

# Amphenol-TCS

TB-2045

CUSTOMER AND SUPPLIER DATA TRANSFER PROCEDURE

REVISION "F"

## SPECIFICATION REVISION STATUS

<u>Revision</u>	<u>SCR No.</u>	<u>Description</u>	<u>Initial</u>	<u>Date</u>
"-"	25623	Initial Release	D. O'Neill	12-18-98
"A"	28199	Revised Paragraphs 2.1, 2.2, 4.4.1, and 6.4.8 Deleted Paragraphs 4.9.2 and 4.9.3	C. Wardwell	7-16-99
"B"	43095	Removed FTP Admin info changed all reference to Doc Control and modem for data transfer reference	D. Malette	10-6-03
"C"	43356	Revised to incorporate ITAR	P. Perry	11-7-03
"D"	43767	Added Internet Instructions for FTP Users	D. Malette	1-20-04
"E"	44671	Corrected email link	L.Munnis	7-26-04
"F"	S0126	Revised Paragraphs 2.1.1, 3.1.3 ;Updated email link and company name.	P. Perry	3-17-06

Copyright © 2005 by Amphenol TCS. The material contained in this document is proprietary to Amphenol TCS. It is intended for internal use only and it may not be disclosed to third parties, reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, or recording without the prior written permission of Amphenol TCS.

---

## 1.0 PURPOSE

1.1 The purpose of this technical bulletin is to describe the procedure for receiving and sending electronic data files to and from Amphenol TCS. This document also describes information necessary for ATCS to perform front end engineering as quickly, accurately and effectively as possible. File Transfer Protocol (FTP) is our preferred method for Data Transfers.

## 2.0 ATCS CONTACTS

2.1 Document Control Telephone: 603-879-3517  
Fax: 603-879-2517  
E-Mail: [document.control@amphenol-tcs.com](mailto:document.control@amphenol-tcs.com)

2.1.1 The Document Control Department of Amphenol TCS performs the actual transferring, receiving and storing of the customer/supplier data files. In the event of problems when trying to FTP files, please contact Document Control Monday through Friday EST as the first choice and your ATCS contact as the second choice.

## 3.0 DATA TRANSFER OPTIONS

### 3.1 FTP

#### 3.1.1 What is FTP?

3.1.1.1 FTP (File Transfer Protocol) is a process that computers use to electronically send files from one computer to another over the Internet. There are a number of FTP client programs with graphical user interfaces (GUI) available, particularly for PC and Macintosh computers. Contact your local system administrator for help.

#### 3.1.2 FTP Account Types

3.1.2.1 Secure FTP Account - This is a confidential (secured) FTP account requiring a user name and password to gain access. Secure FTP can be used for both inbound and outbound data transfer. Document Control is automatically notified of inbound deposits and no sender notification is required. This is Amphenol's preferred method of data transfer. See Paragraph 3.1.3.1 of this document for instructions on obtaining a secure account.

3.1.2.2 Anonymous FTP Account - This is a non-confidential (unsecured) FTP account that is non-password protected and viewable to anyone on the internet. Anonymous FTP can only be used for in-bound data transfer. When depositing in this account, the sender must notify Document Control within

---

24 hours of deposit via E-mail, phone, or fax. Amphenol TCS is not responsible for lost files if the sender does not notify Document Control.

3.1.2.3 ITAR Secure FTP Account -If you are a Amphenol TCS customer or supplier who needs to send or receive files in an ITAR secure environment, you should contact your TCS representative to have an FTP user registration form sent to you or use the form in Paragraph 6.2. Fill the form out and fax or E-mail it to the TCS Document Control. The application is an agreement between you and Amphenol TCS covering the use of the service.

