

SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS <i>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, & 30</i>				1. REQUISITION NUMBER 4200438406		PAGE OF 1 11	
2. CONTRACT NO.		3. AWARD/EFFECTIVE DATE		4. ORDER NUMBER		5. SOLICITATION NUMBER NNK12438406Q	
7. FOR SOLICITATION INFORMATION CALL:		a. NAME Louis Patalano		b. TELEPHONE NUMBER (No collect calls) 321-867-2252		6. SOLICITATION ISSUE DATE 06/15/2012	
8. ISSUED BY NASA/John F. Kennedy Space Center Office of Procurement MAIL CODE OP KENNEDY SPACE CENTER FL 32899				10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input checked="" type="checkbox"/> SET ASIDE: 100.00 % FOR: WOMEN-OWNED SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM <input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> 8(A) NAICS: 335999 SIZE STANDARD: 500			
11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input type="checkbox"/> SEE SCHEDULE		12. DISCOUNT TERMS		13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>		13b. RATING	
15. DELIVER TO NASA/Kennedy Space Center KENNEDY SPACE CENTER FL 32899		CODE KSC		16. ADMINISTERED BY NASA/Kennedy Space Center Office of Procurement MAIL CODE OP KENNEDY SPACE CENTER FL 32899		14. METHOD OF SOLICITATION <input checked="" type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP	
17a. CONTRACTOR/OFFEROR		CODE		18a. PAYMENT WILL BE MADE BY		CODE KSC	
TELEPHONE NO.				17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER <input type="checkbox"/>			
19. ITEM NO.				20. SCHEDULE OF SUPPLIES/SERVICES		21. QUANTITY	
001				Quality Code 2 is required pursuant to FAR 52.246-15. A certificate of conformance is required per requirements of the 120E3100001 series. MULTICONDUCTOR CABLE, PAIRED TWISTED SHIELDED INSULATED, 3 PAIR, 16 AWG Part Number: 120E3100001-001 Continued ... <i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i>		22. UNIT 1000 EA	
				23. UNIT PRICE		24. AMOUNT	
25. ACCOUNTING AND APPROPRIATION DATA						26. TOTAL AWARD AMOUNT (For Govt. Use Only)	
<input checked="" type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4, FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA <input checked="" type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED. <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED.							
<input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED.				<input type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER DATED _____ YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:			
30a. SIGNATURE OF OFFEROR/CONTRACTOR				31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)			
30b. NAME AND TITLE OF SIGNER (Type or print)		30c. DATE SIGNED		31b. NAME OF CONTRACTING OFFICER (Type or print)		31c. DATE SIGNED	
				Marco Pochy			

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
002	MULTICONDUCTOR CABLE, PAIRED TWISTED SHIELED INSULATED, 8 PAIR, 16 AWG Part Number: 120E3100001-005	180	EA		
003	MULTICONDUCTOR CABLE, PAIRED TWISTED SHIELED INSULATED, 8 PAIR, 16 AWG Part Number: 120E3100001-005	820	EA		
004	MULTICONDUCTOR CABLE, 50 CONDUCTORS, 16 AWG Part Number: 120E3100001-011	1000	EA		
005	MULTICONDUCTOR CABLE, PAIRED TWISTED SHIELED INSULATED, 16 PAIR, 16 AWG Part Number: 120E3100001-022	1000	EA		
Continued ...					

32a. QUANTITY IN COLUMN 21 HAS BEEN

RECEIVED INSPECTED ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: _____

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	32c. DATE	32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE
32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE		32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE
		32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	34. VOUCHER NUMBER	35. AMOUNT VERIFIED CORRECT FOR	36. PAYMENT <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL	37. CHECK NUMBER
38. S/R ACCOUNT NUMBER	39. S/R VOUCHER NUMBER	40. PAID BY		

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT		42a. RECEIVED BY (<i>Print</i>)	
41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER		41c. DATE	
		42b. RECEIVED AT (<i>Location</i>)	
		42c. DATE REC'D (<i>YY/MM/DD</i>)	42d. TOTAL CONTAINERS

NAME OF OFFEROR OR CONTRACTOR

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
006	MULTICONDUCTOR CABLE, PAIRED TWISTED SHIELDED INSULATED, 18 PAIR, 16 AWG Part Number: 120E3100001-044	1000	EA		
007	MULTICONDUCTOR CABLE, OVERALL SHIELD, 37 CONDUCTORS, 16 AWG Part Number: 120E3100001-045	1000	EA		
008	MULTICONDUCTOR CABLE, PAIRED TWISTED SHIELDED INSULATED, 28 PAIR, 16 AWG Part Number: 120E3100001-046	1000	EA		
009	MULTICONDUCTOR CABLE, OVERALL SHIELD, 60 CONDUCTORS, 16 AWG Part Number: 120E3100001-047	1000	EA		
010	MULTICONDUCTOR CABLE, OVERALL SHIELD, 4 CONDUCTORS, 8 AWG Part Number: 120E3100001-056	1000	EA		
011	MULTICONDUCTOR CABLE, OVERALL SHIELD, 2 CONDUCTORS, 6 AWG Part Number: 120E3100001-057	1000	EA		
012	MULTICONDUCTOR CABLE, OVERALL SHIELD, 4 CONDUCTORS, 1/0 Part Number: 120E3100001-063 Continued ...	3000	EA		

CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED
NNK12438406Q

PAGE OF
4 11

NAME OF OFFEROR OR CONTRACTOR

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
013	MULTICONDUCTOR CABLE, OVERALL SHIELD, CONDUCTORS, 2 AWG Part Number: 120E3100001-064	1000	EA		
014	M/C CABLE Part Number: 120E3100001-024	37000	EA		
Tax Exempt Certificate: This order is exempt from Florida State Taxes by tax exempt No. 15 00 5279 51C.					

ADDENDUM TO 52.212-4, CONTRACT TERMS AND CONDITIONS - COMMERCIAL ITEMS**52.247-34 F.o.b. Destination. (NOV 1991)****1852.215-84 Ombudsman. (NOV 2011)**

(a) An ombudsman has been appointed to hear and facilitate the resolution of concerns from offerors, potential offerors, and contractors during the preaward and postaward phases of this acquisition. When requested, the ombudsman will maintain strict confidentiality as to the source of the concern. The existence of the ombudsman is not to diminish the authority of the contracting officer, the Source Evaluation Board, or the selection official. Further, the ombudsman does not participate in the evaluation of proposals, the source selection process, or the adjudication of formal contract disputes. Therefore, before consulting with an ombudsman, interested parties must first address their concerns, issues, disagreements, and/or recommendations to the contracting officer for resolution.

(b) If resolution cannot be made by the contracting officer, interested parties may contact the installation ombudsman, whose name, address, telephone number, facsimile number, and email address may be found at: http://prod.nais.nasa.gov/pub/pub_library/Omb.html. Concerns, issues, disagreements, and recommendations which cannot be resolved at the installation may be referred to the Agency ombudsman identified at the above URL. Please do not contact the ombudsman to request copies of the solicitation, verify offer due date, or clarify technical requirements. Such inquiries shall be directed to the Contracting Officer or as specified elsewhere in this document.

(End of clause)

1852.225-70 Export Licenses. (FEB 2000)

(a) The Contractor shall comply with all U.S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, in the performance of this contract. In the absence of available license exemptions/exceptions, the Contractor shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of hardware, technical data, and software, or for the provision of technical assistance.

(b) The Contractor shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of this contract, including instances where the work is to be performed on-site at KSC, where the foreign person will have access to export-controlled technical data or software.

(c) The Contractor shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.

(d) The Contractor shall be responsible for ensuring that the provisions of this clause apply to its subcontractors.

(End of clause)

1852.237-73 Release of Sensitive Information. (JUN 2005)

(a) As used in this clause, "Sensitive information" refers to information, not currently in the public domain, that the Contractor has developed at private expense, that may embody trade secrets or commercial or financial information, and that may be sensitive or privileged.

(b) In accomplishing management activities and administrative functions, NASA relies heavily on the support of various service providers. To support NASA activities and functions, these service providers, as well as their subcontractors and their individual employees, may need access to sensitive information submitted by the Contractor under this contract. By submitting this proposal or performing this contract, the Contractor agrees that NASA may release to its service providers, their subcontractors, and their individual employees, sensitive information submitted during the course of this procurement, subject to the enumerated protections mandated by the clause at 1852.237-72, Access to Sensitive Information.

(c) (1) The Contractor shall identify any sensitive information submitted in support of this proposal or in performing this contract. For purposes of identifying sensitive information, the Contractor may, in addition to any other notice or legend otherwise required, use a notice similar to the following:

Mark the title page with the following legend:

This proposal or document includes sensitive information that NASA shall not disclose outside the Agency and its service providers that support management activities and administrative functions. To gain access to this sensitive information, a service provider's contract must contain the clause at NFS 1852.237-72, Access to Sensitive Information. Consistent with this clause, the service provider shall not duplicate, use, or disclose the information in whole or in part for any purpose other than to perform the services specified in its contract. This restriction does not limit the Government's right to use this information if it is obtained from another source without restriction. The information subject to this restriction is contained in pages [insert page numbers or other identification of pages]. Mark each page of sensitive information the Contractor wishes to restrict with the following legend:

Use or disclosure of sensitive information contained on this page is subject to the restriction on the title page of this proposal or document.

