<p align="center">**ReadMe File for Bid Tracking Software: DEFTRACK.xls v8/30/96**</p>

Note. This version (v8/30/96) of the Bid Tracking Software replaces the previously released version (v8/1/96). This version reflects a change in the market and bidder analysis functions of the tracking tool, which were inoperable in the previous version. Currently, the analysis function display is limited by the maximum size of pivot tables that can be created in Microsoft® Excel™, and as such, cannot display queries requiring more than 256 columns. For data queries that exceed this limitation, the software will prompt you that it cannot create a pivot table and direct you to a list of the raw data ("sheet 1" of either market.xls or bidder.xls). **If you are replacing a previous version of the DEFTrack software, you will need to reimport the data from previous rounds.**

Summary. DEFTRACK.xls is software for tracking the progress of the Federal Communications Commission's DEF Block Auction.

With this bid tracking tool, bidders can import round results and analyze the bidding. The software is a Microsoft® Excel™ v5 WorkBook, which runs on Microsoft Windows™ v3.1 or later.

Disclaimer. The Commission makes no warranty whatsoever with respect to the auctions tracking software packages. In no event shall the Commission, or any of its officers, employees, or agents, be liable for any damages whatsoever (including, but not limited to, loss of business profits, business interruption, loss of business information, or any other loss) arising out of or relating to the existence, furnishing, functioning or use of the auctions tracking software packages that are available to the public in connection with the Commission's spectrum auctions. Moreover, no obligation or liability will arise out of the Commission's technical, programming or other advice or service provided in connection with the auctions tracking software packages.

Software and Hardware Requirements. At a minimum, you will need the following:
- Microsoft Windows v3.1 or later
- Microsoft Excel v5 or later
- a computer able to run the above software
- 8MB of available hard disk space

User Requirements. This software is not designed for novice computer users. To be used effectively, you must have extensive experience with:
- Microsoft Windows v3.1 or later
- Microsoft Excel v5 or later
- the FCC simultaneous multiple round auction format

This document assumes that you have such experience. It does not attempt to educate you about Windows, Excel, or the FCC auctions. You are urged to consult the appropriate manuals elsewhere.

Installation.

0. Make sure you have 8MB of available space on your hard disk.

1. Download the file README.TXT or README.WP (.txt is an ascii text file and .wp is a Word Perfect file) and DEFTRACK.EXE to your c: drive. [You can install DEFTRACK on a different drive, but you will have to change a constant in DEFTRACK.xls after installation. This is not recommended.] For illustrative purposes, this example assumes that you download the files to the root directory c:\.

2. At the DOS prompt (i.e. c:\>) type: DEFTRACK
    This will create the required subdirectories and uncompress the necessary files. These subdirectories contain the auction data as described at the end of this file. [If you get an error message after running DEFTRACK.exe, it is likely that the file was corrupted in downloading. Download the files again and retry.] The tracking tool is contained in the Excel v5 WorkBook,DEFTRACK.xls and a backup is in DEFTRACK.bak.

4. To begin using the tool, start Windows, load Excel, and open the file DEFTRACK.xls. This file is in the directory c:\fcc\broad\def\.

Customizing the Workbook. Once you gain experience using the tracking tool, you will see ways to change or extend the workbook for your particular needs. You should think carefully before modifying the workbook. First, your changes may inadvertently damage the existing features of the workbook. Second, when a new version of the software is released, your changes would be lost if you switch to the new version. Hence, the best way to introduce your extensions is to create another workbook that is linked to the desired data in DEFTRACK.xls. Both workbooks can be open at the same time in Excel and the links can be updated automatically (see the Excel user manual). Most data items are named ranges in DEFTRACK.xls. In defining the links, you should use the named ranges.

Trouble Shooting. If you are having a problem with the tracking tool, first try to isolate the problem. The most common problem is that a required data file is missing (you will get a "File not found." run-time error message). For example, you tried to import data for round 10, but you did not yet download the round results from round 10 or failed to place them in the required subdirectories. To solve the problem, download the results, place them in the right subdirectories (see below), and retry the import.