3.1.3 FTP User Procedures - This paragraph of TB-2045 outlines the procedures to follow when using FTP at ATCS.

3.1.3.1 Obtaining a Secure FTP Account

3.1.3.1.1 If you are a Amphenol TCS customer or supplier who needs to send or receive files in a secure environment, you should contact your ATCS representative to have an FTP user registration form sent to you or use the form in Paragraph 6.2. Fill the form out and fax or E-mail it to the ATCS Document Control. The application is an agreement between you and Amphenol TCS covering the use of the service.

3.1.3.1.2 You will be asked to choose a user name (Amphenol TCS will select one if you like, or if your choice is already taken) and password. The user name must be in the form of a person's name, not a generic company name. You will also need to supply your E-mail address. Each individual in your organization who requires this service should have their own account. Document Control will forward your request to the HelpDesk who will work with the ftp Administrator to get the account set up.

3.1.3.1.3 When your secured account is created, you will be sent a greeting as shown in Paragraph 6.3 which will include your username (it may be different from those you requested if requested username is already used) by E-mail. Your password will be sent in a separate email. You can now use an FTP client program, such as Unix ftp(1), and log in to <ftp.Amphenol-TCS.com>:

- 
- 3.1.3.2 Using your ftp service: navigate to [ftp.Amphenol-TCS.com](ftp://Amphenol-TCS.com)
- 3.1.3.3 File Format - Every file will be sorted in the same manner of encryption. Any of these files can be compressed and decompressed on the fly so they arrive at your site in a desired form. The following encryption packages will be supported by Document Control: ViaCrypt
- 3.1.3.4 Security In The System - Please see Paragraph 6.1 titled "FTP System Security" for a detailed explanation of how FTP security is handled at ATCS.
- 3.1.3.5 Using Your Secure Account - After Amphenol TCS has given you your username and password, you can log into the system and will be directed into the proper location to send or receive your files. For a more detailed description on security, please see the FTP System Security Paragraph 6.1 of this document. To log into the Amphenol TCS FTP server do the following:
- Step 1 Navigate /FTP to [ftp.Amphenol-TCS.com](ftp://Amphenol-TCS.com)
- Step 2 Log in as the username that Amphenol TCS has provided
- Step 3 Password: Use the password Amphenol TCS has provided
- Step 4 change directories to the xfer directory (this directory will be used for sending and receiving data to Amphenol TCS) that Amphenol TCS assigned. Unix client Example % ftp [ftp.amphenol-tcs.com](ftp://amphenol-tcs.com)
- Use the commands in your FTP program to get a directory listing (ls or dir), move about in the file structure (cd), retrieve files (get), and place files on the system (put).
- Step 5 Type or select "binary".
- Step 6 Put files in directory.
- Step 7 Please supply a Readme or text file as defined in Paragraph 4.2
- Step 8 Log out.
- Step 9 Optional – Notify Amphenol TCS of file deposit.
- 3.1.3.6 Monitoring Secure FTP Directories - A script will monitor all secure ftp account directories at one hour intervals and automatically email all new files to Document Control. If your file needs to be addressed sooner than the script will retrieve it, contact Document Control or your Amphenol TCS representative. Files will be deleted from your secure ftp account directory after 4 days.

3.1.3.7 Using Anonymous FTP - Before your personal account is created or if security isn't an issue, you can use Amphenol TCS anonymous ftp service provided you accept the inherent risk with anonymous. Files in the anonymous ftp account directory are visible to everyone on the internet, but they can only be retrieved by personnel internal to Amphenol TCS.

Step 1 ftp to ftp.Amphenol-TCS.com

Step 2 Log in as "anonymous" or "ftp"

Step 3 Password: use your e-mail address

Step 4 change to the "incoming" directory

Step 5 Type in "binary"

Step 6 Put files in.

For Internet Browser Users follow these steps

Step 1 Click on [ftp.Amphenol-TCS.com](http://ftp.Amphenol-TCS.com) link located on electronic FTP info Card you received from ATCS Document Control via email.

Step 2 Double click on incoming folder.

