

# SPECIFICATION

FOR

## UL RECOGNIZED FEP INSULATED HIGH FREQUENCY COAXIAL CABLE

[ P/N ; UL1745 ]

*Quantity* .....

*Your Ref. No.* .....

*Our Ref. No.* .....

*Signed by* .....

  
Osamu Seya

Manager

Electric Wires & Cables Production Center  
Engineering Dept.

Hitachi Cable, Ltd.

## Issue and revision record

Rev. No.	Issue date	Item	Prepared by	Reviewed by	Approved by
—	Nov. 8, 2001	Initial issue	H. Tanaka	H.Ito	F. Shimizu
1	Nov. 16, 2001	Revised Point [UL1745-SB CX-50 1×32AWG(7/0.08)D=1.13] • Change Diameter of Insulation 0.66 → 0.68 • Outer conductor material is Changed tinned annealed copper wire ↓ Silver planted annealed copper wire • Construction of Outer conductor 5×16 → 4×16 • Change Diameter of Jacket $1.13 \pm 0.1 \rightarrow 1.13 \begin{matrix} +0.08 \\ -0.05 \end{matrix}$ • Nominal attenuation is changed [UL1745-SB CX-50 1×32AWG(7/0.08)D=1.32] • Change Diameter of Insulation 0.66 → 0.68 • Construction of Outer conductor 5×16 → 4×16 • Nominal attenuation is changed	N. Ono	H.Ito	F. Shimizu
2	Apr. 1, 2003	Revised Point [UL1745-SB CX-50 1×32AWG(7/0.08)D=1.13] • Change the P/N UL1745-SB CX-50 1×32AWG(7/0.08)D=1.13 →UL1745-SB CX-50 1×32AWG(7/0.08)GA D=1.13	<i>N. Ono</i> N. Ono	<i>H. Ito</i> H.Ito	<i>O. Seya</i> O. Seya

**1. Scope**

This specification covers UL recognized Fluoroethylene-propylene insulated high frequency coaxial cable.

[ UL1745 : 90°C、 30V ]

Use : Internal wiring of Class 2 Circuits of Electronic Equipment.

**2. Construction and Properties**

HCL P/N	HCLI-TPE P/N	Construction and Properties
UL1745-SB CX-50 1×30AWG(1/0.26)D=1.25	RFX50-SS30-125	Table 1
UL1745-SB CX-50 1×30AWG(7/0.102)D=1.48	RFX50-SS30-148	
UL1745-SB CX-50 1×32AWG(7/0.08)D=1.13	RFX50-SS32-113	Table 2
UL1745-SB CX-50 1×32AWG(7/0.08)GA D=1.32	RFX50-SS32-132	
UL1745-DSB CX-50 1×32AWG(7/0.08)D=1.32	RFX50-DS32-132	Table 3
UL1745-SB CX-50 1×34AWG(7/0.064)D=0.98	RFX50-SS34-098	
UL1745-SB CX-50 1×36AWG(7/0.05)D=0.81	RFX50-SS36-081	

**3. Marking**

**3.1 Marking on the wire**

No marking on the wires.

**3.2 Marking on the tag attached to reel**

Each reel shall be tagged to show the following information with UL stamp.

- (1) UL Style
- (2) Conductor size
- (3) No. of conductor
- (4) Color
- (5) Lot No.
- (6) Length
- (7) Use
- (8) File No.
- (9) Rating temperature
- (10) Rating voltage
- (11) Date of manufacture
- (12) Insulation thickness
- (13) Name of manufacture

