

# SPECIFICATION

FOR

## UL RECOGNIZED IR-PVC INSULATED PVC JACKETED MULTIPAIR CABLE

[ P/N ; UL20276-SB(MA) ※P×28AWG(7/0.127)LF ]

*Quantity*

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*Your Ref. No.*

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*Our Ref. No.*

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*Signed by*

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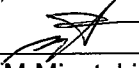
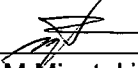
  
Masato Miyataki

Manager

Cable Engineering Dept.

**Hitachi Cable, Ltd.**  
**Hitachi Cable Fine Tech, Ltd.**

Issue and revision record

Rev. No.	Issue date	Item	Prepared by	Reviewed by	Approved by
-	Apr. 18, 2002	Initial issue	H. Tanaka	H. Ito	F. Shimizu
1	Feb. 5, 2007	(1) Specification No. is changed. SP02-23-90850 → SP02-23-90850 Rev.1 (2) Properties is added. (3) Recognized data is added. (4) Product description is added. (5) Specified value of dielectric strength is changed. withstand A.C.300V for 1min. ↓ withstand A.C.500V for 1min.	 Y. Tsukamoto	 M. Miyataki	 M. Miyataki

**1. Scope**

This specification covers UL recognized IR-PVC insulated multi pair shielded and PVC jacketed cable.

Use ; Internal wiring and external interconnection of electronic equipment in class 2 circuits only.

**2. Applicable standard**

- (1) UL 758 [ Latest version ]  
UL AWM Style 20276
- (2) Japan Electrical Appliance and safety Law (DENAN-Law) [ Latest version ]

**3. Construction and materials****3.1 Conductor**

- (1) Material ; stranded tinned annealed copper
- (2) Size ; 28AWG
- (3) Stranding ; shown in the table 1

**3.2 Insulation**

- (1) Material ; Lead Free & Irradiated PVC
- (2) Thickness ; minimum at any point 0.08mm
- (3) Color code ; shown in the fig.1 and the table2

**3.3 Assembly**

Individually insulated conductors shall be twisted together, and twisted pairs shall be cabled together. A binder tape shall be applied over the cabled pairs. Suitable fillers may be applied to make a circular cross section, if necessary.

**3.4 Braid shield**

- (1) Material ; tinned annealed copper
- (2) Strand ; 0.12mm
- (3) Coverage ; 85% (min.)

**3.5 Jacket**

- (1) Material ; Lead Free & heat resistant PVC
- (2) Thickness ;(5pair ~ 50 pair)  
minimum average 0.51mm  
minimum at any point 0.43mm  
(55pair ~ 60 pair)  
minimum average 0.76mm  
minimum at any point 0.61mm
- (3) Color ; Sand beige (Color code: SB)

**4. Properties**

- (1) Rating temperature ; 80°C
- (2) Rating Voltage ; 30 V
- (3) Flammability ; VW-1, -F-

**5. Marking**

**5.1 Marking on the cable**

The completed cable shall be printed following marking format on the surface throughout entire length by regular interval.

**AWM E41447 STYLE 20276 28AWG 80C VW-1 HITACHI -F-  
(HITACHI-T)**

or

**AWM E41447 STYLE 20276 28AWG 80C VW-1 HITACHI -F- LF  
(HITACHI-T)**

Note : Marking format subject to change without notice

**6. Packing**

**6.1 Packing**

- (1) Package ; Shown in table 1
- (2) Unit length ; Shown in table 1

**6.2 Marking on the package**

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

- |                       |  |
|-----------------------|--|
| ( 1) UL Style No.     | ( 8) Rating temperature                |
| ( 2) Conductor size   | ( 9) Rating voltage                    |
| ( 3) No. of conductor | (10) Date of manufacture               |
| ( 4) Jacket color     | (11) Insulation thickness and material |
| ( 5) Lot No.          | (12) Jacket thickness and material     |
| ( 6) Length           | (13) Use                               |
| ( 7) UL File No.      | (14) Name of manufacture               |

**7. Recognized data**

- (1) UL File No. ; E41447
- (2) DENAN Law ; F-HDH1-022, F-HDT1-020  
approval No.