Step 3 Copy and paste the file into the incoming folder

If for any reason this doesn't work, type in

[ftp://ftp.Amphenol-TCS.com](http://ftp://ftp.Amphenol-TCS.com) in browser address window, and continue with steps 2 and 3 above.

3.1.3.7.1 Use the commands in your FTP program to get a directory listing (ls or dir), move about in the file structure (cd), retrieve files (get), and place files on the system (put).

3.1.3.7.2 If you resend a file you must rename it. Files cannot be overwritten.

3.1.3.7.3 Files in this directory will be removed after 4 days or 96 hours. Be sure to coordinate data retrieval with the document control contact identified in Paragraph 2.1 within 24 hours.

Note that this server will automatically translate between compressed, uncompressed, and gzip'ed files according to the suffix you place (or don't place) on your filenames.

3.2 Media - We accept most media. Here they are listed in order of preference.

4mm DAT, Tar Format
8mm (Exabyte), Tar Format
Cdrom
Diskettes: DOS Format 3.5 Inch
1/4 Inch Data Cartridge (6150, 6250, etc.), Tar Format

#### 4.0 DATA PACKAGE

##### 4.1

Readme File:	ASCII Text File
Aperture File:	ASCII Text File
Design Data:	Valor ODB, RS274X, Gerber
Drill:	Excellon
Rout:	Excellon
Mechanical Drawings:	HPGL, Gerber, hardcopy
Assembly drawings:	DXF - Preferred, HPGL, IGES, Postscript, Hardcopy
Netlist File:	IPC-D-356 Preferred
Customer Specification if Applicable	
Pick and Place File for SMT	
Signal Integrity Data	Solidworks, Touchtone, Sparameter, Spice

4.1.1 If there are no Board drawings in the file, please supply a detailed board layout, customer bill of material, or approved vendor list.

##### 4.2 Readme File

4.2.1 This is an important part of the package. It should readily describe the data package content which helps in quickly identifying any missing information. This will allow any issues to be resolved quickly and minimize the delay and cost associated with data related questions and errors.

4.2.2 The preferred readme file would consist of two sections:

4.2.3 Section one would denote the customer/supplier name, part number and revision along with

a

contact name, phone number, or email address.

4.2.4 Section two would describe the contents of the file. This would be a file list describing each supplied file, and the data format description (numbering format, units, etc.). Photo plotting information (polarity, merging), special instructions, and any other information which may be helpful.

4.2.5 Example Readme File

Amphenol TCS  
P/N 123456 Revision –  
Program Redstar  
John Smith 555-603-3296

File Name	Type	Description
Aplist	ASCII File	Aperture List for Plotting
Comp.grb	Gerber File	Component Side
Drill.drl	Drill File	PWB Drill Side
Fab.plt	HPGL File	Mechanical Drawing
File.net	IPD-D-356	Netlist File
Assy.dxf	Drawing Exchange File	Assembly Drawings

#### 4.3 Aperture Wheel Definition

4.3.1 The Aperture Wheel should be included as a text file. We have the capability to input most aperture text files automatically which greatly reduces the likelihood of input errors and speeds this process significantly. Most apertures can be described with a shape and dimensions. All odd shaped apertures must be specified in detail or with a drawing. Use D-codes, not aperture numbers.

#### 4.3.2 Typical Aperture Shapes

4.3.2.1 Round

4.3.2.2 Square

4.3.2.3 Oval

4.3.2.4 Rectangle (SMD) with Square, Rounded or Chamfered Corners

4.3.2.5 Donut or Ring (Annulus)

4.3.2.6 Thermal Relief with Drawing or Description: Shape (Round, Square), OD, Identification, Number of Spokes, Spoke Width, Spoke Angle, Spoke Shape (Round, Square)

4.3.2.7 Diamond

4.3.2.8 Octagon

4.3.2.9 Hexagon

#### 4.4 Gerber Data

4.4.1 Extended Gerber Format (RS-274X) is preferred. End each record with a newline (linefeed character) for ease of readability. Other formats (IPC-D-350, DPF and Optrotech Backup) are possible but these should be tested before an actual job is sent. Please contact your ATCS Applications Engineer for data formatting instructions.

