



GENERAL DISCUSSION
of
NTDS INTERFACE
CONNECTORS AND CABLES

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GET NTDS INTERFACE CONNECTORS AND CABLES DISCUSSION

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SECTION 1
NTDS INTERFACE
CONNECTORS AND CABLES
DISCUSSION

1.1 SCOPE

This document contains a discussion of the general philosophy used in the implementation of GET Interface Adaptor cable and connector products. This document is intended to assist qualified personnel in the development, operation, installation, and diagnosis of these items. It is not the intent or purpose of this document to define the actual uses or applications of NTDS cable and connector products. The following description of the recommended NTDS cables and connectors is intended only as an aid in explaining possible interconnection schemes and as such does not cover all aspects of NTDS connectivity. For a complete description of NTDS cables and connectors refer to MIL-STD-1397C (SHIPS) Military Standard Document.

1.2 NTDS CABLES

The maximum length of cables allowed depends on the cable type and the interface type. The maximum lengths indicated are those for which proper operation is assured for equipment otherwise fully conforming to the NTDS specification. Longer cable lengths are possible. However, each system interface must be thoroughly analyzed individually for proper operation with longer cables. The maximum recommended lengths, including internal and external cabling, are according to Table 1.1.

1.2.1 INDUSTRY STANDARD CABLES

Due to the high cost and relatively long lead times for the LS2U-45 cable many shore based or development NTDS installations are opting for the use of commercial cable. However, under certain conditions commercial cable is not recommended for shipboard installations. GET produces an electrically equivalent commercial cable to the 2U cable. This cable is completely suitable for most NTDS applications. This 37 conductor pair, PVC jacketed cable has the advantage of being highly flexible while maintaining a 100% metal braid shield, and a mylar foil shield with drain wire. Specifications for the GET 46523437 cable are shown in Figure 1.1.

1.3 NTDS CONNECTORS

The connectors used on NTDS parallel interface systems are keyed to prevent improper connection. By convention the references to input and output are with respect to the computer. The computer input cabinet connector may be the same as the peripheral equipment output cabinet connector. The computer output cabinet connector may be the same as the peripheral equipment input cabinet connector. This configuration, if the same family of connectors is used, allows the Input cables to be interchanged with the Output cables by turning them end for end. The recommended NTDS cabinet and cable connectors are listed in Table 1.2.

1.3.1 INDUSTRY STANDARD PARALLEL CONNECTORS

Due to the large size of NTDS cables and the relatively small size of commercial computers and peripheral equipment used in most development NTDS installations, many users transition to commercial ribbon cables. Ribbon cables are not recommended for shipboard installations. GET produces a line of transition modules which allow quick, modular ribbon cable connections to NTDS devices. These compact modules feature high density 80 contact ribbon cable connectors which are compatible with all GET NTDS products. These easily interchangeable cable transition modules enable efficient system reconfiguration and troubleshooting.

1.3.2 INDUSTRY STANDARD SERIAL CONNECTORS

The physical requirements placed on most commercial board level NTDS interface adaptors requires the use of relatively small connectors. The large NTDS serial interface coax and triax connectors are typically too large to fit in most commercially packaged computer systems. This has led the industry to shift to smaller electrically equivalent connectors. The connectors used are listed in Table 1.2.

1.4 NTDS SIGNAL ASSIGNMENTS

The standard function to connector pin assignments for the connectors listed in Table 1.2 are listed in Table 1.3. Pins not listed may have no connections. The standard function to cable wire pair color code must be used to facilitate connector maintenance and guarantee signal integrity.

TABLE 1.1

MAXIMUM NTDS CABLE LENGTHS

INTERFACE TYPE	CABLE TYPE			
PARALLEL				
	2U OR 2UW OR LS2U		2AU OR 2AUW OR LS2AU	
A	300 FT	91.4 METERS	300 FT	91.4 METERS
B	50 FT	15.2 METERS	150 FT	45.7 METERS
C	100 FT	30.5 METERS	250 FT	76.2 METERS
H	100 FT	30.5 METERS	250 FT	76.2 METERS
SERIAL				
	RG-12A			
D	1000 FT	304.8 METERS		
	MIL-C-17/135	TRF-8	MIL-C-17/134	TRF-58
E	985 FT	300 METERS	395 FT	120 METERS