(2) The Contracting Officer shall evaluate the facts supporting any claim that particular information is "sensitive." This evaluation shall consider the time and resources necessary to protect the information in accordance with the detailed safeguards mandated by the clause at 1852.237-72, Access to Sensitive Information. However, unless the Contracting Officer decides, with the advice of Center counsel, that reasonable grounds exist to challenge the Contractor's claim that particular information is sensitive, NASA and its service providers and their employees shall comply with all of the safeguards contained in paragraph (d) of this clause.

(d) To receive access to sensitive information needed to assist NASA in accomplishing management activities and administrative functions, the service provider must be operating under a contract that contains the clause at 1852.237-72, Access to Sensitive Information. This clause obligates the service provider to do the following:

- (1) Comply with all specified procedures and obligations, including the Organizational Conflicts of Interest Avoidance Plan, which the contract has incorporated as a compliance document.
- (2) Utilize any sensitive information coming into its possession only for the purpose of performing the services specified in its contract.
- (3) Safeguard sensitive information coming into its possession from unauthorized use and disclosure.
- (4) Allow access to sensitive information only to those employees that need it to perform services under its contract.
- (5) Preclude access and disclosure of sensitive information to persons and entities outside of the service provider's organization.
- (6) Train employees who may require access to sensitive information about their obligations to utilize it only to perform the services specified in its contract and to safeguard it from unauthorized use and disclosure.
- (7) Obtain a written affirmation from each employee that he/she has received and will comply with training on the authorized uses and mandatory protections of sensitive information needed in performing this contract.
- (8) Administer a monitoring process to ensure that employees comply with all reasonable security procedures, report any breaches to the Contracting Officer, and implement any necessary corrective actions.

(e) When the service provider will have primary responsibility for operating an information technology system for NASA that contains sensitive information, the service provider's contract shall include the clause at 1852.204-76, Security Requirements for Unclassified Information Technology Resources. The Security Requirements clause requires the service provider to implement an Information Technology Security Plan to protect information processed, stored, or transmitted from unauthorized access, alteration, disclosure, or use. Service provider personnel requiring privileged access or limited privileged access to these information technology systems are subject to screening using the standard National Agency Check (NAC) forms appropriate to the level of risk for adverse impact to NASA missions. The Contracting Officer may allow the service provider to conduct its own screening, provided the service provider employs substantially equivalent screening procedures.

(f) This clause does not affect NASA's responsibilities under the Freedom of Information Act.

(g) The Contractor shall insert this clause, including this paragraph (g), suitably modified to reflect the relationship of the

parties, in all subcontracts that may require the furnishing of sensitive information.

(End of clause)

52.212-5 ATTACHMENT

52.212-5 Contract Terms and Conditions Required to Implement Statutes or Executive Orders - Commercial Items. (MAY 2012)

(a) The Contractor shall comply with the following Federal Acquisition Regulation (FAR) clauses, which are incorporated in this contract by reference, to implement provisions of law or Executive orders applicable to acquisitions of commercial items:

(1) 52.222-50, Combating Trafficking in Persons (FEB 2009) (22 U.S.C. 7104(g)).

Alternate I (Aug 2007) of 52.222-50 (22 U.S.C. 7104(g)).

(2) 52.233-3, Protest After Award (AUG 1996) (31 U.S.C. 3553).

(3) 52.233-4, Applicable Law for Breach of Contract Claim (OCT 2004) (Pub. L. 108-77, 108-78).

(b) The Contractor shall comply with the FAR clauses in this paragraph (b) that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items: Contracting Officer check as appropriate.

(1) 52.203-6, Restrictions on Subcontractor Sales to the Government (SEP 2006), with Alternate I (OCT 1995) (41 U.S.C. 253g and 10 U.S.C. 2402).

(2) 52.203-13, Contractor Code of Business Ethics and Conduct (APR 2010)(Pub. L. 110-252, Title VI, Chapter 1 (41 U.S.C. 251 note)).

(3) 52.203-15, Whistleblower Protections under the American Recovery and Reinvestment Act of 2009 (JUN 2010) (Section 1553 of Pub. L. 111-5). (Applies to contracts funded by the American Recovery and Reinvestment Act of 2009.)

(4) 52.204-10, Reporting Executive Compensation and First-Tier Subcontract Awards (FEB 2012) (Pub. L. 109-282) (31 U.S.C. 6101 note).

(5) 52.204-11, American Recovery and Reinvestment Act--Reporting Requirements (JUL 2010) (Pub. L. 111-5).

(6) 52.209-6, Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (DEC 2010) (31 U.S.C. 6101 note).

(7) 52.209-9, Updates of Publicly Available Information Regarding Responsibility Matters (FEB 2012) (41 U.S.C. 2313).

(8) 52.209-10, Prohibition on Contracting with Inverted Domestic Corporations (MAY 2012) (section 738 of Division C of Pub. L. 112-74, section 740 of Division C of Pub. L. 111-117, section 743 of Division D of Pub. L. 111-8, and section 745 of Division D of Pub. L. 110-161).

(9) 52.219-3, Notice of HUBZone Set-Aside or Sole-Source Award (NOV 2011) (15 U.S.C. 657a).

(10) 52.219-4, Notice of Price Evaluation Preference for HUBZone Small Business Concerns (JAN 2011) (if the offeror elects to waive the preference, it shall so indicate in its offer) (15 U.S.C. 657a).

(11) (Reserved)

(12)(i) 52.219-6, Notice of Total Small Business Set-Aside (NOV 2011) (15 U.S.C. 644).

(ii) Alternate I (NOV 2011).

- (iii) Alternate II (NOV 2011).
- (13)(i) 52.219-7, Notice of Partial Small Business Set-Aside (JUN 2003) (15 U.S.C. 644).
 - (ii) Alternate I (OCT 1995) of 52.219-7.
 - (iii) Alternate II (MAR 2004) of 52.219-7.
- (14) 52.219-8, Utilization of Small Business Concerns (JAN 2011) (15 U.S.C. 637 (d)(2) and (3)).
- (15)(i) 52.219-9, Small Business Subcontracting Plan (JAN 2011) (15 U.S.C. 637(d)(4)).
 - (ii) Alternate I (OCT 2001) of 52.219-9.
 - (iii) Alternate II (OCT 2001) of 52.219-9.
 - (iv) Alternate III (JUL 2010) of 52.219-9.
- (16) 52.219-13, Notice of Set-Aside of Orders (NOV 2011) (15 U.S.C. 644(r)).
- (17) 52.219-14, Limitations on Subcontracting (NOV 2011) (15 U.S.C. 637(a)(14)).
- (18) 52.219-16, Liquidated Damages--Subcontracting Plan (JAN 1999) (15 U.S.C. 637(d)(4)(F)(i)).
- (19)(i) 52.219-23, Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns (OCT 2008) (10 U.S.C. 2323)(if the offeror elects to waive the adjustment, it shall so indicate in its offer.)
 - (ii) Alternate I (JUN 2003) of 52.219-23.
- (20) 52.219-25, Small Disadvantaged Business Participation Program--Disadvantaged Status and Reporting (DEC 2010) (Pub. L. 103-355, section 7102, and 10 U.S.C. 2323).
- (21) 52.219-26, Small Disadvantaged Business Participation Program--Incentive Subcontracting (OCT 2000) (Pub. L. 103-355, section 7102, and 10 U.S.C. 2323).
- (22) 52.219-27, Notice of Service-Disabled Veteran-Owned Small Business Set-Aside (NOV 2011) (15 U.S.C. 657f).
- (23) 52.219-28, Post Award Small Business Program Representation (APR 2012) (15 U.S.C. 632(a)(2)).
- (24) 52.219-29, Notice of Set-Aside for Economically Disadvantaged Women-Owned Small Business (EDWOSB) Concerns (APR 2012) (15 U.S.C. 637(m)).
- (25) 52.219-30, Notice of Set-Aside for Women-Owned Small Business (WOSB) Concerns Eligible Under the WOSB Program (APR 2012) (15 U.S.C. 637(m)).
- (26) 52.222-3, Convict Labor (JUN 2003) (E.O. 11755).
- (27) 52.222-19, Child Labor-Cooperation with Authorities and Remedies (MAR 2012) (E.O. 13126).
- (28) 52.222-21, Prohibition of Segregated Facilities (FEB 1999).
- (29) 52.222-26, Equal Opportunity (MAR 2007) (E.O. 11246).
- (30) 52.222-35, Equal Opportunity for Veterans (SEP 2010) (38 U.S.C. 4212).
- (31) 52.222-36, Affirmative Action for Workers with Disabilities (OCT 2010) (29 U.S.C. 793).
- (32) 52.222-37, Employment Reports on Veterans (SEP 2010) (38 U.S.C. 4212).