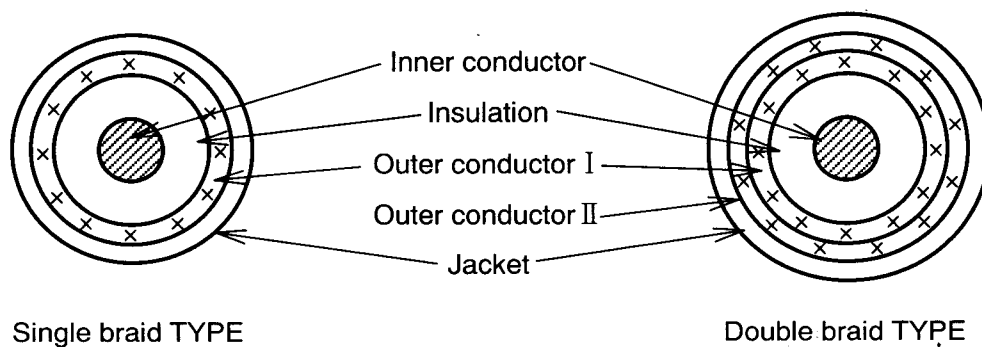


Fig.1 Cross-section of cable

Table 1 Construction and Properties (30AWG)

Item		Unit	Specified Value	
HCL P/N		—	UL1745-SB CX-50 1×30AWG(1/0.26)D=1.25	UL1745-SB CX-50 1×30AWG(7/0.102)D=1.48
HCLI-TPE P/N		—	RFX50-SS30-125	RFX50-SS30-148
Inner Conductor	Material	—	silver plated copper clad steel wire	
	AWG size	—	30	
	Stranding	No./mm	1/0.26	7/0.102
	Diameter	mm	0.26±0.008	0.30±0.03
	Number	—	1	
Insulation	Material	—	Fluoroethylene-propylene(FEP)	
	Thickness	mm	Nom. 0.27	Nom. 0.27
	Diameter	mm	0.80±0.05	0.84±0.06
	Color	—	natural	
Outer Conductor I	Material	—	Tinned annealed copper wire	silver plated annealed copper wire
	Form	—	braid	
	Strand	mm	0.05	0.08
	Construction	—	6×16	3×16
	Coverage	%	Min. 90	
	Diameter	mm	Nom. 1.05	1.24±0.07
Jacket	Material	—	Fluoroethylene-propylene(FEP)	Ethylene-tetrafluoroethylene(ETFE)
	Thickness	mm	Nom. 0.10	0.12
	Diameter	mm	1.25±0.13	1.48±0.08
	Color	—	Black, White, Red, Green, Yellow, Brown, Blue, Orange, Gray, Violet	
Unit length	m	305	100	
Package	—	paper reel	paper reel	
Approx. mass	kg/km	4.0	5.1	
Inner Conductor resistance at 20℃	Ω/km	Max. 844	Max. 832	
Dielectric strength*	—	A.C. 1000V for 1minute		
Insulation resistance* at 20℃	MΩ-km	Min. 1000		
Characteristic impedance by TDR	Ω	50±2		
Capacitance * at 1kHz	pF/m	Nom. 100	95±10	
Nominal attenuation	at 1GHz	dB/m	1.56	1.5
	at 2GHz	dB/m	2.3	2.2
	at 3GHz	dB/m	2.9	2.8
	at 4GHz	dB/m	3.5	3.3
	at 5GHz	dB/m	4.5	3.7
	at 6GHz	dB/m	5.2	4.2

\* Between inner conductor and outer conductor

Table 2 Construction and Properties (32AWG)