**8. Product description**

U L 2 0 2 7 6 – S B (M A) 2 5 P × 2 8 A W G ( 7 / 0 . 1 2 7 ) L F  
 ①                      ②                      ③                      ④                      ⑤                      ⑥                      ⑦                      ⑧

- ① UL Style No.
- ② Braid shield
- ③ Multi assembly
- ④ No. of pair
- ⑤ Conductor size
- ⑥ No. of strand
- ⑦ Dia. of strand
- ⑧ Lead free

**9. Control of Chemical Substances**

Control of Chemical Substances in this product shall be controlled as below.

**9.1 6 substances of RoHS Directive**

(1) Applicable standard and statute

- (a) Directive 2002/95/EC of the European Parliament and of the Council on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment)
- (b) 2005/618/EC COMMISSION DECISION of 18 August 2005 (amending Directive 2002/95/EC of the European Parliament and of the Council for the purpose of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment)
- (c) JIS C 0950:2005(The marking for presence of the specific chemical substances for electrical and electronic equipment)

(2) The maximum concentration values for certain hazardous substances.

	Chemical Substances	Concentration value	
		Resin, a paint, and ink	Others
1	Cadmium and Cadmium Compounds	Max. 75ppm	
2	Hexavalent Chromium Compounds	Max. 1000ppm	
3	Laed and Lead Compounds	Max. 100ppm	Max. 1000ppm
4	Mercury and Mercury Compounds	Max. 1000ppm	
5	Polybrominated Biphenyls(PBBs)	Max. 1000ppm	
6	Polybrominated Diphenyl ethers(PBDEs)	Max. 1000ppm	

**9.2 15 substances of JGPSSI Level A**

(1) Applicable Standard

JGPSSI Manual for Survey of Chemical Substances Contained in Parts and Materials (ver.2:04.04.19)

(2) Maximum concentration value

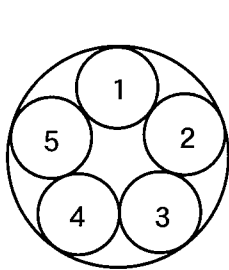
Intentionally added in the case of the deliberate use in the formulation of the product. 6 substances of the clause 9.1 shall be controlled as clause 9.1 (2).

Japan Green Procurement Survey Standardization Initiative (JGPSSI)

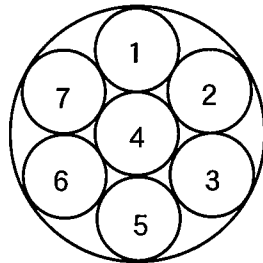
Table 1

Item		Unit	Specified value													
No. of pairs		-	5	7	10	14	18	20	25	34	40	50	55	60		
Conductor	AWG size	-	28													
	Stranding	No./mm	7/0.127													
	Diameter (Nom.)	mm	0.38													
Insulation	Thickness (Nom.)	mm	0.10													
	Diameter (Nom.)	mm	0.58													
	Core UL style	-	STYLE 1571													
Diameter of twisted pair (Nom.)		mm	1.16													
Diameter of assembly (Nom.)		mm	2.9	3.3	3.7	4.4	4.9	5.3	5.8	6.7	7.2	8.1	8.5	8.9		
Thickness of binder (Nom.)		mm	0.3													
Jacket	Thickness (Nom.)	mm	0.81													
	Diameter (Nom.)	mm	5.1	5.5	6.0	6.7	7.2	7.6	8.1	9.0	9.5	10.4	10.8	11.2		
Max. conductor resistance(at 20°C)		$\Omega$ /km	246													
Dielectric strength		-	withstand A.C. 500V for 1min.													
Min. insulation resistance(at 20°C)		M $\Omega$ -km	10													
Approx. weight		kg/km	36	43	54	67	79	90	100	126	142	170	184	197		
Unit length		m	200								100					
Package		-	coil													

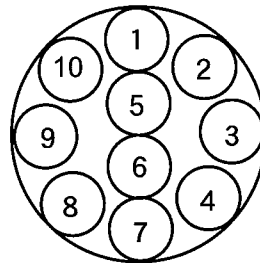
Fig. 1(1)