- (33) 52.222-40, Notification of Employee Rights Under the National Labor Relations Act (DEC 2010) (E.O. 13496).
- (34) 52.222-54, Employment Eligibility Verification (JAN 2009). (Executive Order 12989). (Not applicable to the acquisition of commercially available off-the-shelf items or certain other types of commercial items as prescribed in 22.1803.)
- (35)(i) 52.223-9, Estimate of Percentage of Recovered Material Content for EPA-Designated Items (MAY 2008) (42 U.S.C. 6962(c)(3)(A)(ii)). (Not applicable to the acquisition of commercially available off-the-shelf items.)
- (ii) Alternate I (MAY 2008) of 52.223-9 (42 U.S.C. 6962(i)(2)(C)). (Not applicable to the acquisition of commercially available off-the-shelf items.)
- (36) 52.223-15, Energy Efficiency in Energy-Consuming Products (DEC 2007) (42 U.S.C. 8259b).
- (37)(i) 52.223-16, IEEE 1680 Standard for the Environmental Assessment of Personal Computer Products (DEC 2007) (E.O. 13423).
- (ii) Alternate I (DEC 2007) of 52.223-16.
- (38) 52.223-18, Encouraging Contractor Policies to Ban Text Messaging While Driving (AUG 2011). (E.O. 13513).
- (39) 52.225-1, Buy American Act - Supplies (FEB 2009) (41 U.S.C. 10a-10d).
- (40)(i) 52.225-3, Buy American Act-Free Trade Agreements-Israeli Trade Act (MAY 2012) (41 U.S.C. chapter 83, 19 U.S.C. 3301 note, 19 U.S.C. 2112 note, 19 U.S.C. 3805 note, 19 U.S.C. 4001 note, Pub. L. 103-182, 108-77, 108-78, 108-286, 108-302, 109-53, 109-169, 109-283, 110-138, 112-41, and 112-42).
- (ii) Alternate I (MAR 2012) of 52.225-3.
- (iii) Alternate II (MAR 2012) of 52.225-3.
- (iv) Alternate III (MAR 2012) of 52.225-3.
- (41) 52.225-5, Trade Agreements (MAY 2012) (19 U.S.C. 2501, *et seq.*, 19 U.S.C. 3301 note).
- (42) 52.225-13, Restrictions on Certain Foreign Purchases (JUN 2008) (E.O.'s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).
- (43) 52.226-4, Notice of Disaster or Emergency Area Set-Aside (NOV 2007) (42 U.S.C. 5150).
- (44) 52.226-5, Restrictions on Subcontracting Outside Disaster or Emergency Area (NOV 2007) (42 U.S.C. 5150).
- (45) 52.232-29, Terms for Financing of Purchases of Commercial Items (FEB 2002) (41 U.S.C. 255(f), 10 U.S.C. 2307(f)).
- (46) 52.232-30, Installment Payments for Commercial Items (OCT 1995) (41 U.S.C. 255(f), 10 U.S.C. 2307(f)).
- (47) 52.232-33, Payment by Electronic Funds Transfer - Central Contractor Registration (OCT 2003) (31 U.S.C. 3332).
- (48) 52.232-34, Payment by Electronic Funds Transfer - Other than Central Contractor Registration (MAY 1999) (31 U.S.C. 3332).
- (49) 52.232-36, Payment by Third Party (FEB 2010) (31 U.S.C. 3332).
- (50) 52.239-1, Privacy or Security Safeguards (AUG 1996) (5 U.S.C. 552a).

[](51)(i) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (FEB 2006) (46 U.S.C. Appx 1241(b) and 10 U.S.C. 2631).

[](ii) Alternate I (APR 2003) of 52.247-64.

(c) The Contractor shall comply with the FAR clauses in this paragraph (c), applicable to commercial services, that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items: (Contracting Officer check as appropriate.)

[](1) 52.222-41, Service Contract Act of 1965 (NOV 2007) (41 U.S.C. 351, et seq.).

[](2) 52.222-42, Statement of Equivalent Rates for Federal Hires (MAY 1989) (29 U.S.C. 206 and 41 U.S.C. 351, et seq.).

[](3) 52.222-43, Fair Labor Standards Act and Service Contract Act--Price Adjustment (Multiple Year and Option Contracts) (SEP 2009) (29 U.S.C. 206 and 41 U.S.C. 351, et seq.).

[](4) 52.222-44, Fair Labor Standards Act and Service Contract Act--Price Adjustment (SEP 2009) (29 U.S.C. 206 and 41 U.S.C. 351, et seq.).

[](5) 52.222-51, Exemption from Application of the Service Contract Act to Contracts for Maintenance, Calibration, or Repair of Certain Equipment--Requirements (NOV 2007) (41 U.S.C. 351, et seq.).

[](6) 52.222-53, Exemption from Application of the Service Contract Act to Contracts for Certain Services--Requirements (FEB 2009) (41 U.S.C. 351, et seq.).

[](7) 52.226-6, Promoting Excess Food Donation to Nonprofit Organizations. (MAR 2009) (Pub. L. 110-247).

[](8) 52.237-11, Accepting and Dispensing of \$1 Coin (SEP 2008) (31 U.S.C. 5112(p)(1)).

(d) *Comptroller General Examination of Record.* The Contractor shall comply with the provisions of this paragraph (d) if this contract was awarded using other than sealed bid, is in excess of the simplified acquisition threshold, and does not contain the clause at 52.215-2, Audit and Records - Negotiation.

(1) The Comptroller General of the United States, or an authorized representative of the Comptroller General, shall have access to and right to examine any of the Contractor's directly pertinent records involving transactions related to this contract.

(2) The Contractor shall make available at its offices at all reasonable times the records, materials, and other evidence for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in FAR Subpart 4.7, Contractor Records Retention, of the other clauses of this contract. If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement. Records relating to appeals under the disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available until such appeals, litigation, or claims are finally resolved.

(3) As used in this clause, records include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of form. This does not require the Contractor to create or maintain any record that the Contractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e)(1) Notwithstanding the requirements of the clauses in paragraphs (a), (b), (c), and (d) of this clause, the Contractor is not required to flow down any FAR clause, other than those in this paragraph (e)(1) in a subcontract for commercial items. Unless otherwise indicated below, the extent of the flow down shall be as required by the clause--

(i) 52.203-13, Contractor Code of Business Ethics and Conduct (APR 2010) (Pub. L. 110-252, Title VI, Chapter 1 (41 U.S.C. 251 note)).

(ii) 52.219-8, Utilization of Small Business Concerns (DEC 2010) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small

business concerns) exceeds \$650,000 (\$1.5 million for construction of any public facility), the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(iii) (Reserved)

(iv) 52.222-26, Equal Opportunity (MAR 2007) (E.O. 11246).

(v) 52.222-35, Equal Opportunity for Veterans (SEP 2010) (38 U.S.C. 4212).

(vi) 52.222-36, Affirmative Action for Workers with Disabilities (OCT 2010) (29 U.S.C. 793).

(vii) 52.222-40, Notification of Employee Rights Under the National Labor Relations Act (DEC 2010) (E.O. 13496). Flow down required in accordance with paragraph (f) of FAR clause 52.222-40.

(viii) 52.222-41, Service Contract Act of 1965 (NOV 2007) (41 U.S.C. 351, et seq.).

(ix) 52.222-50, Combating Trafficking in Persons (FEB 2009) (22 U.S.C. 7104(g)).

Alternate I (AUG 2007) of 52.222-50 (22 U.S.C. 7104(g)).

(x) 52.222-51, Exemption from Application of the Service Contract Act to Contracts for Maintenance, Calibration, or Repair of Certain Equipment--Requirements (NOV 2007) (41 U.S.C. 351, et seq.).

(xi) 52.222-53, Exemption from Application of the Service Contract Act to Contracts for Certain Services-Requirements (FEB 2009)(41 U.S.C. 351, et seq.).

(xii) 52.222-54, Employment Eligibility Verification (JAN 2009).

(xiii) 52.226-6, Promoting Excess Food Donation to Nonprofit Organizations. (MAR 2009) (Pub. L. 110-247). Flow down required in accordance with paragraph (e) of FAR clause 52.226-6.

(xiv) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (FEB 2006) (46 U.S.C. Appx 1241(b) and 10 U.S.C. 2631). Flow down required in accordance with paragraph (d) of FAR clause 52.247-64.

(2) While not required, the contractor may include in its subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

(End of clause)

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

APPLICATION		REVISION HISTORY					
NEXT ASSY	USED ON	PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

120E310001-001
SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE -
PAIRED TWISTED SHIELDED INSULATED, 3 PAIR, 16 AWG

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994.
 TOLERANCES NO:
 FRACTIONS DECIMALS ANGLES

THIRD ANGLE PROJECTION



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SOFTWARE
MS Word

FILE NAME
 120E310001-001-BASIC.doc

MATERIAL

HEAT TREATMENT

FINAL PROTECTIVE FINISH

ORIGINAL DATE OF DRAWING
 (YYMM/DD)

DRAFTER C. Reeves	CHECKER C. Reeves
ENGINEER C. Reeves	CHECKER
ENGINEER	STRESS

ENGINEER

SUBMITTED

APPROVED

JOHN F. KENNEDY SPACE CENTER, NASA
KENNEDY SPACE CENTER, FLORIDA

120E310001-001
SPECIFICATION FOR THE PROCUREMENT OF
MULTICONDUCTOR CABLE - PAIRED TWISTED
SHIELDED INSULATED, 3 PAIR, 16 AWG

SIZE A	CAGE CODE 22264	DWG NO 120E310001-001	REV -
SCALE None	UNIT WEIGHT -	SHEET 1	OF 3

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – Paired Twisted Shielded Insulated, 3 Pair, 16 AWG**

KSC Part Number: 120E3100001-001

- UL and NEC:**
1. UL Listed, **PLTC-ER** Power Limited Tray Cable (UL 13) meeting NEC requirements for installations in Class 1, Division 2 Environments with **Exposed Runs**.
 2. **UL Rated For Direct Burial**
 3. **UL Rated Sunlight Resistant**
 4. **UL Rated Oil Resistant II**

Voltage Class: 300V

Conductor Requirements

- Number of Conductors:** 6 Conductors
- Twisted Pairs:** 3 Twisted Pair
- Conductor Size:** 16 AWG
- Conductor Material:** Tinned Copper in accordance with ASTM B33
- Conductor Stranding:** ASTM B8, Class C (19x)