Try to duplicate the problem. If the problem persists, it may be that DEFTRACK.xls was damaged in some way. Close DEFTRACK.xls, and then use the Windows FileManager to copy it to DEFTRACK.old and then copy the backup version DEFTRACK.bak to DEFTRACK.xls. Open DEFTRACK.xls (which should be the original, unmodified version) and attempt to duplicate the problem. Technical assistance can be obtained from the FCC Tech Support Hotline at (202) 414-1250.

Description of the Workbook. DEFTRACK.xls consists of several worksheets, summarizing the auction data, and several modules written in Visual Basic for Applications™, containing the source code. Each is described below.

Worksheets with Permanent Auction Data

- *MarketData*. Contains the basic market data. The data in this sheet are set before the auction begins and do not change during the auction. Since this workbook was designed for the DEF block auction, the relevant markets are the 1479 BTAs being auctioned.

- *BidderData*. Contains the basic bidder data. An "s" in column Pref indicates that the bidder is eligible for a 15% small business credit, a "v" in the colum Pref indicates that the bidder is eligible for a 25% small business credit..

Worksheets Based on the Latest Round Results

- *Summary*. Contains a summary of the results for the current round. The summary includes measures of revenue, bidding activity, prices, and eligibility. The sheet highlights essential information from the round. What markets are most active? Are bidders using jump bids or raising their own bids? Were there any bid withdrawals? Were there any changes in eligibility? Who has to bid in the next round to avoid a drop in eligibility?

- *Markets*. Presents data for each license. How active is the license? Who was (is) the high bidder? Is there an outstanding withdrawal?

- *Bidders*. Displays data for each bidder. Eligibility, current activity, and other measures are given.

- *Rounds*. Shows several summary measures for each round of the auction. Activity, revenue, price, and eligibility measures are listed for each round.

- *Withdrawals*. Lists all withdrawals up to the current round and any outstanding withdrawal payments. The withdrawal payments shown here are calculated as the lesser of the difference between the current net high bid and the net withdrawn bid and the difference between the current gross high bid and the gross withdrawn bid.

- *Rules*. This gives the current stage, the stage transitions, and the required activity levels in each stage.

- *UserSort*. Stores the user defined sort orders.

- *MTABTA*. A table which specifies which BTAs are in each MTA.

Modules in DEFTRACK.*xls* (This is the source code for the DEFTRACK.xls tool. It should not be modified.)

- *ModConst*. Global constants available to all modules. If you installed DEFTRACK.xls in a directory other than c:\fcc\broad\def, you will need to change the AuctionDir constant to your installation directory.

- *ModImport*. Contains the procedures used to import the round results.

- *ModSelect*. Contains the procedures used to select market or bidder data for analysis.

- *ModSorts*. Contains the procedures used to sort the worksheets in the desired order.

- *ModTesting*. A temporary module used for testing.

Auction Menu. After opening DEFTRACK.xls, you will notice a new menu item, Auction11, in the Excel Menu Bar. This menu item (Alt-A to select it) is used to access the auction procedures: to import round results, analyze the data, or define user sorts. For example, to import a round, you would type Alt-A I. The main procedures are described below.

Importing Round Results. The steps used to import the results for round 1 are given below. These steps assume that you download the data files over the Internet using FTP. [Alternatively, you can download the files using a Web browser. Connect to http://www.fcc.gov/wtb/aucdata.html]

The preliminary (pre-withdrawal) round results are available for ftp approximately 30 minutes after the close of the bid submission period. At this point, the first three data files (S, X, and E) are posted. These data can be imported following the steps below. The final round results are available for ftp approximately 30 minutes after the close of the withdrawal period. At this point, the remaining three data files (Y, M, and W) are posted. Simply reimport the round to update the preliminary results.

