,1
NEXT	dB	100,0	100,0	100,0	90,0	87,0	85,0	82,0	82,0
PS-NEXT	dB	97,0	97,0	97,0	87,0	84,0	82,0	79,0	79,0
ACR	dB	98,0	95,0	84,0	64,0	52,0	45,0	30,0	25,0
PS-ACR	dB	95,0	92,0	81,0	61,0	49,0	42,0	27,0	22,0
PS-ELFEXT	dB	103,0	83,0	63,0	55,0	50,0	47,0	43,0	41,0

EMC properties

Impedance	Ω	100±5
Loop resistance	Ω/km	≤110
NVP***	%	ca. 79
Capacitance	nF/km	nom. 44
Transfer impedance		mΩ/m
	at 1 MHz	10
	at 10 MHz	10
	at 100 MHz	60

Mechanical properties

Fire protection characteristics****		
Overall diameter	mm	8,2
Weight	kg/km	73
Fire load	MJ/km	521
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	380

UC1500 SS23 MULTIMEDIA 6FOILS S/FTP

	MHz	1	10	100	250	600	1000	1500
Attenuation*	dB	1,8	5,4	17,4	28,1	44,8	58,4	73,5
NEXT	dB	115,0	115,0	111,0	105,0	100,0	96,0	94,0
PS-NEXT	dB	112,0	112,0	108,0	102,0	97,0	93,0	91,0
ACR	dB	113,0	110,0	94,0	77,0	55,0	37,0	21,0
PS-ACR	dB	110,0	107,0	91,0	74,0	52,0	34,0	18,0
PS-ELFEXT	dB	102,0	94,0	74,0	66,0	58,0	54,0	40,0

EMC properties

Impedance	Ω	100±15
Loop resistance	Ω/km	≤135
NVP***	%	ca. 80
Capacitance	nF/km	nom. 43
Transfer impedance		mΩ/m
	at 1 MHz	5
	at 10 MHz	2
	at 100 MHz	10

Mechanical properties

Fire protection characteristics****		
Overall diameter	mm	7,9
Weight	kg/km	81
Fire load	MJ/km	642
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	340

UC1500 SS22 MULTIMEDIA 6FOILS S/FTP

	MHz	1	10	100	250	600	1000	1500
Attenuation*	dB	1,7	5,1	16,3	25,8	40,2	52,1	64,1
NEXT	dB	115,0	115,0	111,0	105,0	100,0	96,0	94,0
PS-NEXT	dB	112,0	112,0	108,0	102,0	97,0	93,0	91,0
ACR	dB	113,0	110,0	95,0	80,0	60,0	44,0	30,0
PS-ACR	dB	110,0	107,0	92,0	77,0	57,0	41,0	27,0
PS-ELFEXT	dB	102,0	94,0	74,0	66,0	58,0	54,0	50,0

EMC properties

Impedance	Ω	100±15
Loop resistance	Ω/km	≤110
NVP***	%	ca. 79
Capacitance	nF/km	nom. 43
Transfer impedance		mΩ/m
	at 1 MHz	5
	at 10 MHz	2
	at 100 MHz	10

Mechanical properties

Fire protection characteristics****		
Overall diameter	mm	8,9
Weight	kg/km	86
Fire load	MJ/km	746
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	380