Shielding Requirements

- Inner Shields:** Aluminum Foil, not spirally wrapped
- Inner Shield Isolation:** Individual shields shall be electrically isolated from all adjacent shields with an insulation, such as a Mylar film
- Inner Shield Drain Wires:** 16 AWG Drain Wire per pair
- Overall Foil Shield:** Aluminum Foil, not spirally wrapped
- Overall Drain Wire:** Not Required
- Overall Braided Shield:** Tinned Copper in accordance with ASTM B33
- Overall Braid Coverage:** 90% or better

Material Requirements

- Conductor Insulation:** Crosslinked Polyethylene (XLPE)
- Insulation Temp. Rating:** 105°C
- Insulation Thickness:** In accordance with UL and NEC requirements for PLTC-ER
- Overall Cable Jacket:** Chlorinated Polyethylene (CPE)

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-001	REV —
SCALE None	UNIT WEIGHT —	SHEET 2	OF 3

CONTINUATION SHEET

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Jacket Temperature Rating: 90°C

Jacket Thickness: In accordance with UL and NEC requirements for PLTC-ER

Marking and Colors

UL Jacket Markings: Marked in accordance with applicable UL requirements

KSC Jacket Markings: Marked with KSC Part Number "120E3100001-001" every two feet

Footage Markings: Sequential footage marking on jacket every two feet

Lot Identification: Marked with a Lot Number every two feet

Manufacture Date: Marked with the Manufacture Date every two feet

Twisted Pair Identification: Black and White, Number Coded (ICEA S-58-679, Method 9)

Delivery Requirements

Cable Length: Refer to procurement documentation

Tolerance: +/- 5%

Shortest Continuous Run: Refer to procurement documentation

Packaging: On one or more spools with both cable ends accessible for testing

Spooling: Refer to procurement documentation

Quality Requirements

Certificate of Conformance: A Certificate of Conformance (CoC) shall be included in this order according to FAR 52.246-15

SIZE A	CAGE CODE 22264	QWS NO 120E3100001-001	REV ~
SCALE None	UNIT WEIGHT —	SHEET 3	OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, PUBLISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

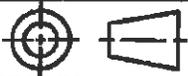
APPLICATION		REVISION HISTORY					
NEXT ASSY	USED ON	PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

120E3100001-005
SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE -
PAIRED TWISTED SHIELDED INSULATED, 8 PAIR, 16 AWG

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994.
 TOLERANCES NO:

FRACTIONS DECIMALS ANGLES

THIRD ANGLE PROJECTION



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SOFTWARE
 MS Word

FILENAME
 120E3100001-005-BASIC.doc

MATERIAL

HMT TREATMENT

FINAL PROTECTIVE FINISH

ORIGINAL DATE OF DRAWING
 (YY/MM/DD)

DRAWN BY
 C. Reeves

ENGINEER
 C. Reeves

ENGINEER
 STRESS

ENGINEER

SUBMITTED

APPROVED

JOHN F. KENNEDY SPACE CENTER, NASA
KENNEDY SPACE CENTER, FLORIDA

120E3100001-005
SPECIFICATION FOR THE PROCUREMENT OF
MULTICONDUCTOR CABLE - PAIRED TWISTED
SHIELDED INSULATED, 8 PAIR, 16 AWG

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-005	REV -
SCALE None	UNIT WEIGHT -	SHEET 1	OF 3

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – Paired Twisted Shielded Insulated, 8 Pair, 16 AWG**

KSC Part Number: 120E3100001-005

- UL and NEC:**
1. UL Listed, PLTC-ER Power Limited Tray Cable (UL 13) meeting NEC requirements for installations in Class 1, Division 2 Environments with **Exposed Runs**.
 2. UL Rated For Direct Burial
 3. UL Rated Sunlight Resistant
 4. UL Rated Oil Resistant II

Voltage Class: 300V

Conductor Requirements

- Number of Conductors:** 16 Conductors
Twisted Pairs: 8 Twisted Pair
Conductor Size: 16 AWG
Conductor Material: Tinned Copper in accordance with ASTM B33
Conductor Stranding: ASTM B8, Class C (19x)

Shielding Requirements

- Inner Shields:** Aluminum Foil, not spirally wrapped
Inner Shield Isolation: Individual shields shall be electrically isolated from all adjacent shields with an insulation, such as a Mylar film
Inner Shield Drain Wires: 16 AWG Drain Wire per pair
Overall Foil Shield: Aluminum Foil, not spirally wrapped
Overall Drain Wire: Not Required
Overall Braided Shield: Tinned Copper in accordance with ASTM B33
Overall Braid Coverage: 90% or better

Material Requirements

- Conductor Insulation:** Crosslinked Polyethylene (XLPE)
Insulation Temp. Rating: 105°C
Insulation Thickness: In accordance with UL and NEC requirements for PLTC-ER
Overall Cable Jacket: Chlorinated Polyethylene (CPE)

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-005	REV —
SCALE None	UNIT WEIGHT —	SHEET 2	OF 3

CONTINUATION SHEET

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Jacket Temperature Rating: 90°C

Jacket Thickness: In accordance with UL and NEC requirements for PLTC-ER

Marking and Colors

UL Jacket Markings: Marked in accordance with applicable UL requirements

KSC Jacket Markings: Marked with KSC Part Number "120E3100001-005" every two feet

Footage Markings: Sequential footage marking on jacket every two feet

Lot Identification: Marked with a Lot Number every two feet

Manufacture Date: Marked with the Manufacture Date every two feet

Twisted Pair Identification: Black and White, Number Coded (ICEA S-58-679, Method 9)

Delivery Requirements

Cable Length: Refer to procurement documentation

Tolerance: +/- 5%

Shortest Continuous Run: Refer to procurement documentation

Packaging: On one or more spools with both cable ends accessible for testing

Spooling: Refer to procurement documentation

Quality Requirements

Certificate of Conformance: A Certificate of Conformance (CoC) shall be included in this order according to FAR 52.246-15

SIZE A	CAGE CODE 22264	DWG NO. 120E3100001-005	REV. -
SCALE None	UNIT WEIGHT -	SHEET 3	OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

APPLICATION		REVISION HISTORY					
NEXT ASSY	USED ON	PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

120E3100001-011
 SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE –
 50 CONDUCTORS, 16 AWG

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994.
 TOLERANCES NO:

FRACTIONS DECIMALS ANGLES

THIRD ANGLE PROJECTION



CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY		ORIGINAL DATE OF DRAWING (YYMMDD)		JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA			
SOFTWARE MS Word		DRAWN C. Reeves	CHECKED C. Reeves	120E3100001-011 SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE – 50 CONDUCTORS, 16 AWG			
FILE NAME 120E3100001-011.doc		ENGINEER C. Reeves	CHECKER				
MATERIAL		ENGINEER	STRSS	SIZE A CASE CODE 22264 DWS NO 120E3100001-011 REV –			
HEAT TREATMENT		SUBMITTED					
FINAL PROTECTIVE PASTE		APPROVED		SCALE None	UNIT WEIGHT –	SHEET 1	OF 3

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – 50 Conductors, 16 AWG**

KSC Part Number: 120E3100001-011

UL and NEC: UL Listed, ITC-ER Instrumentation Tray Cable (UL2250) meeting NEC requirements for installations in Class 1, Division 2 Environments with Exposed Runs
Voltage Class: 300V

Conductor Requirements

Number of Conductors: 50 Conductors
Twisted Pairs: Not Applicable
Conductor Size: 16 AWG
Conductor Material: Tinned Copper in accordance with ASTM B33
Conductor Stranding: ASTM B8, Class C (19x)

Shielding Requirements

Inner Shields: Not Applicable
Inner Shield Isolation: Not Applicable
Inner Shield Drain Wires: Not Applicable
Overall Foil Shield: Aluminum Foil, not spirally wrapped
Overall Drain Wire: Not Required
Overall Braided Shield: Tinned Copper in accordance with ASTM B33
Overall Braid Coverage: 90% or better

Material Requirements

Conductor Insulation: Crosslinked Polyethylene (XLPE)
Insulation Temp. Rating: 105°C
Insulation Thickness: In accordance with UL and NEC requirements for ITC-ER
Overall Cable Jacket: Chlorinated Polyethylene (CPE)
Jacket Temperature Rating: 90°C
Jacket Thickness: In accordance with UL and NEC requirements for ITC-ER

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-011	REV -
SCALE None	UNIT WEIGHT —	SHEET 2	OF 3

CONTINUATION SHEET

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Marking and Colors:

UL Jacket Markings: Marked in accordance with applicable UL requirements

KSC Jacket Markings: Marked with KSC Part Number "120E3100001-011" every two feet

Footage Markings: Sequential footage marking on jacket every two feet

Lot Identification: Marked with a Lot Number every two feet

Manufacture Date: Marked with the Manufacture Date every two feet

Conductor Identification: White with each conductor numbered in sequence by surface printing, beginning with the number 1.

Delivery Requirements:

Cable Length: Refer to procurement documentation.

Tolerance: +/- 5%

Shortest Continuous Run: Refer to procurement documentation.

Packaging: On a spool with both cable ends accessible for testing.