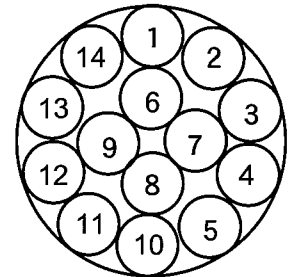
5P(5)



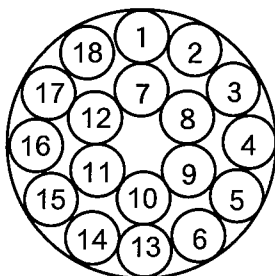
7P(1+6)



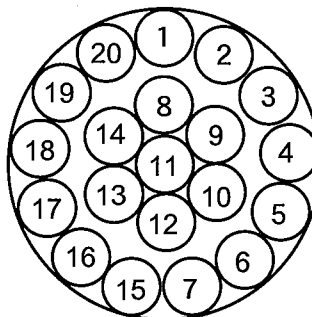
10P(2+8)



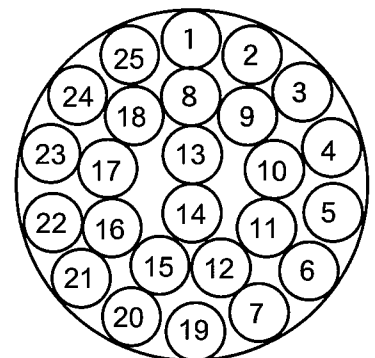
14P(4+10)



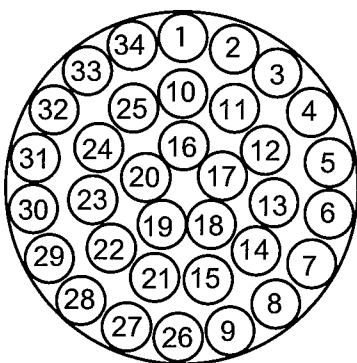
18P(6+12)



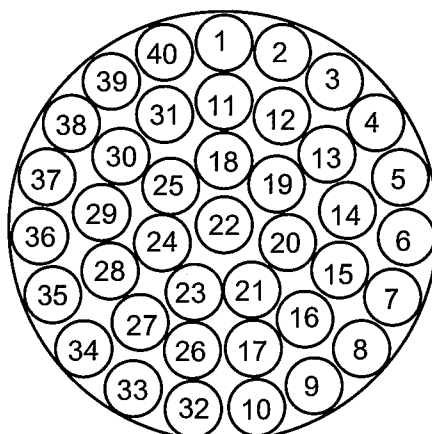
20P(1+6+13)



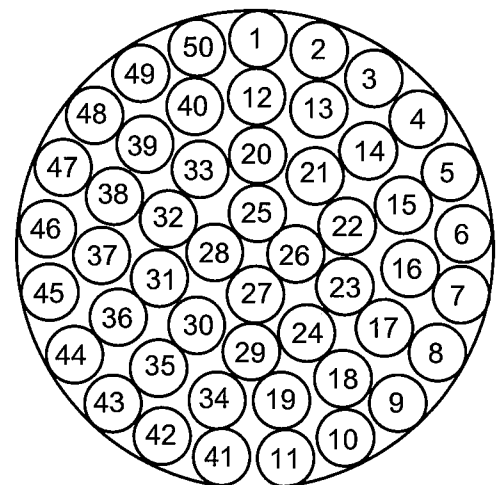
25P(2+9+14)



34P(5+11+18)

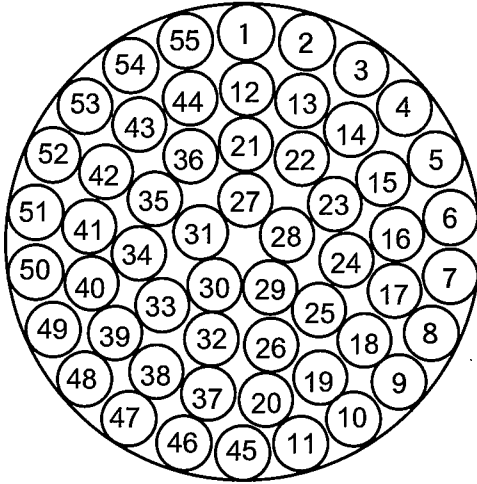


40P(1+7+13+19)