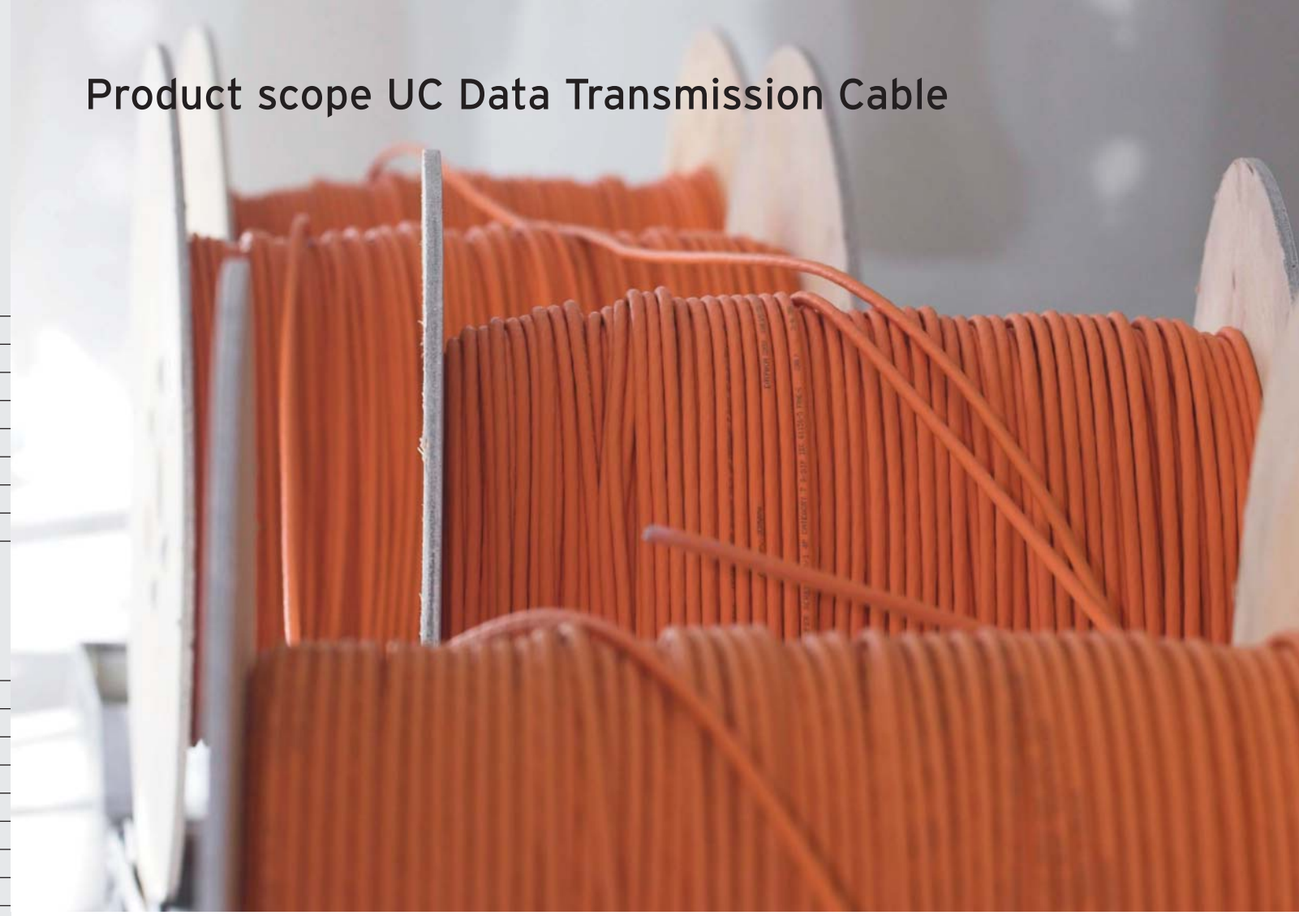
* Nominal value measured at 100 m (Velocity of Propagation)