SIZE A	CAGE CODE 22264	DWG NO. 120E3100001-011	REV —
SCALE None	UNIT WEIGHT	SHEET 3	OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

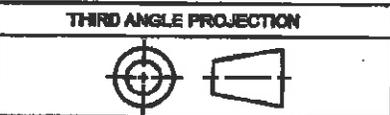
APPLICATION	
NEXT ASSY	USED ON

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

120E3100001-022
SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE -
PAIRED TWISTED SHIELDED INSULATED, 16 PAIR, 16 AWG

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994.
 TOLERANCES NO:

FRACTIONS DECIMALS ANGLES



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SOFTWARE	MS Word
FILE NAME	120E3100001-022-BASIC.doc
MATERIAL	
HEAT TREATMENT	
FINAL PROTECTIVE FINISH	

ORIGINAL DATE OF DRAWING (YY/MM/DD)	
DRAWN BY C. Reeves	CHECKED BY C. Reeves
ENGINEER C. Reeves	CHECKER
ENGINEER	OTHERS
ENGINEER	
SUBMITTED	
APPROVED	

JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA			
120E3100001-022 SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE - PAIRED TWISTED SHIELDED INSULATED, 16 PAIR, 16 AWG			
SIZE A	CAGE CODE 22264	DWG NO 120E3100001-022	REV -
SCALE None	UNIT WEIGHT -	SHEET 1	OF 3

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – Paired Twisted Shielded Insulated, 16 Pair, 16 AWG**

KSC Part Number: 120E3100001-022

UL and NEC: UL Listed, ITC-ER Instrumentation Tray Cable (UL2250) meeting NEC requirements for installations in Class 1, Division 2 Environments with Exposed Runs
Voltage Class: 300V

Conductor Requirements

Number of Conductors: 32 Conductors
Twisted Pairs: 16 Twisted Pairs
Conductor Size: 16 AWG
Conductor Material: Tinned Copper in accordance with ASTM B33
Conductor Stranding: ASTM B8, Class C (19x)

Shielding Requirements

Inner Shields: Aluminum Foil, not spirally wrapped
Inner Shield Isolation: Individual shields shall be electrically isolated from all adjacent shields with an insulation, such as a Mylar film
Inner Shield Drain Wires: 16 AWG Drain Wire per pair
Overall Foil Shield: Aluminum Foil, not spirally wrapped
Overall Drain Wire: Not Required
Overall Braided Shield: Tinned Copper in accordance with ASTM B33
Overall Braid Coverage: 90% or better

Material Requirements

Conductor Insulation: Crosslinked Polyethylene (XLPE)
Insulation Temp. Rating: 105°C
Insulation Thickness: In accordance with UL and NEC requirements for ITC-ER
Overall Cable Jacket: Chlorinated Polyethylene (CPE)
Jacket Temperature Rating: 90°C
Jacket Thickness: In accordance with UL and NEC requirements for ITC-ER

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-022	REV —
SCALE None	UNIT WEIGHT —	SHEET 2	OF 3

CONTINUATION SHEET

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Marking and Colors:

- UL Jacket Markings:** Marked in accordance with applicable UL requirements
- KSC Jacket Markings:** Marked with KSC Part Number "120E3100001-022" every two feet
- Footage Markings:** Sequential footage marking on jacket every two feet
- Lot Identification:** Marked with a Lot Number every two feet
- Manufacture Date:** Marked with the Manufacture Date every two feet
- Twisted Pair Identification:** Black and White, Number Coded (ICEA S-58-679, Method 9)

Delivery Requirements:

- Cable Length:** Refer to procurement documentation
- Tolerance:** +/- 5%
- Shortest Continuous Run:** Refer to procurement documentation
- Packaging:** On one or more spools with both cable ends accessible for testing

SIZE A	DWG CODE 22264	DWG NO 120E3100001-022	REV —
SCALE None	UNIT WEIGHT —	SHEET 3	OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSES THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

APPLICATION		REVISION HISTORY					
NEXT ASSY	USED ON	PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

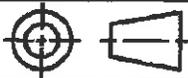
120E3100001-044

SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE -
 PAIRED TWISTED SHIELDED INSULATED, 18 PAIR, 16 AWG

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994.
 TOLERANCES NO:

FRACTIONS DECIMALS ANGLES

THIRD ANGLE PROJECTION



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SOFTWARE	MS Word
FILE NAME	120E3100001-044-BASIC.doc
MATERIAL	
HEAT TREATMENT	
FINAL PROTECTIVE FINISH	

ORIGINAL DATE OF DRAWING (YY/MM/DD)	
DRAWNMAN C. Reeves	CHECKER C. Reeves
ENGINEER C. Reeves	CHECKER
ENGINEER	WITNESS
ENGINEER	
SUBMITTED	
APPROVED	

JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA			
120E3100001-044 SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE - PAIRED TWISTED SHIELDED INSULATED, 18 PAIR, 16 AWG			
SIZE A	BASE CODE 22264	DWG NO 120E3100001-044	REV -
SCALE None	UNIT WEIGHT -	SHEET 1	OF 3

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – Paired Twisted Shielded Insulated, 18 Pair, 16 AWG**

KSC Part Number: 120E3100001-044

- UL and NEC:**
1. UL Listed, PLTC-ER Power Limited Tray Cable (UL 13) meeting NEC requirements for installations in Class 1, Division 2 Environments with **Exposed Runs**.
 2. UL Rated For **Direct Burial**
 3. UL Rated **Sunlight Resistant**
 4. UL Rated **Oil Resistant II**

Voltage Class: 300V

Conductor Requirements

- Number of Conductors:** 36 Conductors
Twisted Pairs: 18 Twisted Pair
Conductor Size: 16 AWG
Conductor Material: Tinned Copper in accordance with ASTM B33
Conductor Stranding: ASTM B8, Class C (19x)

Shielding Requirements

- Inner Shields:** Aluminum Foil, not spirally wrapped
Inner Shield Isolation: Individual shields shall be electrically isolated from all adjacent shields with an insulation, such as a Mylar film
Inner Shield Drain Wires: 16 AWG Drain Wire per pair
Overall Foil Shield: Aluminum Foil, not spirally wrapped
Overall Drain Wire: Not Required
Overall Braided Shield: Tinned Copper in accordance with ASTM B33
Overall Braid Coverage: 90% or better

Material Requirements

- Conductor Insulation:** Crosslinked Polyethylene (XLPE)
Insulation Temp. Rating: 105°C
Insulation Thickness: In accordance with UL and NEC requirements for PLTC-ER
Overall Cable Jacket: Chlorinated Polyethylene (CPE)

SIZE A	DWG CODE 22264	DWG NO 120E3100001-044	REV —
SCALE None	UNIT WEIGHT —	SHEET 2	OF 3

CONTINUATION SHEET

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Jacket Temperature Rating: 90°C

Jacket Thickness: In accordance with UL and NEC requirements for PLTC-ER

Marking and Colors

UL Jacket Markings: Marked in accordance with applicable UL requirements

KSC Jacket Markings: Marked with KSC Part Number "120E3100001-044" every two feet

Footage Markings: Sequential footage marking on jacket every two feet

Lot Identification: Marked with a Lot Number every two feet

Manufacture Date: Marked with the Manufacture Date every two feet

Twisted Pair Identification: Black and White, Number Coded (ICEA S-58-679, Method 9)

Delivery Requirements

Cable Length: Refer to procurement documentation

Tolerance: +/- 5%

Shortest Continuous Run: Refer to procurement documentation

Packaging: On one or more spools with both cable ends accessible for testing

Spooling: Refer to procurement documentation

Quality Requirements

Certificate of Conformance: A Certificate of Conformance (CoC) shall be included in this order according to FAR 52.246-15

SIZE A	CAGE CODE 22264	DWG NO. 120E3100001-044	REV —
SCALE None	UNIT WEIGHT —	SHEET 3	OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER ENDORSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

APPLICATION		REVISION HISTORY					
NEXT ASSY	USED ON	PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

120E3100001-045
SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE --
OVERALL SHIELD, 37 CONDUCTORS, 16 AWG

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994.
 TOLERANCES NO:

FRACTIONS DECIMALS ANGLES

THIRD ANGLE PROJECTION



CAD MAINTAINED, CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY	ORIGINAL DATE OF DRAWING (YY/MM/DD)		JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA			
	SOFTWARE MS Word	DESIGNER U. Reeves	CHECKER U. Reeves	120E3100001-045 SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE -- OVERALL SHIELD, 37 CONDUCTORS, 16 AWG		
FILE NAME 120E3100001-045-BASIC.doc	ENGINEER U. Reeves	CHECKER U. Reeves				
MATERIAL	ENGINEER	STRESS	SIZE A CAGE CODE 22264 DWG NO 120E3100001-045 REV -			
HEAT TREATMENT	SUBMITTED	APPROVED				
FINAL PROTECTIVE FINISH	APPROVED		SHEET 1 OF 3			

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – 37 Conductors, 16 AWG**

KSC Part Number: 120E3100001-045

- UL and NEC:**
1. UL Listed, PLTC-ER Power Limited Tray Cable (UL 13) meeting NEC requirements for installations in Class 1, Division 2 Environments with **Exposed Runs**.
 2. **UL Rated For Direct Burial**
 3. **UL Rated Sunlight Resistant**
 4. **UL Rated Oil Resistant II**

Voltage Class: 300V

Conductor Requirements

- Number of Conductors:** 37 Conductors
Twisted Pairs: Not Applicable
Conductor Size: 16 AWG
Conductor Material: Tinned Copper in accordance with ASTM B33
Conductor Stranding: ASTM B8, Class C (19x)

Shielding Requirements

- Inner Shields:** Not Applicable
Inner Shield Isolation: Not Applicable
Inner Shield Drain Wires: Not Applicable
Overall Foil Shield: Aluminum Foil, not spirally wrapped
Overall Drain Wire: Not Required
Overall Braided Shield: Tinned Copper in accordance with ASTM B33
Overall Braid Coverage: 90% or better

