

Phoenix Sky Harbor International Airport

AV00000000



**Tenant
Premises Distribution System (PDS)
Standards**

**Revision 0
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1.0 Introduction to Standards

The intent of the Tenant's PDS Standards document is to define for a tenant designing and installing telecommunications infrastructure on the Phoenix Sky Harbor Airport campus a minimum set of standards that will allow for the successful completion of the installation in the growing environment of the Phoenix Sky Harbor International Airport. Following this standard will ensure that airport-wide installation of all telecommunications cabling infrastructure will meet end-user needs, current industry safety standards, and warranty requirements. Any questions regarding the use of these standards shall be brought to the Aviation's Technology Division.

This document is to be used in conjunction with the Aviation's Tenant Improvement Process and is supplemental to the procedures outlined in "Phoenix Sky Harbor International Airport Tenant Improvement Handbook". It shall be noted that all construction personnel assigned to any project requiring airside access, except for escorted in-transit material supplies, shall make application for a security badge and wear it at all times. Anyone operating a motor vehicle within the secured area shall have a valid airfield driver's license issued by the Aviation Security Operations Division. Any contractor needing to use tools in the secured AOA must accept responsibility for these tools by obtaining a tool card from the Aviation Security Operations Division. For the necessary details of how to obtain each of these security clearances refer to the Aviation Policies & Procedures chapter within the Tenant Improvement Handbook mentioned above.

1.1 Introduction

- 1.1.1 An approved common wiring scheme for all organizations within a facility is critical to support services and equipment from multiple vendors. These standards will define cabling types and their maximum distances, work area and component recommendations, and the means of connecting to local service providers and the Aviation PDS Network Infrastructure. Contractor shall coordinate with Aviation Technology for all required PDS network connectivity and VLAN assignments.
- 1.1.2 The City Standard for a system structured cabling solution is Berk-Tek/Ortronics and shall be for all cabling that originates in the tenant space



and terminates within the Aviation PDS rooms. Cable that originates and terminates within the tenant's space shall adhere to appropriate building codes but are otherwise at the discretion of the tenant. Any proposed solution other than the City Standard will require a waiver from the City ITD standard.

2.0 Telecommunications Closet (TC)

2.1 Description

- 2.1.1 The TC is a space where horizontal and riser cables are terminated for multi-disciplined cable media. Unless otherwise directed by Aviation's Technology Division, the TC will be the tenant's point of connectivity to the Aviation PDS providing the tenant with campus wide connectivity.
- 2.1.2 The TC supports the voice, data, and video needs of one floor or defined area of a building as opposed to an entire building or campus.
- 2.1.3 Tenant shall not use the PDS physical layer infrastructure to interconnect proprietary voice systems.

2.2 Interconnectivity Requirements

The major factors that shall be considered when implementing tenant-to-City TC interconnectivity are as follows:

- 2.2.1 Connection to the TC shall be via two 4'x4'x12" pullboxes which are located on adjacent walls from each other. Each pullbox will have 2-4" conduits extending into the TC. All connectivity to the TC will be via the pullbox with 1" conduits where the cabling will be extended into the TC using the existing 2-4" conduits. The 1" conduit will extend to the end device.
- 2.2.2 Tenant shall coordinate the labeling scheme with Aviation PDS Technology for all cables terminating in Aviation PDS.
- 2.2.3 CAD work performed as part of the design effort shall also meet the requirements of the Airport's Cable Management System (CMS). As-built floor plan documentation in CAD release 2000 shall be required as deliverable upon completed tenant improvement project. Documentation shall include cable routing and outlet location.



- 2.2.4 Tenant shall be required to coordinate with Aviation Business and Properties for applicable tenant usage fee schedules associated with Aviation PDS connectivity.