** Nominal value Patch Cable measured at 10 m

*** NVP = Nominal Velocity of Propagation

**** LSOH

Product scope UC Data Transmission Cable

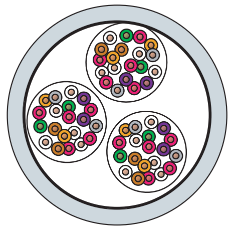


Cable type	Screening	Category	Application
UC300 24	U/UTP	Cat.5e	Installation Cable
UC300 S24	F/UTP	Cat.5e	Installation Cable
UC300 HS24	SF/UTP	Cat.5e	Installation Cable
UC300 26	U/UTP	Cat.5e	Patch Cable
UC300 S26	F/UTP	Cat.5e	Patch Cable
UC300 HS26	SF/UTP	Cat.5e	Patch Cable
UC400 23	U/UTP	Cat.6	Installation Cable
UC400 S23	F/UTP	Cat.6	Installation Cable
UC400 S23	U/FTP	Cat.6	Installation Cable
UC400 HS23	S/FTP	Cat.6	Installation Cable
UC400 26	U/UTP	Cat.6	Patch Cable
UC400 S27	U/FTP	Cat.6	Patch Cable
UC500 23	U/UTP	Cat.6a	Installation Cable
UC500 S23	U/FTP	Cat.6a	Installation Cable
UC500 AS23	F/FTP	Cat.6a	Installation Cable
UC500 27	U/UTP	Cat.6a	Patch Cable
UC500 S27	U/FTP	Cat.6a	Patch Cable
UC900 HS23	S/FTP	Cat.7	Installation Cable
UC900 SS23	S/FTP	Cat.7	Installation Cable
UC900 SS27	S/FTP	Cat.7	Patch Cable
UC1000 HS23	S/FTP	Cat.7a	Installation Cable
UC1000 SS23	S/FTP	Cat.7a	Installation Cable
UC1200 HS22	S/FTP	Cat.7+	Installation Cable
UC1200 SS22	S/FTP	Cat.7+	Installation Cable
UC1500 SS22 with 6 FOILS	S/FTP	MULTIMEDIA	Installation Cable
UC1500 SS23 with 6 FOILS	S/FTP	MULTIMEDIA	Installation Cable

Electrical properties

Transmission performance | **EMC properties** | **Mechanical properties**

Multipair Cable according to Cat.3 U/UTP J-2YY/H 25/50/100x2x0,52 (AWG24)

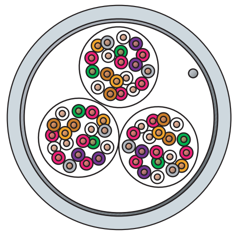


	MHz	1	4	10	16
Attenuation*	dB	26,0	56,0	98,0	131,0
NEXT	dB	41,0	32,0	26,0	23,0

Impedance	Ω	100±5
Loop resistance	Ω/km	≤186
Capacitance	nF/km	nom. 45

Fire protection characteristics****		
Overall diameter	mm	12,9
Weight	kg/km	162
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	500

Multipair Cable according to Cat.3 F/UTP J-2Y(St)Y/H 25/50/100x2x0,52 (AWG24)

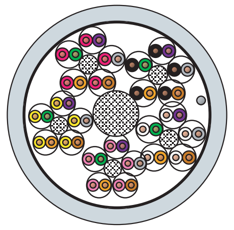


	MHz	1	4	10	16
Attenuation*	dB	26,0	56,0	98,0	131,0
NEXT	dB	41,0	32,0	26,0	23,0

Impedance	Ω	100±5
Loop resistance	Ω/km	≤186
Capacitance	nF/km	nom. 45

Fire protection characteristics****		
Overall diameter	mm	12,9
Weight	kg/km	162
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	500

Multipair Cable according to Cat.5e U/UTP S-2YY/H 25/50/100x2x0,52 (AWG24)

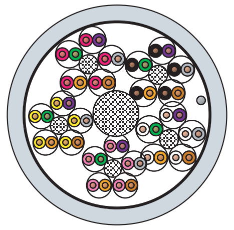


	MHz	1	10	100	125
Attenuation*	dB	1,9	6,0	19,8	22,3
NEXT	dB	71,0	56,0	41,0	40,0
PS-NEXT	dB	68,0	53,0	38,0	37,0
PS-ELFEXT	dB	65,0	45,0	25,0	23,0

Impedance	Ω	100±5
Loop resistance	Ω/km	≤190
NVP***	%	ca. 67
Capacitance	nF/km	nom. 48

