

PowerSDR[™] v2.7.2 Release Notes

December 16, 2013

IMPORTANT: Please read this document in its entirety before installing the new release of PowerSDR 2.x.

PowerSDR v2.7.2 is a general release version intended for use with the FLEX-1500[™], FLEX-3000[™] and FLEX-5000[™] software defined radio transceivers.

Table of Contents		
New Features and Improvements for PowerSDR v2.7.2		
New Features		
Enhancements and Bug Fixes Incorporated in Release v2.7.2		
Database Import Recommendations and Cautions 4		
Firmware Update Information		
Firewire Driver Information (FLEX-5000 and FLEX-3000 only)5		
Known Issues or Recommendations with New Features Included in this Release6		
PowerSDR 2.7.2 Installation Information7		
PowerSDR 2.x Software Installation/Upgrade Recommendations and Guidelines7		
Minimum Windows and .NET Requirements8		
OBTAINING TECHNICAL SUPPORT		
TROUBLESHOOTING FLEX-5000 AND FLEX-3000 CONNECTIVITY ISSUES		
Failure of Sampling Rate to Properly Initialize Resulting in a Flat Line Display		
Checking the Compatibility of your Firewire Card9		
VIA Firewire cards and Windows 7 10		
FLEX-5000 and FLEX-3000 Operation Notes		
FLEX-1500 OPERATION NOTES		
SDR-1000 Software Support Notice		

NOTE: A detailed changelog.txt file can be found in the Documentation folder under the FlexRadio Systems Windows Start menu for PowerSDR v2.7.2

New Features

1. PowerSDR-DataTransfer™ now included with PowerSDR v2.x: FlexRadio Systems is proud to announce a development partnership with RNA Consulting Services, LLC to provide a FlexRadio specific version of their well respected SDRDataTransfer program called PowerSDR-DataTransfer™. PowerSDR-DataTransfer facilitates the migration of database or configuration information from a previous to newer version of PowerSDR. One of the advantages of PowerSDR-DataTransfer is that it automatically takes care of any database changes that may be incompatible from one version of PowerSDR to another. A new feature of PowerSDR-DataTransfer is the Standard Mode of operation, where PowerSDR-DataTransfer searches your hard drive for any existing PowerSDR databases located in the default location and presents them in a "tree" structure, allowing for easy selection of the source and destination databases. After you select your source and destination databases, a single mouse click on the Transfer Data button is all that is needed to update your new version of PowerSDR with configuration settings from your previous version of PowerSDR.

If you have any questions about the operation of PowerSDR-DataTransfer, you can submit a support ticket via the FlexRadio Systems HelpDesk (<u>http://helpdesk.flexradio.com/home</u>) at any time for assistance.

2. **Updated Firewire Driver**: This version of PowerSDR contains an updated Firewire driver for the FLEX-5000 and FLEX-3000 software defined radios. This new Firewire driver contains some bug fixes and a few performance enhancements for Windows 7 and above. In addition to the improvements and bug fixes, this driver has been tested with and is recommended for the recently released Windows 8.1.

Before installing PowerSDR v2.7.2, make sure that you radio is turned off. If the FlexRadio Firewire control panel is opened, please close it before proceeding with the installation of PowerSDR v2.7.2. This will ensure that the new Firewire driver is properly installed.

3. Enhanced Waterfall Display: Enhancements have been made to the waterfall display to provide a high resolution representation of the sampled RF spectrum allows for viewing of signals with better granularity. By turning display averaging off, viewing fine detail of the RF spectrum in the time domain is now possible eliminating the smearing of spectrum. Additionally, when display averaging is enabled, the default display averaging settings have been modified to display greater spectrum detail along with the ability to easily identify weak signals in the noise. A new checkbox option in the Waterfall section of the Setup->Display tab, "Enable Weak Signal Display Optimization" will adjust the waterfall averaging time and update period ti provide the ability to see even the weakest signals at the noise floor.