4.4.2 As a general rule, design data for Signal layers should be positive (i.e., drawn lines and pads). Design data for Plane layers should be negative (i.e., clearances defined as flashes).

4.5 Drill Data - Tool number, finished hole size, +/- tolerance, number of hits and plated/non-plated should be indicated in the drill file, a separate text file, drill drawing layer or print.

4.6 Rout (profile) Data - An Excellon or Gerber rout file is preferred. Alternately, provide a dimensioned mechanical drawing showing the profile edge, slots and cutouts and dimensioned

hole-to-edge locations.

#### 4.7 Netlist Data

4.7.1 If netlist electrical testing is required, supply a netlist with the following:

##### 4.7.2 Required Information

4.7.2.1 Signal identifier (net name or number) and any other file or information for testing purposes such as schematics, test specifications, voltage requirements, etc.

4.7.2.2 X,Y location of the test feature.

##### 4.7.3 Helpful Information

4.7.3.1 Reference designator and pin number.

4.7.3.2 Feature identifier; i.e., via, plated hole, tooling hole, etc.

4.7.3.3 Surface Mount Pad flag with access side identifier (component or solder).

4.7.3.4 Trace segment data to support automated analysis and repair.

4.7.4 Preferred format: IPC-D-356.

4.7.5 Include all Power and Ground points as well as all single point nets. The data should also include the X,Y location of three non-plated through holes which can be used for tooling the PCB to the test fixture.

#### 4.8 Drawings - We prefer to receive electronic files for fabrication, mechanical and assembly prints.

Fabrication Drawings	Preferred Format – HPGL
Assembly Drawings	Preferred Format – AutoCad (DXF)
Other Acceptable Formats	IGES, Postscript and HPGL
Signal Integrity Data	Solidworks, Touchtone, Sparameter, Spice

#### 4.9 CAD Data

4.9.1 We are able to accept data directly from several CAD systems. Our Front End CAM system (Genesis by Valor Computerized Systems) has the ability to input these data directly thereby eliminating the need for traditional Gerber and other associated data files (drill, rout, netlist). Currently, we can accept data from Cadence/Allegro CAD systems. When supplying CAD data instead of Gerber, please contact your ATCS Applications Engineer for data formatting instructions.

### 5.0 ENCRYPTION

5.1 ViaCrypt PGP software is supported by Document Control. Contact them for key.

---

## 6.0 REFERENCE SECTION

### 6.1 FTP System Security

6.1.1 This paragraph describes how the FTP service works to allow multiple companies access without compromising data security.

6.1.2 The Directory Structure - The directory structure allows information to be protected. The first directory depends on the is typically 'tcs', Amphenol TCS division that the customer/supplier works with. This three-letter code is used as the first directory for non-ITAR data. (For ITAR data the folder is 'ITAR' rather than 'tcs' This is known generically as /div and in this document it will be called /tcs. In the /tcs directory, there is a directory called customer. In the customer directory, there is a directory for every company which uses this system. Under this directory is a directory for transferring data either to or from Amphenol TCS called xfer. The generic directory structure for non-ITAR looks like:

/div/customer/company/xfer

and for the Amphenol TCS and company ABC, it looks like:

/tcs/customer/abc/xfer

The generic directory structure for ITAR looks like:

/div/customer/company/xfer

and for the Amphenol TCS and company ABC/ITAR, it looks like:

/ITAR/customer/abc/xfer

### 6.1.3 How It All Works

6.1.3.1 Security is maintained by taking advantage of UNIX's User IDs (UID) and Group IDs (GID). Upon logging into a machine running UNIX, the user is assigned their UID and a GID. There are three groups being used on the Amphenol TCS FTP server. These groups are div, divcust and cust.. div stands for the three letter code for Amphenol TCS or ITAR if the data going in or out is under ITAR control and all customer/suppliers are put in groups cust and divcust. The FTP Administrator for Amphenol TCS is a member of all three groups. In the case of ITAR data, The FTP Administrator for these folders would be a confirmed US Citizen .