Fire protection characteristics****		
Overall diameter	mm	15,5
Weight	kg/km	190
Brandlast	MJ/km	2250
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	500

Multipair Cable according to Cat.5e F/UTP S-2Y(St)Y/H 25/50/100x2x0,52 (AWG24)



	MHz	1	10	100	125
Attenuation*	dB	1,9	6,0	19,8	22,3
NEXT	dB	71,0	56,0	41,0	40,0
PS-NEXT	dB	68,0	53,0	38,0	37,0
PS-ELFEXT	dB	65,0	45,0	25,0	23,0

Impedance	Ω	100±5
Loop resistance	Ω/km	≤190
NVP***	%	ca. 67
Capacitance	nF/km	nom. 48

Fire protection characteristics****		
Overall diameter	mm	15,5
Weight	kg/km	190
Brandlast	MJ/km	2250
Bending radius		
with load		8xD
without load		4xD
Tensile force	N	500

* Nominal value measured at 100 m (Velocity of Propagation)
** Nominal value Patch Cable measured at 10 m
*** NVP = Nominal Velocity of Propagation
**** LSOH

Draka Communication gets the green light

On 1st July 2006, the final stage of "ElektroG" came into effect. The law which governs the marketing, return and environmentally-compatible disposal of electrical and electronic equipment serves the implementation in Germany of the two EC directives RoHS and WEEE.

Two directives, one law and a great deal of uncertainty in the industry. For our customers, on principle, the question is: are cables from Draka Comteq classified as electrical and electronic equipment in the sense of ElektroG or the RoHS and WEEE directives?

To cut a long story short: all cable solutions from Draka Comteq are not "equipment" in the sense of the directives and can thus be sold and used without hesitation. This conclusion is also reached by an independent expert who confirms the result with a certificate.

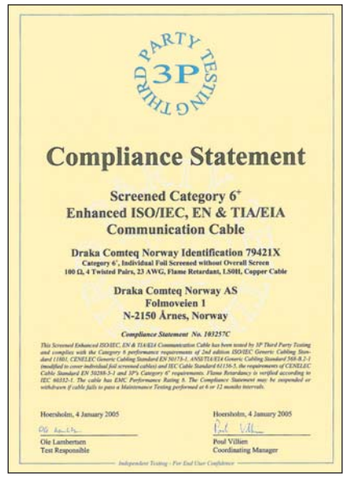
The Draka Comteq documentation provides further information on this theme, explains the background and shows the full wording of the certificate. The leaflet can be obtained free of charge from Stephan von Naguschewski. Simply send an e-mail to: **stephan.von.naguschewski@draka.com.**


UMWELT KANZLEI
Bescheinigung über die Zuordnung von Produkten nach ElektroG
Draka