Material Requirements

- Conductor Insulation:** Crosslinked Polyethylene (XLPE)
Insulation Temp. Rating: 105°C
Insulation Thickness: In accordance with UL and NEC requirements for PLTC-ER
Overall Cable Jacket: Chlorinated Polyethylene (CPE)

SIZE A	CARR CODE 22264	DWG NO 120E3100001-045	REV —
SCALE None	UNIT WEIGHT —	SHEET 2	OF 3

CONTINUATION SHEET

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Jacket Temperature Rating: 90°C

Jacket Thickness: In accordance with UL and NEC requirements for PLTC-ER

Marking and Colors

UL Jacket Markings: Marked in accordance with applicable UL requirements

KSC Jacket Markings: Marked with KSC Part Number "120E3100001-045" every two feet

Footage Markings: Sequential footage marking on jacket every two feet

Lot Identification: Marked with a Lot Number every two feet

Manufacture Date: Marked with the Manufacture Date every two feet

Conductor Identification: White with each conductor numbered in sequence by surface printing, beginning with number 1 (ICEA S-58-679, Method 4)

Delivery Requirements

Cable Length: Refer to procurement documentation

Tolerance: +/- 5%

Shortest Continuous Run: Refer to procurement documentation

Packaging: On one or more spools with both cable ends accessible for testing

Spooling: Refer to procurement documentation

Quality Requirements

Certificate of Conformance: A Certificate of Conformance (CoC) shall be included in this order according to FAR 52.246-15

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-045	REV --
SCALE None	UNIT WEIGHT --	SHEET 3	OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

APPLICATION		REVISION HISTORY					
NEXT ASSY	USED ON	PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

120E3100001-046
SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE -
PAIRED TWISTED SHIELDED INSULATED, 28 PAIR, 16 AWG

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994.
 TOLERANCES NO:

FRACTIONS DECIMALS ANGLES

THIRD ANGLE PROJECTION



CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY		ORIGINAL DATE OF DRAWING (YY/MM/DD)		JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA			
SOFTWARE	MS Word	DRAWN	C. Reeves	CHECKER	C. Reeves	120E3100001-046 SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE - PAIRED TWISTED SHIELDED INSULATED, 28 PAIR, 16 AWG	
FILENAME	120E3100001-046-BASIC.doc	ENGINEER	C. Reeves	CHECKER			
MATERIAL		ENGINEER		STRESS			
HEAT TREATMENT		ENGINEER					
FINAL PROTECTIVE FINISH		APPROVED				SIZE	A
				SCALE	None	DWG NO	120E3100001-046
				UNIT WEIGHT		REV	
				SHEET	1	OF	3

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – Paired Twisted Shielded Insulated, 28 Pair, 16 AWG**

KSC Part Number: 120E3100001-046

- UL and NEC:**
1. UL Listed, PLTC-ER Power Limited Tray Cable (UL 13) meeting NEC requirements for installations in Class 1, Division 2 Environments with Exposed Runs.
 2. UL Rated For Direct Burial
 3. UL Rated Sunlight Resistant
 4. UL Rated Oil Resistant II

Voltage Class: 300V

Conductor Requirements

- Number of Conductors:** 56 Conductors
Twisted Pairs: 28 Twisted Pair
Conductor Size: 16 AWG
Conductor Material: Tinned Copper in accordance with ASTM B33
Conductor Stranding: ASTM B8, Class C (19x)

Shielding Requirements

- Inner Shields:** Aluminum Foil, not spirally wrapped
Inner Shield Isolation: Individual shields shall be electrically isolated from all adjacent shields with an insulation, such as a Mylar film
Inner Shield Drain Wires: 16 AWG Drain Wire per pair
Overall Foil Shield: Aluminum Foil, not spirally wrapped
Overall Drain Wire: Not Required
Overall Braided Shield: Tinned Copper in accordance with ASTM B33
Overall Braid Coverage: 90% or better

Material Requirements

- Conductor Insulation:** Crosslinked Polyethylene (XLPE)
Insulation Temp. Rating: 105°C
Insulation Thickness: In accordance with UL and NEC requirements for PLTC-ER
Overall Cable Jacket: Chlorinated Polyethylene (CPE)

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-046	REV —
SCALE None	UNIT WEIGHT —	SHEET 2	OF 3

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Jacket Temperature Rating: 90°C

Jacket Thickness: In accordance with UL and NEC requirements for PLTC-ER

Marking and Colors

UL Jacket Markings: Marked in accordance with applicable UL requirements

KSC Jacket Markings: Marked with KSC Part Number "120E3100001-046" every two feet

Footage Markings: Sequential footage marking on jacket every two feet

Lot Identification: Marked with a Lot Number every two feet

Manufacture Date: Marked with the Manufacture Date every two feet

Twisted Pair Identification: Black and White, Number Coded (ICEA S-58-679, Method 9)

Delivery Requirements

Cable Length: Refer to procurement documentation

Tolerance: +/- 5%

Shortest Continuous Run: Refer to procurement documentation

Packaging: On one or more spools with both cable ends accessible for testing

Spooling: Refer to procurement documentation

Quality Requirements

Certificate of Conformance: A Certificate of Conformance (CoC) shall be included in this order according to FAR 52.246-15

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-046	REV —
SCALE None	UNIT WEIGHT —	SHEET 3	OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

APPLICATION		REVISION HISTORY					
NEXT ASSY	USED ON	PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

120E3100001-047
 SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE -
 OVERALL SHIELD, 60 CONDUCTORS, 16 AWG

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994.
 TOLERANCES NO:

FRACTIONS DECIMALS ANGLES

THIRD ANGLE PROJECTION



CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY	ORIGINAL DATE OF DRAWING (YY/MM/DD)		JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA		
	DRAFTSMAN C. Reeves	CHECKER C. Reeves			
SOFTWARE MS Word	ENGINEER C. Reeves	CHECKER	120E3100001-047 SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE - OVERALL SHIELD, 60 CONDUCTORS, 16 AWG		
FILENAME 120E3100001-000-BASIC.doc	ENGINEER	STRESS			
MATERIAL	ENGINEER		SIZE CAGE CODE DWG NO A 22264 120E3100001-047		
HEAT TREATMENT	SUBMITTED				
FINAL PROTECTIVE FME/31	APPROVED		SCALE None	UNIT WEIGHT -	SHEET 1 OF 3

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – 60 Conductors, 16 AWG**

KSC Part Number: 120E3100001-047

- UL and NEC:**
1. UL Listed, **PLTC-ER** Power Limited Tray Cable (UL 13) meeting NEC requirements for installations in Class 1, Division 2 Environments with **Exposed Runs**.
 2. UL Rated For **Direct Burial**
 3. UL Rated **Sunlight Resistant**
 4. UL Rated **Oil Resistant II**

Voltage Class: 300V

Conductor Requirements

- Number of Conductors:** 60 Conductors
Twisted Pairs: Not Applicable
Conductor Size: 16 AWG
Conductor Material: Tinned Copper in accordance with ASTM B33
Conductor Stranding: ASTM B8, Class C (19x)

Shielding Requirements

- Inner Shields:** Not Applicable
Inner Shield Isolation: Not Applicable
Inner Shield Drain Wires: Not Applicable
Overall Foil Shield: Aluminum Foil, not spirally wrapped
Overall Drain Wire: Not Required
Overall Braided Shield: Tinned Copper in accordance with ASTM B33
Overall Braid Coverage: 90% or better

Material Requirements

- Conductor Insulation:** Crosslinked Polyethylene (XLPE)
Insulation Temp. Rating: 105°C
Insulation Thickness: In accordance with UL and NEC requirements for PLTC-ER
Overall Cable Jacket: Chlorinated Polyethylene (CPE)

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-047	REV —
SCALE None	UNIT WEIGHT —	INVENTORY 2	OF 3

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Jacket Temperature Rating: 90°C

Jacket Thickness: In accordance with UL and NEC requirements for PLTC-ER

Marking and Colors

UL Jacket Markings: Marked in accordance with applicable UL requirements

KSC Jacket Markings: Marked with KSC Part Number "120E3100001-047" every two feet

Footage Markings: Sequential footage marking on jacket every two feet

Lot Identification: Marked with a Lot Number every two feet

Manufacture Date: Marked with the Manufacture Date every two feet

Conductor Identification: White with each conductor numbered in sequence by surface printing, beginning with number 1 (ICEA S-58-679, Method 4)

Delivery Requirements

Cable Length: Refer to procurement documentation

Tolerance: +/- 5%

Shortest Continuous Run: Refer to procurement documentation

Packaging: On one or more spools with both cable ends accessible for testing

Spooling: Refer to procurement documentation

Quality Requirements

Certificate of Conformance: A Certificate of Conformance (CoC) shall be included in this order according to FAR 52.246-15

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-047	REV —
SCALE None	UNIT WEIGHT —	SHEET 3	OF 3

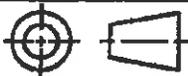
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APPLICATION		REVISION HISTORY					
NEXT ASSY	USED ON	PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

120E3100001-056
SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE -
OVERALL SHIELD, 4 CONDUCTORS, 8 AWG

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994.
 TOLERANCES NO:
 FRACTIONS DECIMALS ANGLES

THIRD ANGLE PROJECTION



CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY		ORIGINAL DATE OF DRAWING (YY/MM/DD)		JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA			
SOFTWARE MS Word	DESIGNER C. Reeves	CHECKER C. Reeves	120E3100001-056 SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE - OVERALL SHIELD, 4 CONDUCTORS, 8 AWG				
FILE NAME 120E3100001-056.doc	ENGINEER C. Reeves	CHECKER	SIZE DWG CODE DWS NO REV				
MATERIAL	ENGINEER	STRESS	A 22264 120E3100001-056		-		
HEAT TREATMENT	INCLASER	SUBMITTED	SCALE None UNIT WEIGHT -		SHEET 1 of 3		
FINAL PROTECTIVE FINISH	APPROVED						