- 4. New Transmit Compliance for Japan: PowerSDR v2.7.2 has added transmit frequency compliance (TURF) for Japan. This change allows for CW (A1A) operation on the 4.63 MHz Japan National Emergency frequency as well as restricting 60m operation. To enable this feature after installing PowerSDR v2.7.2, you must modify your radio's firmware (TURF) for the Japan Region. To request this firmware modification, please submit a support type HelpDesk ticket requesting the TURF upgrade. In addition to the new transmit frequency modifications, a modified Band Plan for Japan will be created, displayed under the VFO displays.
- 5. New IARU Region 3 Transmit Compliance: In addition to the new transmit compliance for Japan; there is a new TURF option and band plan for any IARU Region 3 entity. As with the Japanese transmit compliance modification, to enable the IARU Region 3 feature, your radio's firmware will need to be modified by requesting the TRUF update via the FlexRadio Systems HelpDesk.
- 6. Enhanced Database Protection. With past versions of PowerSDR, if Windows or the user initiated a "forced" shutdown of Windows with PowerSDR still running, the database was not given enough time to be completely written to disk before the PC shut down resulting in an inconsistent database. Based on the nature of the inconsistency, the automatic database recovery process may not detect a problem and use a recovery database. The primary cause of forced shutdowns can be contributed to the automated Microsoft update process. PowerSDR v2.7.2 now properly intercepts the forced shutdown condition and properly closes PowerSDR ensuring that the database is properly written to disk before Windows reboots the computer.
- 7. TX Profiles by Mode Option. There is a new user selectable option that will remember the selected TX Profile by mode. When enabled (it is off by default), the TX Profile selection used for a particular mode is saved and recalled when that mode is selected again. The TX Profile Mode combination is maintained in the PowerSDR database so that it is active when PowerSDR is restarted. The default setting for this option is unchecked.
- 8. **Frequency Calibration no Longer an Expert option.** The Frequency calibration routine is no longer designated as an "expert" user option making it more convenient for performing frequency fine tuning.
- 9. **Improved accuracy for Frequency Calibration.** The number of sampled data points used for the Frequency Calibration routine has been increased for greater accuracy.

Enhancements and Bug Fixes Incorporated in Release v2.7.2

Below is a listing of program changes, enhancements and defects corrected in this release of PowerSDR.

US2056	Add support for the new Firewire driver version 4.1.3.17357		
US1778	Transmit compliance and associated band plans added for Japan and IARU Region 3 (TURF)		
US1665	DB: Added a feature to properly close the DB on a Windows forced shut down		
DE1051	CAT: The MOX button will switch to RX if TX was initiated using the ZZTX command		
DE1789	Console: Enhanced the waterfall display to show greater signal resolution and detail		
DE1078	Console: Fixed incorrect preamp settings on frequency change if band was not changed		
DE1063	Console: Fixed a Panadapter frequency label formatting issue due to Windows localization		
DE1051	Console: Fixed NR, ANF and NB not being turned off when a DIGx mode is selected for RX2		
DE651	Console: Fixed inconsistent mode behavior when using A>B in Split mode		
DE1543	PSDR-DT: Fixed a defect that required DataTransfer to run as administrator to function		
DE1050	RX2: Noise reduction was not being turned off on RX2 when a digital mode was selected		
DE1061	Setup: Fixed a defect that prevented the Mic Boost from being enabled		
US1766	Setup: RX2 options disabled for FLEX-5000 without a RX2 installed.		
	RX2 Options hidden for all other SDRs		
US1779	Setup: Added an option to remember the selected TX profile by RX1 mode		
US1776	Setup: The accuracy of the frequency calibration routine has been improved		
DE1539	Setup: Fixed a defect where frequency calibration data could be set to greater than 65 MHz		
US1759	Setup: The Frequency calibration routine is no longer designated as an "expert" user option		
US1773	Wave: Added the ability to select the recording sample radio for post-processed recordings		

Database Import Recommendations and Cautions

Configuration data for PowerSDR is contained in a database that is PowerSDR version specific, meaning that the database elements or schema for one version of PowerSDR may not be compatible with a different version of PowerSDR. This difference in database schema can complicate migrating user configuration settings after upgrading to a new version of PowerSDR. There are two methods for transferring radio configuration settings from one version of PowerSDR to the next. One is the "Import method" using the PowerSDR Setup form and the other uses the PowerSDR-DataTransfer™ Utility.