Quality and Environment

Quality management DIN EN ISO 9001

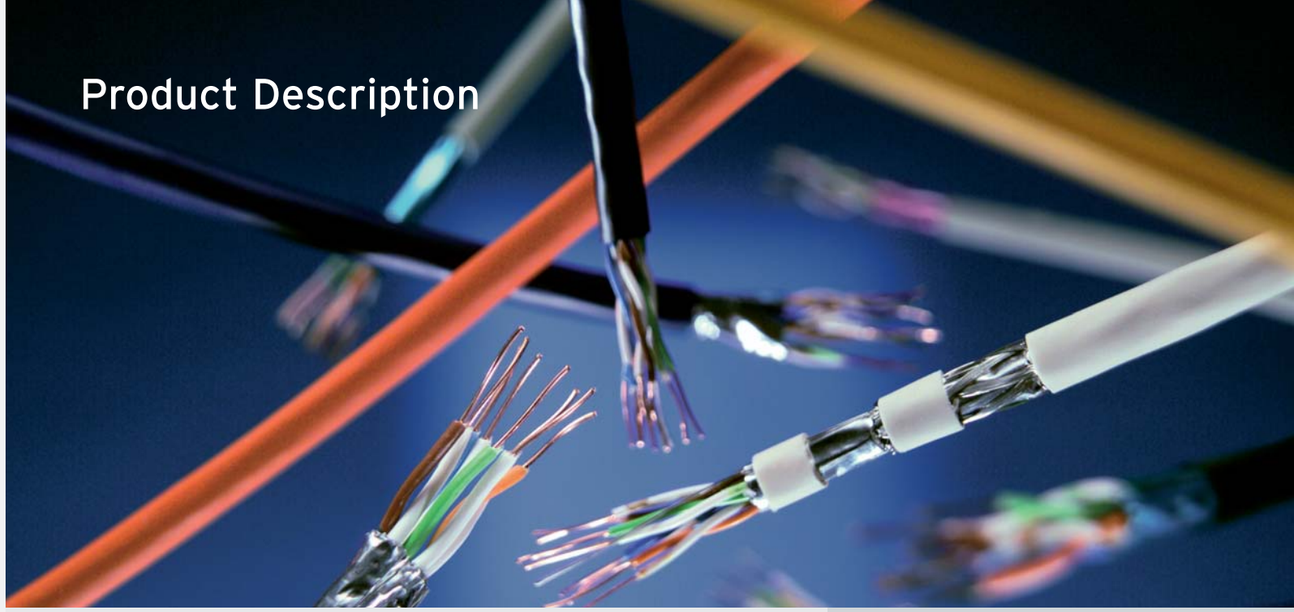
Environmental management DIN EN ISO 14001



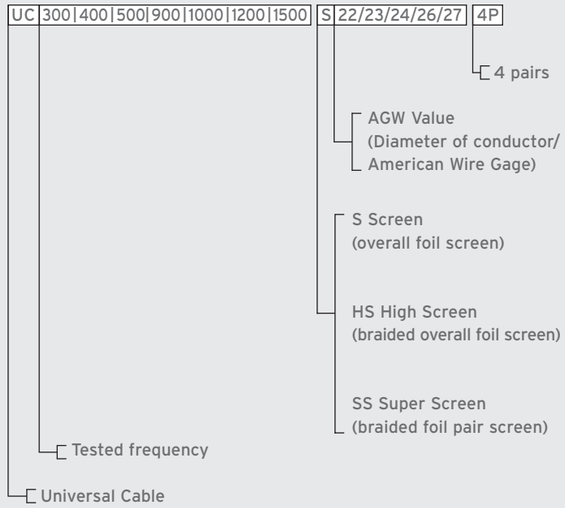
3P-Certificate

GL Certificate

GHMT PREMIUM Verification Program



Product Description



100-Ω data transmission cables according to: ISO/IEC 11801 2nd ed. Cat.5e, Class D; Cat.6, Class E; Cat.7, Class F; Cat.7+, Class G
EN 50173 Cat.5e, Class D; Cat.6, Class E; Cat.7, Class F; Cat.7+, Class G
EIA/TIA 568 A; B.2-1
IEEE 802.3 an Cat.6a, Class E_A, Cat.7a, Class F_A

UC300	Universal Cable 100 MHz according to ISO/IEC 11801 2nd ed. / EN 50173
UC400	Universal Cable 250 MHz according to ISO/IEC 11801 2nd ed. / EN 50173
UC500	Universal Cable 500 MHz according to IEEE 802.3 an
UC900	Universal Cable 900 MHz according to ISO/IEC 11801 2nd ed. / EN 50173
UC1000	Universal Cable 1000 MHz according to IEEE 802.3 an
UC1200	Universal Cable 1200 MHz according to ISO/IEC 11801 2nd ed. / EN 50173
UC1500	Universal Cable 1500 MHz according to ISO/IEC 11801 2nd ed. / EN 50173

Draka Comteq – Cable in Copper and Optical Fibre Technology for:

Office Communication
Central Office Switching
Home Networks
Industry
Studio
CATV
Long-distance networks
Subscribers networks (FttX)
Telecommunication networks
Mobile telephone systems
OPGW
Signalling cables