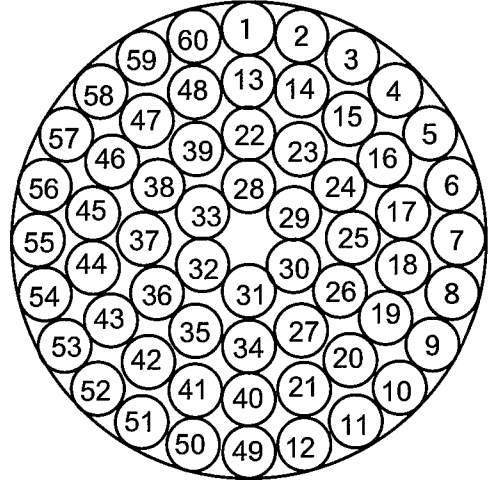


50P(4+10+15+21)

Fig. 1(2)



55P(5+11+17+22)



60P(6+12+18+24)



Table 2 Dot marking color

No. of Pair	Insulation Color	Dot marking	Dotmarking color		No. Of Pair	Insulation Color	Dot marking	Dotmarking color	
			1st. cord	2nd. cord				1st. cord	2nd. cord
1	Orange	■	Black	Red	31	Orange	■ ■	Black	Red
2	Gray	■	Black	Red	32	Gray	■ ■	Black	Red
3	White	■	Black	Red	33	White	■ ■	Black	Red
4	Yellow	■	Black	Red	34	Yellow	■ ■	Black	Red
5	Pink	■	Black	Red	35	Pink	■ ■	Black	Red
6	Orange	■ ■	Black	Red	36	Orange	■ ■ ■	Black	Red
7	Gray	■ ■	Black	Red	37	Gray	■ ■ ■	Black	Red
8	White	■ ■	Black	Red	38	White	■ ■ ■	Black	Red
9	Yellow	■ ■	Black	Red	39	Yellow	■ ■ ■	Black	Red
10	Pink	■ ■	Black	Red	40	Pink	■ ■ ■	Black	Red
11	Orange	■ ■ ■	Black	Red	41	Orange	■ ■ ■ ■	Black	Red
12	Gray	■ ■ ■	Black	Red	42	Gray	■ ■ ■ ■	Black	Red
13	White	■ ■ ■	Black	Red	43	White	■ ■ ■ ■	Black	Red
14	Yellow	■ ■ ■	Black	Red	44	Yellow	■ ■ ■ ■	Black	Red
15	Pink	■ ■ ■	Black	Red	45	Pink	■ ■ ■ ■	Black	Red
16	Orange	■ ■ ■ ■	Black	Red	46	Orange	■ ■ ■ ■ ■	Black	Red
17	Gray	■ ■ ■ ■	Black	Red	47	Gray	■ ■ ■ ■ ■	Black	Red
18	White	■ ■ ■ ■	Black	Red	48	White	■ ■ ■ ■ ■	Black	Red
19	Yellow	■ ■ ■ ■	Black	Red	49	Yellow	■ ■ ■ ■ ■	Black	Red
20	Pink	■ ■ ■ ■	Black	Red	50	Pink	■ ■ ■ ■ ■	Black	Red
21	Orange	■ ■ ■ ■ ■ (Continuance)	Black	Red	51	Orange	■ ■	Black	Red
22	Gray	■ ■ ■ ■ ■ (Continuance)	Black	Red	52	Gray	■ ■	Black	Red
23	White	■ ■ ■ ■ ■ (Continuance)	Black	Red	53	White	■ ■	Black	Red
24	Yellow	■ ■ ■ ■ ■ (Continuance)	Black	Red	54	Yellow	■ ■	Black	Red
25	Pink	■ ■ ■ ■ ■ (Continuance)	Black	Red	55	Pink	■ ■	Black	Red
26	Orange	■ ■	Black	Red	56	Orange	■ ■ ■	Black	Red
27	Gray	■ ■	Black	Red	57	Gray	■ ■ ■	Black	Red
28	White	■ ■	Black	Red	58	White	■ ■ ■	Black	Red
29	Yellow	■ ■	Black	Red	59	Yellow	■ ■ ■	Black	Red
30	Pink	■ ■	Black	Red	60	Pink	■ ■ ■	Black	Red