The *Setup Form Import method* is intended to restore databases that were exported from the same version of PowerSDR. If you try to import a database from a different version of PowerSDR or one created with a different radio model, an error will occur.

The *PowerSDR-DataTransfer utility* however automatically accommodates for variations and changes in the database schema between PowerSDR versions that are not accounted for when using Setup Form Import method. Therefore it is highly recommended to use the **PowerSDR-DataTransfer utility** included with this version of PowerSDR for migrating user settings when upgrading PowerSDR from one version to another.

If the default PowerSDR installation options are selected, you will find the **PowerSDR-DataTransfer** program icon on your desktop, in the Windows Quick Start bar or in the FlexRadio Systems Start Menu folder.

For more information regarding the operation PowerSDR-DataTransfer please use the **Help** menu option available from the application menu bar on the right hand side.

NOTE: If a previous version of SDRDataTransfer is loaded on your PC, it is recommended that you uninstall it and use the PowerSDR-DataTransfer utility.

If your experience *any* anomalous behavior with your radio after importing data from a database that was created from an earlier version of PowerSDR v2.7.2, **reset your database immediately** using the Factory Defaults feature in the Setup form and do not re-import any data or contact FlexRadio Systems support.

Firmware Update Information

PowerSDR v2.7.2 requires updated firmware for the FLEX-5000, FLEX-3000 and FLEX-1500

New firmware required and will be automatically installed when running PowerSDR v2.7.2 for the first time. No manual user intervention is required.

Device drivers and firmware specific for the model of SDR you are operating are automatically installed as part of the software installation & startup process. Do not attempt to manually install a hardware driver or firmware update unless specifically requested by FlexRadio Customer Support. Do **not** power off your radio or shut down PowerSDR if a firmware or device driver installation is being executed.

Firewire Driver Information (FLEX-5000 and FLEX-3000 only)

OPERATIONAL NOTICE: Starting with PowerSDR v2.4.4, a new 4.x Firewire driver is utilized whose architecture is completely different from the previous 3.x driver family.

There is also a 4.x firmware dependency for the FLEX-5000 and FLEX-3000 which is **NOT** backwards compatible with previous versions of PowerSDR. Once you install PowerSDR v2.4.4 or greater *you will not be able to run any versions of PowerSDR previous to PowerSDR 2.4.4* which utilized the older 3.x Firewire driver and firmware.

You can however revert back to the previous 3.x Firewire driver. If you need to revert to a previous version of PowerSDR (less than v2.4.4), then follow the procedure #1 listed below in the <u>FLEX-5000 and</u> <u>FLEX-3000 Operation Notes</u> section of these release notes.

The following caveats are only applicable after installing the 4.1.3 Firewire driver. After installing PowerSDR v2.7.2 and greater which automatically installs the updated FLEX Firewire driver 4.1.3.17357, *you will not be able to run any versions of PowerSDR previous to v2.7.2* because one of the driver components is not backwards compatible with the 4.0.0 or 4.1.1 Firewire drivers. This condition is indicated by a message requesting a firmware update when PowerSDR is started, but PowerSDR cannot properly identify your FLEX-5000 or FLEX-3000, as it asks you what type of radio you are using. If you experience this problem, click **NO** to exit the initialization of the earlier version of PowerSDR.

There is however a workaround to make previous versions of PowerSDR that used the 4.1.1 or 4.0.0 Firewire driver operational. Manually copy the **pal.dll** file from the PowerSDR v2.7.2 application folder to the PowerSDR v2.4.4 or greater application folder. This will allow you to run those two versions of PowerSDR with the new 4.1.3.17357 Firewire driver.

Known Issues or Recommendations with New Features Included in this Release

FLEX Firewire Driver 4.1.3: The FLEX Firewire driver will be updated to version 4.1.3.17357 with PowerSDR v2.7.2. This new driver has several bug fixes and performance enhancements over the previous 4.1.1 Firewire driver.