FIGURE 1.1

GET CABLE SPECIFICATION

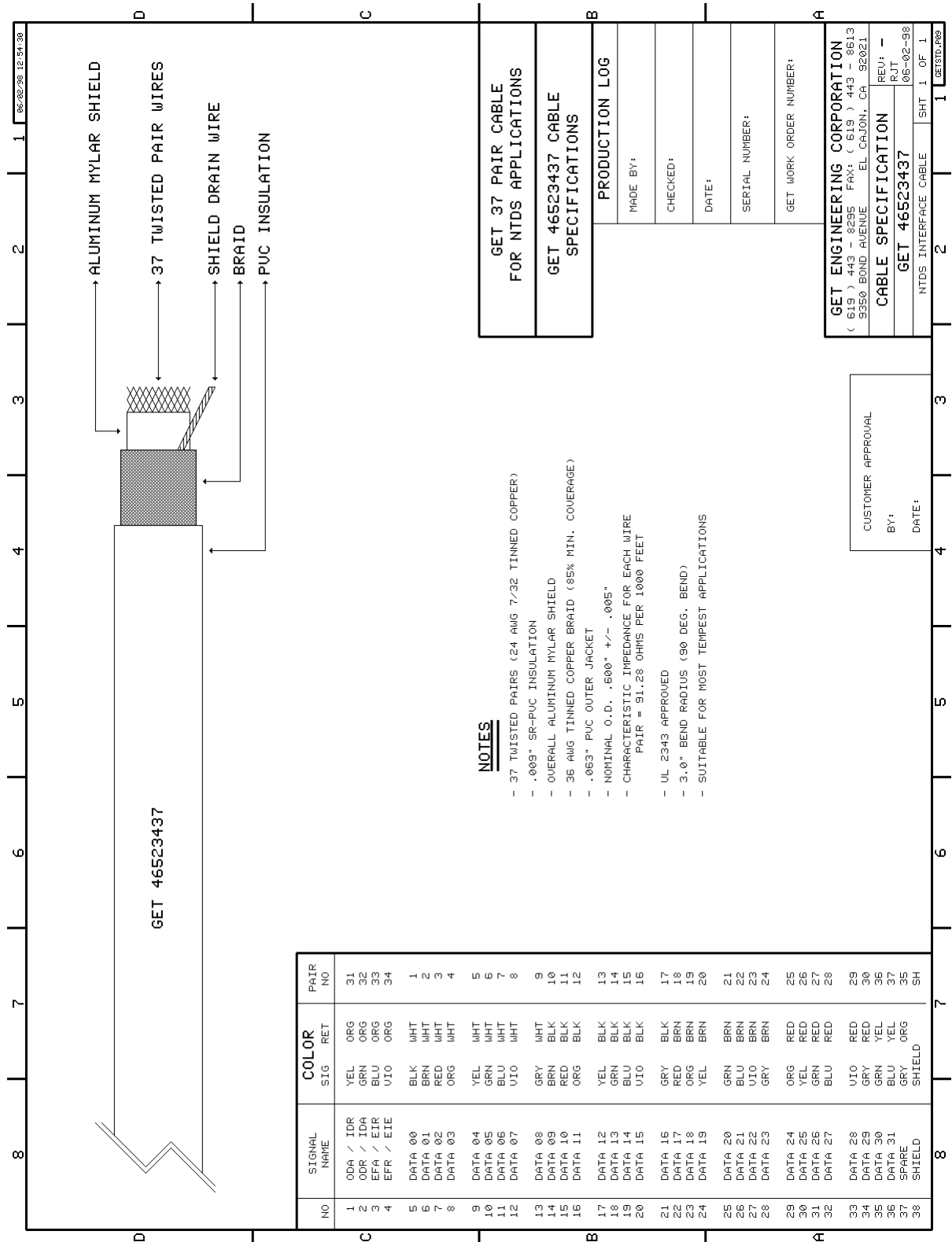


TABLE 1.2

NTDS CONNECTORS

NTDS TYPE	CONNECTOR SIZE AND USE	CABINET CONNECTOR	CABLE CONNECTOR
A, B, C, H	120 CONTACT INPUT/OUTPUT	NOT SPECIFIED	NOT SPECIFIED
A, B, C, H	92 CONTACT INPUT OUTPUT	M28840/12AG1P1 M28840/12AG1P2	M28840/16AG1S1 M28840/16AG1S2
A, B, C, H	90 CONTACT INPUT/OUTPUT	DPD-90-34P	DPD-90-33S
A, B, C, H	85 CONTACT INPUT OUTPUT	M81511/01EF01P1 M81511/01EF01P2	M81511/06EF01S1 M81511/06EF01S2
A, B, C, H	79 CONTACT INPUT OUTPUT	D38999/20WG35PN D38999/20WG35PA	D38999/26WG35SN D38999/26WG35SA
D	COAX COMMERCIAL	NOT SPECIFIED TROMPETER UCBBJR-26 (2 lug,isolated)	NOT SPECIFIED TROMPETER PL20-7
E	TRIAx COMMERCIAL	M49142/2-0001 TROMPETER BJ-77 (3 LUG) TROMPETER BJ-80 (2 LUG)	M49141/1-0001 M49141/1-0002 TROMPETER PL75C-7 (3 LUG) TROMPETER PL80-7 (2 LUG)