2.3 Termination Hardware Requirements

2.3.1 Patch Panels for Copper Horizontal Cabling

- a. Contractor shall furnish and install patch panel in the existing free standing equipment rack if there are an inadequate number of patch panel ports currently available. The cabling in the horizontal segment will be terminated on patch panels for data cabling in the TC. UTP cables supporting data Jacks will be terminated on Ortronics® Clarity6 T568B 24- or 48-port, High Density, Category 6 patch panels which are mounted on a wall-mounted bracket, in a free standing welded steel equipment rack, or in an enclosed data cabinet.
- b. Terminations of each type of cable shall be located on one continuous wall or rack.

2.3.2 Data Patch Panels. UTP patch panels that provide Data service to Jacks shall be installed using the following preferred and recommended products.

- a. Ortronics® Standard Density, TracJack Patch Panels with Clarity⁶ TracJacks. Part number OR-401045290 (24 port).
- b. Ortronics® Standard Density, TracJack Patch Panels with Clarity⁶ TracJacks. Part number OR-401045292 (48 port).
- c. The patch panel shall support RJ-45 modules wired to the TIA/EIA 568-B standard on the front, and have 110-style IDC connectors on the back.
- d. The patch panel shall provide front and rear designation strips for labeling, to include above the RJ45 module.

2.3.3 Data Patch Cords.

- a. Patch cords shall be manufactured by Ortronics.
- b. Manufactured patch cords shall be installed to meet the minimum bending radius of 0.25 inches as specified in ANSI/TIA/EIA 568-B.1-AD-1, Sub clause Addendum 10.2.1.3.



3.0 Horizontal Cabling

3.1 Design Process

- 3.1.1 CAD work performed as part of the design effort shall also meet the requirements of the Airport's Cable Management System.

3.2 Cable Types and Lengths

- 3.2.1 The City recognizes two types of cables for use in the horizontal segment between tenant space and City TC: UTP (unshielded twisted pair) and 50 micron multimode fiber optic cable.
- UTP cable will be 4-pair, 24 AWG, solid conductor cabling that meets ANSI/TIA/EIA 568-B.1 and B.2 cabling specifications for Category 6 cable, to include any/all Amendments and Bulletins, and must meet specified specifications and performance requirements. Performance testing shall be conducted at the component level by a UL certified testing laboratory, and include Active Live Channel Testing to insure manufacture and performance quality. LANmark-1000 manufactured by Berk-Tek®.

3.3 Termination Hardware Requirements at the Outlet

- 3.3.1 Each UTP cable for voice and data applications will be terminated at the outlet with a Cat 6, RJ-45 Module, 8P8C, T568B, 180° degree exit, Module Information Outlet. Any colors not specified in this document will need final approval/coordination from the City. Ortronics part and part number shown below.



OR-TJ600-36

TracJack Module

3.4 Cable Testing Procedures

3.4.1 UTP Horizontal Cable Testing

- a. City requires that all UTP cable pairs be Permanent Link tested with a Level IIE or Level III tester for full compliance with TIA/EIA 568-B.1 and B.2, Category 6 specifications regardless of intended use.
- b. Test results shall be in City approved Aviation Cable Management System worksheet.
- c. Reference Table 3-1 for testing parameters.

Table 3-1 Permanent Link Testing

Parameter	Category 6
Specified Frequency Range	100MHz
Pair to Pair NEXT	41.8 dB
Power Sum NEXT	39.3 dB
Insertion Loss	18.6 dB
Pair to Pair ELFEXT	24.2 dB
Power Sum ELFEXT	21.2 dB
Return Loss	14.0 dB
Propagation Delay	498ns @ 10MHz
Delay Skew	44ns
Wire Map	TIA/568B.2
Length	≤ 295 feet

4.0 Quality Assurance

4.1 Quality Assurance Overview

- 4.1.1 Tenant shall be responsible for the quality of service for the cabling originating in the tenant space up to the termination in the Aviation PDS room.
- 4.1.2 Aviation Technology shall only be responsible for quality of service (QOS) running on PDS active electronics and passive physical layer infrastructure. Aviation shall not be responsible for any cabling originating and terminating within Tenant spaces.



APPENDIX A - Reference Materials

Following is a list of reference material on telecommunications infrastructure:

- City Of Phoenix Information Technology Department – Telecommunications Cabling Systems Standard – 11/2001