Make sure that you power on your FLEX-5000 and/or FLEX-3000 and allow it to complete the Firewire driver installation after your PC has rebooted and **BEFORE** you start PowerSDR v2.7.2. *For Windows XP systems, make sure you install all three (3) driver components when prompted.* For Windows Vista and greater, the Firewire driver installs automatically without user intervention; just wait for the message that your new hardware is ready to use.

Trying to run a version of PowerSDR 2.3.5 or earlier with the 4.x version of the Firewire driver will result in errors when you start PowerSDR indicating that a firmware update is needed when the updated the firmware has already been installed by PowerSDR v2.7.2. Click **NO** to exit the initialization of PowerSDR and run a version of PowerSDR v2.4.4 or greater.

New Transmit Frequency Modifications and Band Plans for Japan and IARU Region 3 Entities: In order to enable this feature, your specific radio will need to have its firmware modified (TURFed) via a radio specific software update. To request this firmware modification, please submit a support type HelpDesk ticket requesting the TURF upgrade.

PowerSDR 2.x Software Installation/Upgrade Recommendations and Guidelines

Please read all of the following guidelines and follow the recommendations to ensure a trouble free upgrade of your software defined radio to PowerSDR v2.7.2.

The instructions below are applicable for users that already have *a previous version of PowerSDR v2.x* installed on their PC. If you have the older PowerSDR v1.x currently installed, please see the <u>Prerequisites for FLEX-x000 Users Upgrading from PowerSDR 1.x to PowerSDR 2.x</u> in the section below.

- Minimum required CPU for PowerSDR v2.7.2 and greater is an Intel Pentium IV and an AMD Athlon 64 / Operon and greater. Lesser processors do not have the necessary SSE2 capability needed for the DSP engine.
- 2. The minimum version of Windows supported by PowerSDR v2.7.2 and above is Windows XP Service Pack 3 (SP3). If your Windows XP PC has not been upgraded to SP3, you must do so before installing PowerSDR v2.x. See <u>Minimum Windows and .NET Requirements</u> below for obtaining Win XP SP3.
- 3. It is not necessary or recommended to uninstall any previous versions of PowerSDR 2.x before installing PowerSDR v2.7.2. In fact, it is not recommended that you uninstall previous versions of PowerSDR unless you uninstall all previous versions so that files and drivers installed as dependencies with previous versions are all properly removed before installing PowerSDR v2.7.2
- 4. It is **not necessary or recommended** to manually remove the Firewire driver before installing PowerSDR v2.7.2. Doing so after PowerSDR v2.7.2 is installed will make your FLEX-5000 / FLEX-3000 inoperable. Do not install any standalone versions of the Firewire driver either.
- 5. The PowerSDR v2.x installer requires administrator level rights to install the kernel mode device drivers for the various SDR radios. The Installer should automatically elevate to this level of rights when run regardless of the current user rights, but if you are in doubt that your login has full administrator rights or you are getting errors indicating files cannot be found, you need to right click on the PowerSDR v2.x Integrated Installer icon and select the "Run As..." option and run the Installer with the administrator account, and not your login account ID.
- 6. The PowerSDR v2.x Installer no longer prompts the user for radio options. All drivers are now preloaded to eliminate the need to re-install a version of PowerSDR in order to load a needed device driver.
- Firmware updates, if needed, are applied automatically when running the new version of PowerSDR for the first time. Do **not** stop the firmware installation until it has fully completed or your radio may not operate properly thereafter.
- 8. See additional operation notes regarding your specific model radio later in this document.
- 9. If you are installing a FlexControl with PowerSDR v2.7.2 for the first time, please read the FlexControl Installation Errata Sheet shipped with the FlexControl regarding use with Virtual Serial Port software prior to installation. You may need to remove any existing virtual com port pairs you have defined before installing PowerSDR and the FlexControl drivers. This is not necessary if you have an existing operational FlexControl connected to your PC.

Minimum Windows and .NET Requirements

PowerSDR 2.x is a Windows 32-bit .NET application designed to operate on Windows XP SP3, Vista, Windows 7, Windows 8 and Windows 8.1. The .NET 3.5 SP1 Framework is required. PowerSDR v2.x will run on 32 or 64-bit operating systems.