TABLE 1.3

MIL-STD-1397 (SHIPS) CABLE PIN ASSIGNMENTS

CONNECTOR	3-1		AMP HDD-22		AMPHENOL		DPD-90-		MIL-STD-1397C SPECIFIED CONNECTORS		CABLES & COLOR CODES				
	3425-6650 (50)	3414-6634 (34)	204521-3	204520-3	84E- C0808PALA00	84E- E0808PALA00	335	34P	D38399N	M81511N	M28840N	UNITSYS	LS2U45 TYPE LENGTH	MIL-STD-1397C TYPE LENGTH	LS2U45 TYPE LENGTH
CABLE OUTPUT	3	4	39	78	1	20	1	45	7	74	6	B-01	SH	SH	SH
CABLE INPUT	5	6	19	58	3	4	1	11	79	1	6	B-5	ORG	BRN	40
PANEL OUTPUT	7	8	38	77	5	6	2	12	77	2	7	B-6	GRN	BLU	39
PANEL INPUT	9	10	18	57	7	8	3	13	75	3	8	B-7	BLU	GRN	38
					9	10	4	14	73	4	10	B-8	ORG	TAN	37
					13	14	1	19	71	13	21	D-01	BLK	BLU	15
					15	16	10	20	69	14	22	D-02	WHT	ORG	14
					17	18	10	20	69	14	22	D-02	BRN	WHT	14
					19	20	22	33	67	15	23	D-03	WHT	RED	14
					21	22	17	18	66	15	23	D-03	ORG	BLU	21
					23	24	19	20	65	16	24	D-04	WHT	WHT	24
					35	74	19	20	65	16	24	D-04	ORG	PNK	21
					15	54	21	22	63	17	25	D-05	WHT	TAN	20
					27	28	34	73	61	18	26	D-06	WHT	YEL	18
					34	73	24	25	59	18	26	D-07	WHT	YEL	18
					53	25	26	37	58	19	27	D-08	WHT	YEL	19
					14	53	25	37	58	19	27	D-08	WHT	GRY	7
					33	72	27	38	56	30	43	D-09	WHT	GRY	7
					33	72	27	38	56	30	43	D-09	WHT	GRY	7
					13	52	29	39	55	31	41	D-10	GRY	WHT	1
					15	16	31	41	53	32	42	D-10	BLK	BLK	6
					31	32	31	32	52	33	43	D-11	BLK	BLU	5
					51	33	34	44	51	33	43	D-11	ORG	BLU	10
					51	33	34	44	51	33	43	D-11	ORG	BLU	10
					31	70	35	36	49	48	34	D-12	ORG	GRN	13
					11	50	37	38	47	46	35	G-01	YEL	GRN	34
					30	59	39	40	45	44	40	G-02	GRN	GRN	25
					41	42	40	41	48	45	40	G-03	RED	GRN	25
					10	49	41	42	48	45	40	G-03	RED	GRN	25
					43	44	43	44	49	46	41	G-04	BLK	RED	2
					29	68	43	44	60	41	40	G-04	BLK	RED	2
					28	67	47	48	50	41	40	G-05	BLK	YEL	8
					8	47	49	50	51	42	41	G-06	BLK	YEL	8
					27	66	51	52	52	43	42	G-07	BLK	YEL	9
					7	46	53	54	53	44	43	G-08	YEL	GRN	4
					26	65	55	56	54	45	44	G-09	BLK	GRN	10
					6	45	57	58	55	46	45	G-10	BLK	PNK	11
					25	64	59	60	56	47	46	G-11	BLK	PNK	11
					5	44	61	62	57	48	47	G-12	GRY	BRN	10
					26	65	55	56	54	45	44	G-12	GRY	BRN	10
					11	12	6	45	31	30	29	J-01	RED	GRY	26
					13	14	25	64	29	28	27	J-02	RED	GRY	26
					15	16	5	44	25	24	23	J-03	RED	GRY	26
					2	4	63	64	70	80	71	J-04	RED	GRY	26
					3	4	43	65	71	81	72	J-05	RED	GRY	26