Item		Unit	Specified Value		
HCL P/N		—	UL1745-SB CX-50 1×32AWG(7/0.08)GAD=1.13	UL1745-SB CX-50 1×32AWG(7/0.08)D=1.32	UL1745-DSB CX-50 1×32AWG(7/0.08)D=1.32
HCLI-TPE P/N		—	RFX50-SS32-113	RFX50-SS32-132	RFX50-DS32-132
Inner Conductor	Material	—	silver plated annealed copper wire		
	AWG size	—	32		
	Stranding	No./mm	7/0.08		
	Diameter	mm	0.24		
	Number	—	1		
Insulation	Material	—	Fluoroethylene-propylene(FEP)		
	Thickness	mm	Nom. 0.21		
	Diameter	mm	0.68 <sup>+0.04</sup> <sub>-0.02</sub>		
	Color	—	Natural		
Outer Conductor I	Material	—	Silver plated annealed copper wire	Tinned annealed copper wire	
	Form	—	Braid		
	Strand	mm	0.05		
	Construction	—	4×16		
	Coverage	%	Min. 90		
	Diameter	mm	Nom. 0.88		
Outer Conductor II	Material	—	—	Tinned annealed copper wire	
	Form	—	—	braid	
	Strand	mm	—	0.05	
	Construction	—	—	6×16	
	Coverage	%	—	Min. 90	
	Diameter	mm	—	Nom. 1.12	
Jacket	Material	—	Fluoroethylene-propylene(FEP)		
	Thickness	mm	Nom. 0.125	Nom. 0.22	Nom. 0.10
	Diameter	mm	1.13 <sup>+0.08</sup> <sub>-0.05</sub>	1.32 (Max. 1.45)	1.32±0.1
	Color	—	Black, White, Red, Green, Yellow, Brown, Blue, Orange, Gray, Violet		
Unit length	m	305			200
Package	—	paper reel			Coil
Approx. mass	kg/km	4.0			5.0
Inner Conductor resistance at 20°C	Ω/km	Max. 597			
Dielectric strength*	—	A.C. 500V for 1minute			
Insulation resistance* at 20°C	MΩ-km	Min. 1000			
Characteristic impedance by TDR	Ω	50±2			
Capacitance * at 1kHz	pF/m	Nom. 95			
Nominal attenuation	at 1GHz	dB/m	2.0		
	at 2GHz	dB/m	2.9		
	at 3GHz	dB/m	3.6		
	at 4GHz	dB/m	4.2		
	at 5GHz	dB/m	4.7		
	at 6GHz	dB/m	5.2		

\* Between inner conductor and outer conductor

Table 3 Construction and Properties (34AWG, 36AWG)

Item		Unit	Specified Value	
HCL P/N		—	UL1745-SB CX-50 1×34AWG(7/0.064)D=0.98	UL1745-SB CX-50 1×36AWG(7/0.05)D=0.81
HCLI-TPE P/N		—	RFX50-SS34-098	RFX50-SS36-081
Inner Conductor	Material	—	silver plated annealed copper wire	
	AWG size	—	34	36
	Stranding	No./mm	7/0.064	7./0.05
	Diameter	mm	0.192	0.15
	Number	—	1	
Insulation	Material	—	Fluoroethylene-propylene(FEP)	
	Thickness	mm	Nom. 0.169	Nom. 0.125
	Diameter	mm	0.53	0.4 <sup>+0.04</sup> <sub>-0.02</sub>
	Color	—	natural	
Outer Conductor I	Material	—	Tinned annealed copper wire	silver plated annealed copper wire
	Form	—	braid	
	Strand	mm	0.05	
	Construction	—	4×16	3×16
	Coverage	%	Min. 90	
	Diameter	mm	Nom. 0.78	Nom. 0.65
Jacket	Material	—	Fluoroethylene-propylene(FEP)	Perfluoroalkoxy(PFA)
	Thickness	mm	Nom. 0.10	Nom. 0.08
	Diameter	mm	0.98 (Max. 1.1)	0.81 <sup>+0.04</sup> <sub>-0.02</sub>
	Color	—	Black, White, Red, Green, Yellow, Brown, Blue, Orange, Gray, Violet	
Unit length	m	305	305	
Package	—	paper reel	paper reel	
Approx. mass	kg/km	2.4	1.6	
Inner Conductor resistance at 20°C	Ω/km	Max. 868	Max. 1400	
Dielectric strength*	—	A.C. 500V for 1minute	A.C. 1000V for 1minute	
Insulation resistance* at 20°C	MΩ-km	Min. 1500	Min. 1000	
Characteristic impedance by TDR	Ω	50±5	50±3	
Capacitance * at 1kHz	pF/m	Nom. 100	Nom. 100	
Nominal attenuation	at 1GHz	dB/m	2.6	3.1
	at 2GHz	dB/m	3.9	4.7
	at 3GHz	dB/m	5.0	5.8
	at 4GHz	dB/m	6.1	6.9
	at 5GHz	dB/m	7.0	8.2
	at 6GHz	dB/m	7.9	9.4

\* Between inner conductor and outer conductor