1. In a DOS session, type the following commands:

Command	Comment
ftp fcc.gov	Begins ftp session with fcc.gov
anonymous	Your user name is anonymous
password	Any password will do
lcd c:\fcc\broad\def\temp	Change local directory to \temp
cd pub/Auctions/PCS/Broadband/	
BTA/Auction_11/Results	Change to where auction data is
binary	You are getting binary files
mget 11_001?.dbf	You want all dbf files for rnd 1
bye	This ends your ftp session

2. Change to the temporary subdirectory, c:\fcc\broad\def\temp, and type

    file

This runs the batch program file.bat, which places the round results (stored in the c:\fcc\broad\def\temp subdirectory) into the appropriate subdirectories.

3. Switch back to Excel and with DEFTRACK.xls open select Import All from the Auction11 menu. Type 1 when asked which round to import. It may take several minutes to import a round on a 90 MHz Pentium computer when there are over 100 bidders and 1479 licenses. Please be patient. If you get an error message saying that a file is not found, it is probably because the dbf files are not in the appropriate subdirectories. Make sure that the required files are in place.

    If you want to see the data from an earlier round, simply reimport the desired round.

    Sorting Tables. The data in the sheets, MarketData, BidderData, Markets, and Bidders, can be sorted any way you like. Simply click on the Sort button and then select the desired sort. You can change the User Defined sort by selecting User Sort in the Auction11 menu. After an import, the data is automatically sorted according the User Defined sort for each sheet.

    Analyzing Auction Data. A main feature of the bid tracking tool is the ability to analyze the auction data in many different ways. Often you will want to look at data from many rounds at once. This is accomplished by selecting Analysis from the Auction11 menu. Data can be selected by market or by bidder. For example, suppose that you want to see all the bids for the entire auction in BTAs 1 to 3. Then you would select Analysis Market from the Auction11 menu. It asks you how you want to select the markets. Click on BTA to select by BTAs. Then it asks you for which rounds you want to select data. Type 1-10 for rounds 1 to 10. Then it asks you which markets you would like to select. Type 1,2,3 to select BTAs 1 to 3. Finally, it asks what type of data you would like to select. Click on All Bids to select all the bids in these markets. It then selects the specified data and puts it in a workbook, Market.xls. If this file already exists, it asks if you would like to replace it. Sheet2 of this workbook is a PivotTable (see the Excel User's Guide), which displays all the bids for the specified markets and rounds. This is handy to see who the competitors are in a market and see the progress of the bids. Each row in the table is a round in which a bid was placed in one of the markets. The markets are listed alphabetically as are the bidders in each market.

    There are several things to note about the Analysis procedure:

    • The display of the results in Pivot Table format is limited to 256 columns, if your query exceeds this limitation, you will be prompted by software and directed to the raw data for analysis ("sheet 1" of either market.xls or bidder.xls).
    • When selecting markets, you can use commas in any combination and dashes. For example, 1-3,4,8,10-12,16.

- You can select markets by BTA, or Last Activity. Last Activity selects all markets that were active during the rounds selected.
- Once the PivotTable is created, you can modify it to see the selected data in different ways. For example if you want the data organized by bidder and then by market, simply drag the Bidder button to the left of the Market button in the PivotTable. If you want to save your modified table, select Save As from the File menu to save the file under a different name.
- To select data by bidder, select Analysis Bidder from the Auction11 menu. For example, you might want to know what markets bidder 3 has bid on in the first 10 rounds. Specify rounds 1-10, bidder 3, and All Bids. A PivotTable is created in the workbook, Bidder.xls.
- You can change the orientation (for example, have rounds as columns and bidders as rows) of the pivot table by clicking on the Pivot Table button and dragging the data items to the appropriate spots. If you are not familiar with PivotTables, you should spend some time reading the Excel User's Guide.

*** *Printing Reports*. You can define and print standard reports by selecting Print Reports in the File menu. The report "Round Results" has been created as a sample. This report is easily customized. Again see the Excel User's Guide.