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – Overall Shield, 4 Conductors, 8 AWG**

KSC Part Number: 120E3100001-056

- UL and NEC:**
1. UL Listed, PLTC-ER Power Limited Tray Cable (UL 13) meeting NEC requirements for installations in Class 1, Division 2 Environments with Exposed Runs.
 2. UL Rated For Direct Burial
 3. UL Rated Sunlight Resistant
 4. UL Rated Oil Resistant II

Voltage Class: 600V

Conductor Requirements

- Number of Conductors:** 4 Conductors
- Twisted Pairs:** n/a
- Conductor Size:** 8 AWG
- Conductor Material:** Tinned Copper in accordance with ASTM B33
- Conductor Stranding:** ASTM B173, Class H (7x19 Rope Lay, 259 Total Strands)

Shielding Requirements

- Inner Shields:** n/a
- Inner Shield Isolation:** n/a
- Inner Shield Drain Wires:** n/a
- Overall Foil Shield:** Aluminum Foil, not spirally wrapped
- Overall Drain Wire:** n/a
- Overall Braided Shield:** Tinned Copper in accordance with ASTM B33
- Overall Braid Coverage:** 90% or better

Material Requirements

- Conductor Insulation:** Flame Retardant Ethylene Propylene Rubber (FR-EPR)
- Insulation Temp. Rating:** 105°C
- Insulation Thickness:** In accordance with UL and NEC requirements for TC-ER
- Overall Cable Jacket:** Chlorinated Polyethylene (CPE)

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-056	REV —
SCALE None	UNIT WEIGHT	SHEET 2	OF 3

CONTINUATION SHEET

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Jacket Temperature Rating: 90°C

Jacket Thickness: In accordance with UL and NEC requirements for TC-ER

Marking and Colors

UL Jacket Markings: Marked in accordance with applicable UL requirements

KSC Jacket Markings: Marked with KSC Part Number "120E3100001-056" every two feet

Footage Markings: Sequential footage marking on jacket every two feet

Lot Identification: Marked with a Lot Number every two feet

Manufacture Date: Marked with the Manufacture Date every two feet

Conductor Identification: White with each conductor numbered in sequence by surface printing, beginning with number 1 (ICEA S-58-679, Method 4)

Delivery Requirements

Cable Length: Refer to procurement documentation

Tolerance: +/- 5%

Shortest Continuous Run: Refer to procurement documentation

Packaging: On one or more spools with both cable ends accessible for testing

Spooling: Refer to procurement documentation

Quality Requirements

Certificate of Conformance: A Certificate of Conformance (CoC) shall be included in this order according to FAR 52.246-15

SIZE A	CAGE CODE 22264	DWG NO. 120E3100001-056	REV —
SCALE None	LOFT WEIGHT	SHEET 3	OF 3

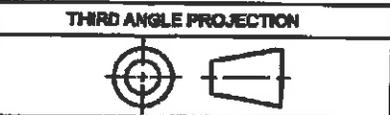
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

APPLICATION		REVISION HISTORY					
NEXT ASSY	USED ON	PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

120E3100001-057
 SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE -
 OVERALL SHIELD, 2 CONDUCTORS, 6 AWG

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994.
 TOLERANCES NO:

FRACTIONS DECIMALS ANGLES



CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY	ORIGINAL DATE OF DRAWING (YY/MM/DD)	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA			
	DRAWN BY C. Reeves	CHECKED BY C. Reeves	120E3100001-057 SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE - OVERALL SHIELD, 2 CONDUCTORS, 6 AWG		
	ENGINEER C. Reeves	CHECKER			
	ENGINEER	OTHERS			
	ENGINEER	SUBMITTED	SIZE A	CASE CODE 22264	DWS NO 120E3100001-057
APPROVED	SCALE None	UNIT WEIGHT -	SHEET 1	OF 3	

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – Overall Shield, 2 Conductors, 6 AWG**

KSC Part Number: 120E3100001-057

- UL and NEC:**
1. UL Listed, TC-ER Tray Cable (UL 1277) meeting NEC requirements for installations in Class 1, Division 2 Environments with **Exposed Runs.**
 2. UL Rated For Direct Burial
 3. UL Rated Sunlight Resistant
 4. UL Rated Oil Resistant II

Voltage Class: 600V

Conductor Requirements

- Number of Conductors:** 2 Conductors
- Twisted Pairs:** n/a
- Conductor Size:** 6 AWG
- Conductor Material:** Tinned Copper in accordance with ASTM B33
- Conductor Stranding:** ASTM B173, Class H (7x19 Rope Lay, 259 Total Strands)

Shielding Requirements

- Inner Shields:** n/a
- Inner Shield Isolation:** n/a
- Inner Shield Drain Wires:** n/a
- Overall Foil Shield:** Aluminum Foil, not spirally wrapped
- Overall Drain Wire:** n/a
- Overall Braided Shield:** Tinned Copper in accordance with ASTM B33
- Overall Braid Coverage:** 90% or better

Material Requirements

- Conductor Insulation:** Flame Retardant Ethylene Propylene Rubber (FR-EPR)
- Insulation Temp. Rating:** 105°C
- Insulation Thickness:** In accordance with UL and NEC requirements for TC-ER
- Overall Cable Jacket:** Chlorinated Polyethylene (CPE)

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-057	REV —
SCALE None	UNIT WEIGHT —	SHEET 2	OF 3

CONTINUATION SHEET

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Jacket Temperature Rating: 90°C

Jacket Thickness: In accordance with UL and NEC requirements for TC-ER

Marking and Colors

UL Jacket Markings: Marked in accordance with applicable UL requirements

KSC Jacket Markings: Marked with KSC Part Number "120E3100001-057" every two feet

Footage Markings: Sequential footage marking on jacket every two feet

Lot Identification: Marked with a Lot Number every two feet

Manufacture Date: Marked with the Manufacture Date every two feet

Conductor Identification: White with each conductor numbered in sequence by surface printing, beginning with number 1 (ICEA S-58-679, Method 4)

Delivery Requirements

Cable Length: Refer to procurement documentation

Tolerance: +/- 5%

Shortest Continuous Run: Refer to procurement documentation

Packaging: On one or more spools with both cable ends accessible for testing

Spooling: Refer to procurement documentation

Quality Requirements

Certificate of Conformance: A Certificate of Conformance (CoC) shall be included in this order according to FAR 52.246-15

SIZE A	CAGE CODE 22264	DWG NO. 120E3100001-057	REV —
SCALE None	UNIT WEIGHT	SHEET 3	OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

APPLICATION		REVISION HISTORY					
NEXT ASSY	USED ON	PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

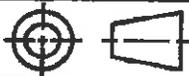
120E3100001-063

SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE -
OVERALL SHIELD, 4 CONDUCTORS, 1/0

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
INTERPRET DIMENSIONS AND
TOLERANCES PER ASME Y14.5M-1994.
TOLERANCES NO:

FRACTIONS DECIMALS ANGLES

THIRD ANGLE PROJECTION



CAD MAINTAINED.
CHANGES SHALL BE INCORPORATED
ONLY BY THE DESIGN ACTIVITY

SOFTWARE	MS Word
FILENAME	120E3100001-063.doc
MATERIAL	
HEAT TREATMENT	
FINAL PROTECTIVE FINISH	

ORIGINAL DATE OF DRAWING
(YYMM/DD)

DESIGNER C. Reeves	CHECKER C. Reeves
ENGINEER C. Reeves	CHECKER
ENGINEER	STRESS
SUBMITTED	
APPROVED	

JOHN F. KENNEDY SPACE CENTER, NASA
KENNEDY SPACE CENTER, FLORIDA

120E3100001-063
SPECIFICATION FOR THE PROCUREMENT OF
MULTICONDUCTOR CABLE - OVERALL SHIELD,
4 CONDUCTORS, 1/0

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-063	REV -
SCALE None	UNIT WEIGHT -	SHEET 1	OF 3

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – Overall Shield, 4 Conductors, 1/0**

KSC Part Number: 120E3100001-063

- UL and NEC:**
1. UL Listed, PLTC-ER Power Limited Tray Cable (UL 13) meeting NEC requirements for installations in Class 1, Division 2 Environments with Exposed Runs.
 2. UL Rated For Direct Burial
 3. UL Rated Sunlight Resistant
 4. UL Rated Oil Resistant II

Voltage Class: 300V

Conductor Requirements

- Number of Conductors:** 4 Conductors
- Twisted Pairs:** n/a
- Conductor Size:** 1/0
- Conductor Material:** Tinned Copper in accordance with ASTM B33
- Conductor Stranding:** ASTM B173, Class H (7x19 Rope Lay, 259 Total Strands)

Shielding Requirements

- Inner Shields:** n/a
- Inner Shield Isolation:** n/a
- Inner Shield Drain Wires:** n/a
- Overall Foil Shield:** Aluminum Foil, not spirally wrapped
- Overall Drain Wire:** n/a
- Overall Braided Shield:** Tinned Copper in accordance with ASTM B33
- Overall Braid Coverage:** 90% or better

Material Requirements

- Conductor Insulation:** Flame Retardant Ethylene Propylene Rubber (FR-EPR)
- Insulation Temp. Rating:** 105°C
- Insulation Thickness:** In accordance with UL and NEC requirements for TC-ER
- Overall Cable Jacket:** Chlorinated Polyethylene (CPE)