					23	24	67	68	72	82	73	J-06	RED	GRY	26
					25	26	69	70	73	83	74	J-07	RED	GRY	26
					2	2	61	71	77	86	75	J-08	RED	GRY	26
					28	28	22	31	30	29	28	J-09	RED	GRY	26
					29	30	41	73	74	85	76	J-10	RED	GRY	26
					31	32	21	60	75	86	77	J-11	RED	GRY	26
					33	34	1	40	77	87	78	J-12	RED	GRY	26
					34	34	1	40	77	87	78	J-13	RED	GRY	26
					27	28	27	28	34	44	35	J-14	RED	GRY	26
					29	30	21	60	75	86	77	J-15	RED	GRY	26
					31	32	2	61	72	83	74	J-16	RED	GRY	26
					33	34	1	40	77	87	78	J-17	RED	GRY	26
					27	28	27	28	34	44	35	J-18	RED	GRY	26
					29	30	21	60	75	86	77	J-19	RED	GRY	26
					31	32	2	61	72	83	74	J-20	RED	GRY	26
					33	34	1	40	77	87	78	J-21	RED	GRY	26
					27	28	27	28	34	44	35	J-22	RED	GRY	26
					29	30	21	60	75	86	77	J-23	RED	GRY	26
					31	32	2	61	72	83	74	J-24	RED	GRY	26
					33	34	1	40	77	87	78	J-25	RED	GRY	26
					27	28	27	28	34	44	35	J-26	RED	GRY	26
					29	30	21	60	75	86	77	J-27	RED	GRY	26
					31	32	2	61	72	83	74	J-28	RED	GRY	26
					33	34	1	40	77	87	78	J-29	RED	GRY	26
					27	28	27	28	34	44	35	J-30	RED	GRY	26
					29	30	21	60	75	86	77	J-31	RED	GRY	26
					31	32	2	61	72	83	74	J-32	RED	GRY	26
					33	34	1	40	77	87	78	J-33	RED	GRY	26
					27	28	27	28	34	44	35	J-34	RED	GRY	26
					29	30	21	60	75	86	77	J-35	RED	GRY	26
					31	32	2	61	72	83	74	J-36	RED	GRY	26
					33	34	1	40	77	87	78	J-37	RED	GRY	26
					27	28	27	28	34	44	35	J-38	RED	GRY	26
					29	30	21	60	75	86	77	J-39	RED	GRY	26
					31	32	2	61	72	83	74	J-40	RED	GRY	26
					33	34	1	40	77	87	78	J-41	RED	GRY	26
					27	28	27	28	34	44	35	J-42	RED	GRY	26
					29	30	21	60	75	86	77	J-43	RED	GRY	26
					31	32	2	61	72	83	74	J-44	RED	GRY	26
					33	34	1	40	77	87	78	J-45	RED	GRY	26
					27	28	27	28	34	44	35	J-46	RED	GRY	26
					29	30	21	60	75	86	77	J-47	RED	GRY	26
					31	32	2	61	72	83	74	J-48	RED	GRY	26
					33	34	1	40	77	87	78	J-49	RED	GRY	26
					27	28	27	28	34	44	35	J-50	RED	GRY	26
					29	30	21	60	75	86	77	J-51	RED	GRY	26
					31	32	2	61	72	83	74	J-52	RED	GRY	26
					33	34	1	40	77	87	78	J-53	RED	GRY	26
					27	28	27	28	34	44	35	J-54	RED	GRY	26
					29	30	21	60	75	86	77	J-55	RED	GRY	26
					31	32	2	61	72	83	74	J-56	RED	GRY	26
					33	34	1	40	77	87	78	J-57	RED	GRY	26
					27	28	27	28	34	44	35	J-58	RED	GRY	26
					29	30	21								