6.1.3.2 After logging in, the user is also placed into their home directory which is the aforementioned xfer directory owned by the UID assigned to the user. The directory is listed as being in group divcust. The permissions on the xfer directory allow for reading, writing and executing by the owner and reading,

---

writing and executing by the group. Also, the set-GID bit is set for this directory. This means that the group of any file written into this directory will be group divcust.

6.1.4 What Does All This Mean?

6.1.4.1 First, it means that any file put into this directory by an Amphenol TCS employee will not take employee's GID (div), but will have the group setting for this directory (divcust). This allows anyone in group divcust to read the document because the group read bit is set. Second, it means to get into and either read or write files in this directory, you must either be in group divcust or have the UID which is the owner of this directory.

6.1.4.2 The question raised by this is, if every company for an Amphenol TCS division is part of group divcust, what keeps other companies who work with the same Amphenol TCS division, and therefore are also in group divcust, from looking

at

the files in this directory?

6.1.4.3 That problem is solved in the permissions in the customer/supplier and company directories. The customer/supplier directory is owned by root and is in group tcs. This means the only people who can use the group permissions are Amphenol TCS employees in this division. However, the world executable bit is set. Translating to English, since no customer/supplier is in group tcs, no customer/supplier can see the contents of the /tcs/customer directory or /ITAR/customer directory. However, all customer/suppliers can pass through the directory. From here, customers/suppliers can only pass into their company directory because each company directory is owned by the company UID and in group tcs or ITAR. Thus, even though every customer/supplier can access their company directory (/tcs/customer/company

or

(/ITAR/customer/company) no customer/supplier can see the existence of either their directory or any other company's directory under /tcs/customer Or ITAR/customer/company Even if another company could guess your directory name, they could not access your directory due to the permissions we have set.

6.1.4.4 So, by manipulating a user's GID and UID, we have created a system which not only secures your documents, but also your identity.

## 6.2 FTP User Registration Form

Name:

Requested User Name:

Company:

Address:

Site Location:

Telephone:

FAX:

E-mail:

Amphenol TCS Contact name:

ITAR DATA ACCESS REQUIRED (Y / N):  

---

This is the first step in requesting a secure FTP account at ATCS. Please see the FTP Users Procedures Paragraph 3.1.3 for a more detailed description. If you have any questions, contact the ATCS Document Control Department (identified in Paragraph 2.1).

### 6.3 Customer Supplier Greeting

-----CUSTOMER/SUPPLIER GREETING-----

Welcome to the Amphenol TCS FTP service.

Your username is: xxxxxxxx

Your password will be e-mailed to you in another message with a subject line of:

Subject: separate cover

Access the service via FTP at the host FTP.Amphenol-TCS.com, and login with the supplied username and password. Currently, you may not change your password but we are working on providing this capability. You have read and write permissions in the directory which you will be logged into. This directory is </xxx/customer/xxxxxxx/xfer>.

Do not reveal your password to anyone. If another person at your organization wants access to this service, please have them apply for their own account.

Amphenol TCS has processed your application. Please direct all questions about your account to

<Nashua.help.desk@amphenol-tcs.com>

Regards,

The FTP Administrator

6.4 TCS Document Control's Role

- 6.4.1 Send Registration form and TCS FTP User's Guide to customer/supplier
- 6.4.2 Send completed registration form to ATCS Help Desk and FTP administrator
- 6.4.3 Point of contact for any customer/supplier FTP problems or concerns
- 6.4.4 In charge of maintaining the encryption software
- 6.4.5 Contact between ATCS and the FTP administrator
- 6.4.6 Monitor entire ATCS FTP environment and resolve any problems