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-063	REV —
SCALE None	UNIT WEIGHT —	SHEET 2	OF 3

CONTINUATION SHEET

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Jacket Temperature Rating: 90°C

Jacket Thickness: In accordance with UL and NEC requirements for TC-ER

Marking and Colors

UL Jacket Markings: Marked in accordance with applicable UL requirements

KSC Jacket Markings: Marked with KSC Part Number "120E3100001-063" every two feet

Footage Markings: Sequential footage marking on jacket every two feet

Lot Identification: Marked with a Lot Number every two feet

Manufacture Date: Marked with the Manufacture Date every two feet

Conductor Identification: White with each conductor numbered in sequence by surface printing, beginning with number 1 (ICEA S-58-679, Method 4)

Delivery Requirements

Cable Length: Refer to procurement documentation

Tolerance: +/- 5%

Shortest Continuous Run: Refer to procurement documentation

Packaging: On one or more spools with both cable ends accessible for testing

Spooling: Refer to procurement documentation

Quality Requirements

Certificate of Conformance: A Certificate of Conformance (CoC) shall be included in this order according to FAR 52.246-15

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-063	REV —
SCALE None	UNIT WEIGHT —	SHEET 3	OF 3

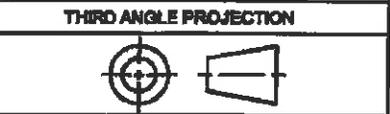
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

APPLICATION		REVISION HISTORY					
NEXT ASSY	USED ON	PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

120E3100001-064
SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE –
OVERALL SHIELD, CONDUCTORS, 2 AWG

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994.
 TOLERANCES NO:

FRACTIONS	DECIMALS	ANGLES
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CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY	ORIGINAL DATE OF DRAWING (YYMM/DD)	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA			
	DRAFTER C. Reeves	CHECKER C. Reeves	120E3100001-064 SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE – OVERALL SHIELD, 2 CONDUCTORS, 2 AWG		
ENGINEER C. Reeves	CHECKER STREJCO				
ENGINEER	SUBMITTED				
SOFTWARE MS Word	APPROVED	SIZE A	CAGE CODE 22264	DWG NO 120E3100001-064	REV —
FILE NAME 120E3100001-064.doc	MATERIAL	SCALE None	UNIT WEIGHT —	SHEET 1	OF 3
HEAT TREATMENT	FINAL PROTECTIVE FINISH				

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – Overall Shield, 2 Conductors, 2 AWG**

KSC Part Number: 120E3100001-064

- UL and NEC:**
1. UL Listed, PLTC-ER Power Limited Tray Cable (UL 13) meeting NEC requirements for installations in Class 1, Division 2 Environments with Exposed Runs.
 2. UL Rated For Direct Burial
 3. UL Rated Sunlight Resistant
 4. UL Rated Oil Resistant II

Voltage Class: 300V

Conductor Requirements

- Number of Conductors:** 2 Conductors
Twisted Pairs: n/a
Conductor Size: 2 AWG
Conductor Material: Tinned Copper in accordance with ASTM B33
Conductor Stranding: ASTM B173, Class H (7x19 Rope Lay, 259 Total Strands)

Shielding Requirements

- Inner Shields:** n/a
Inner Shield Isolation: n/a
Inner Shield Drain Wires: n/a
Overall Foil Shield: Aluminum Foil, not spirally wrapped
Overall Drain Wire: n/a
Overall Braided Shield: Tinned Copper in accordance with ASTM B33
Overall Braid Coverage: 90% or better

Material Requirements

- Conductor Insulation:** Flame Retardant Ethylene Propylene Rubber (FR-EPR)
Insulation Temp. Rating: 105°C
Insulation Thickness: In accordance with UL and NEC requirements for TC-ER
Overall Cable Jacket: Chlorinated Polyethylene (CPE)

SIZE A	CAGE CODE 22264	DWG NO. 120E3100001-064	REV —
SCALE None	UNIT WEIGHT —	SHEET 2	OF 3

CONTINUATION SHEET

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Jacket Temperature Rating: 90°C

Jacket Thickness: In accordance with UL and NEC requirements for TC-ER

Marking and Colors

UL Jacket Markings: Marked in accordance with applicable UL requirements

KSC Jacket Markings: Marked with KSC Part Number "120E3100001-064" every two feet

Footage Markings: Sequential footage marking on jacket every two feet

Lot Identification: Marked with a Lot Number every two feet

Manufacture Date: Marked with the Manufacture Date every two feet

Conductor Identification: White with each conductor numbered in sequence by surface printing, beginning with number 1 (ICEA S-58-679, Method 4)

Delivery Requirements

Cable Length: Refer to procurement documentation

Tolerance: +/- 5%

Shortest Continuous Run: Refer to procurement documentation

Packaging: On one or more spools with both cable ends accessible for testing

Spooling: Refer to procurement documentation

Quality Requirements

Certificate of Conformance: A Certificate of Conformance (CoC) shall be included in this order according to FAR 52.246-15

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-064	REV -
SCALE None	UNIT WEIGHT -	SHEET 3	OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

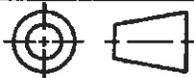
APPLICATION		REVISION HISTORY					
NEXT ASSY	USED ON	PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

120E3100001-024

SPECIFICATION FOR THE PROCUREMENT OF MULTICONDUCTOR CABLE -
 PAIRED TWISTED SHIELDED INSULATED, 5 PAIR, 22 AWG

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.
 INTERPRET DIMENSIONS AND
 TOLERANCES PER ASME Y14.5M-1994.
 TOLERANCES NO:
 FRACTIONS DECIMALS ANGLES

THIRD ANGLE PROJECTION



CAD MAINTAINED.
 CHANGES SHALL BE INCORPORATED
 ONLY BY THE DESIGN ACTIVITY

SOFTWARE MS Word

FILENAME
 120E3100001-024-BASIC.doc

MATERIAL

HEAT TREATMENT

FINAL PROTECTIVE FINISH

ORIGINAL DATE OF DRAWING
 (YY/MM/DD)

DRAFTSMAN CHECKER
 C. Reeves C. Reeves

ENGINEER CHECKER
 C. Reeves C. Reeves

ENGINEER STRESS

ENGINEER

SUBMITTED

APPROVED

JOHN F. KENNEDY SPACE CENTER, NASA
 KENNEDY SPACE CENTER, FLORIDA

120E3100001-024
 SPECIFICATION FOR THE PROCUREMENT OF
 MULTICONDUCTOR CABLE - PAIRED TWISTED
 SHIELDED INSULATED, 5 PAIR, 22 AWG

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-024	REV -
SCALE None	UNIT WEIGHT -	SHEET 1	OF 3

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

**SPECIFICATION FOR THE PROCUREMENT OF
Multiconductor Cable – Paired Twisted Shielded Insulated, 5 Pair, 22 AWG**

KSC Part Number: 120E3100001-024

- UL and NEC:**
1. UL Listed, PLTC-ER Power Limited Tray Cable (UL 13) meeting NEC requirements for installations in Class 1, Division 2 Environments with **Exposed Runs**.
 2. UL Rated For **Direct Burial**
 3. UL Rated **Sunlight Resistant**
 4. UL Rated **Oil Resistant II**

Voltage Class: 300V

Conductor Requirements

- Number of Conductors:** 10 Conductors
- Twisted Pairs:** 5 Twisted Pairs
- Conductor Size:** 22 AWG
- Conductor Material:** Tinned Copper in accordance with ASTM B33
- Conductor Stranding:** ASTM B8, Class C (19x)

Shielding Requirements

- Inner Shields:** Aluminum Foil, not spirally wrapped
- Inner Shield Isolation:** Individual shields shall be electrically isolated from all adjacent shields with an insulation, such as a Mylar film
- Inner Shield Drain Wires:** 22 AWG Drain Wire per pair
- Overall Foil Shield:** Aluminum Foil, not spirally wrapped
- Overall Drain Wire:** Not Required
- Overall Braided Shield:** Tinned Copper in accordance with ASTM B33
- Overall Braid Coverage:** 90% or better

Material Requirements

- Conductor Insulation:** Crosslinked Polyethylene (XLPE)
- Insulation Temp. Rating:** 105°C
- Insulation Thickness:** In accordance with UL and NEC requirements for PLTC-ER
- Overall Cable Jacket:** Chlorinated Polyethylene (CPE)

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-024	REV —
SCALE None	UNIT WEIGHT —	SHEET 2	OF 3

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

Jacket Temperature Rating: 90°C
Jacket Thickness: In accordance with UL and NEC requirements for PLTC-ER

Marking and Colors

UL Jacket Markings: Marked in accordance with applicable UL requirements
KSC Jacket Markings: Marked with KSC Part Number "120E3100001-024" every two feet
Footage Markings: Sequential footage marking on jacket every two feet
Lot Identification: Marked with a Lot Number every two feet
Manufacture Date: Marked with the Manufacture Date every two feet
Twisted Pair Identification: Black and White, Number Coded (ICEA S-58-679, Method 9)

Delivery Requirements

Cable Length: Refer to procurement documentation
Tolerance: +/- 5%
Shortest Continuous Run: Refer to procurement documentation
Packaging: On one or more spools with both cable ends accessible for testing
Spooling: Refer to procurement documentation

Quality Requirements

Certificate of Conformance: A Certificate of Conformance (CoC) shall be included in this order according to FAR 52.246-15

SIZE A	CAGE CODE 22264	DWG NO 120E3100001-024	REV —
SCALE None	UNIT WEIGHT —	SHEET 3	OF 3