Definitions. Below are definitions of some of the items that may not be clear from the headings in the worksheets. Many of items in the DEF block auction are best displayed in thousands (k). These are the units that are predominantly used in DEFTRACK.xls. Chg denotes the change from the prior round in the item. The definitions are organized by worksheet.

- *Summary*
- Gross Revenue = total auction revenues, ignoring bidding credits for small businesses and ignoring current withdrawal payments.
- Net Revenue = total auction revenues, net of bidding credits for small businesses, ignoring current withdrawal payments.
- Withdrawal payments = current withdrawal payments, calculated as the lesser of the difference between the current net high bid and the net withdrawn bid and the difference between the current gross high bid and the gross withdrawn bid.
- New Bids = gives the number of new bids in the round and the quantity of new bids (in bidding units) relative to the total quantity of spectrum (in bidding units) being auctioned.
- New High = gives the number of new high bids in the round and the population covered by the new high bids relative to the total population up for auction.
- Top Ten Most Active Markets = the most active markets in terms of the number of new bids in each market.
- Top Ten Bid Increments = the new bids that increased by the largest increments. An increment of 2 means that the raise was equal to 2 minimum bid increments. The smallest acceptable increase is 1 bid increment.
- Raising Own Bid = firms that raise their own prior high bid are listed.

· Average Price = unweighted is a simple average of price on each license; pop weighted is an average weighted by population.
· Eligibility Ratio = total eligibility (in bidding units) / total spectrum being auctioned (in bidding units).
· Chg in Eligibility = change in eligibility in bidding units.
· Bidders at Risk of Drop in Eligibility = a list of bidders who will lose eligibility if they do not bid in the next round; required activity is the number bidding units in thousands on which they must bid to maintain their current eligibility.

- *Markets*
· MTA = MTA number.
· BTA = BTA number.
· Num Bids = number of new bids in the round.
· P = an "s" indicates high bidder has a 15% small business preference, a "v" indicates high bidder has a 25% small business preference.
· Round = the round in which the current high bid was placed.
· Net Bid = the bid net of bidding credit for small business. If a bid of $100 is placed by a "v" small business, the net bid is $100(1-.25) = 75.
· Price = high bid/population.
· # of Bid Increments = raise in bid from prior round measured in the number of minimum bid increments (e.g. 1 means that the minimum bid was placed).

- *Bidders*
· Coverage (BUs) = New is the total population covered by the bidder's new bids. High is the total population covered by the bidder's high bids.
· Activity Measures = High Dollars is the sum of the bidder's high bids. Activity is the sum of the bidder's high bids and active bids (i.e., a bid that was topped by another in the current round). Both are net of any bid credit, and ignore current withdrawal payments. Required Activity is the required activity in bidding units that the bidder must have in the next round in order not to lose eligibility.

Directory Structure. Proper installation creates several subdirectories, where the basic auction data are stored. All are subdirectories of the auction directory (c:\fcc\broad\def in the default installation). Six subdirectories of the auction directory contain the round results in dbf format. These data files are downloaded from the FCC.

Subdirectory	Sample File	Description
\dbfAll	11_001S.dbf	All submitted bids for round 1
\dbfHigh	11_001X.dbf	High bids before withdrawal
\dbfHighW	11_001Y.dbf	High bids after withdrawal
\dbfMin	11_001M.dbf	Minimum accepted bids for round 2
\dbfWdraw	11_001W.dbf	Bid withdrawals in round 1
\dbfElig	11_001E.dbf	Eligibility after round 1

Four subdirectories of the auction directory contain the round results in a form used by the workbook. These data files are created when you import a round.

Subdirectory	Sample File	Description
\ExcelDat\AllBids	bids1.dat	All bids in round 1
\ExcelDat\Bidders	bid1.dat	Bidder data
\ExcelDat\Markets	mark1.dat	Market data
\ExcelDat\Withdraw	with1.dat	Withdrawal data

Finally, the subdirectory \Temp is used as a temporary location for downloading the dbf files. See step 1 of Importing Round Results.