As of July 13, 2010, Windows XP SP2 (service pack 2) is no longer supported or actively updated by Microsoft, therefore if your PC is running Windows XP SP2, you must install Service Pack 3 (SP3) before installing PowerSDR v2.7.2. The PowerSDR 2.x Integrated Installer will check for this dependency and inform you if your PC does not meet the minimum XP Service Pack requirements.

For more information regarding upgrading your PC to Windows XP SP3, refer to <u>Learn how to install</u> <u>Windows XP Service Pack 3 (SP3) (http://windows.microsoft.com/en-US/windows/help/learn-how-to-install-windows-xp-service-pack-3-sp3</u>) on the Microsoft web site.

If you need to install the .NET 3.5 SP1 Framework, the PowerSDR 2.x Integrated Installer will either install .NET 3.5 SP1 from the installation CD or try and download the necessary software from the Internet. Alternately, you can download it directly from Microsoft using this web link before running the PowerSDR Integrated Installer: <u>http://www.microsoft.com/en-us/download/details.aspx?id=25150</u>

Obtaining Technical Support

If you encounter issues installing or operating PowerSDR v2.7.2 with FlexRadio's software defined radios, please contact FlexRadio Systems technical support by opening a HelpDesk support ticket on-line at http://helpdesk.flexradio.com or by phone at +1 (512) 535-4713 extension #2. Please leave a voice mail message if you don't get an answer as all of our engineers are probably busy on existing calls.

Hours of Operation. Our Technical Support engineers are available Monday – Friday from 9:00am-5:30pm Central Time. If you call after business hours, on a holiday or weekend, please leave a detailed message and we will return your call in the order it was received during regular business hours.

You may always submit a HelpDesk support ticket at any time.

If you need assistance opening a HelpDesk ticket, please refer to the following web page for detailed instructions. <u>http://support.flexradio.com/</u>

Troubleshooting FLEX-5000 and FLEX-3000 Connectivity Issues

With the new FLEX 4.x Firewire driver, its improved streaming performance can expose weaknesses and deficiencies in your PC configuration that may result in your FLEX-5000 or FLEX-3000 not being able to properly communicate with the computer after upgrading. It may not connect at all, stop working after a few minutes or freeze when changing sampling rates or buffers. There can be several reasons for these failures, such as Firewire cards that are not fully supported by the new Firewire device driver, Windows OHCI 1394 driver incompatibilities with certain Firewire cards or PCIe bus timing problems. Additionally, PCs that worked perfectly well with the older 3.x interrupt driven Firewire driver may now fail to work properly because the new streaming 4.x Firewire driver, which fully utilizes the 1394 Firewire interface's capabilities, has exposed these existing deficiencies that previously did not result in operational issues.

There are several factors that come into play for proper Firewire communication between the PC and the radio hardware, such as utilizing a compatible Firewire card, operating system version and PC motherboards. These different inter-dependent variables present a unique challenge for troubleshooting the primary cause of the Firewire communication failure.

If you experience these problems, your best course of action is to submit a support <u>HelpDesk</u> ticket so one of our Technical Support Engineers can systematically triage your connectivity problem. Our support engineers have the experience and expertise to quickly analyze and in some cases resolve the problem with a simple system configuration change. However, if you would like to troubleshoot the problem yourself, below are a few troubleshooting steps that you can try on your own.

Failure of Sampling Rate to Properly Initialize Resulting in a Flat Line Display

Since the Analog to Digital Converter (ADC) is internal to the radio hardware and it is always operational which means that it is running at a particular sampling rate when the radio is powered on. Under normal circumstances, when PowerSDR is started, it is set at the same sampling rate as the radio hardware so there is no sampling rate re-initialization that takes place and the radio is running. Under certain circumstances however, such as importing data from a previous database with PowerSDR-DataTransfer or manually changing the radio's sampling rate when PowerSDR is not running, the radio may fail to change to the new sampling rate when PowerSDR is started for the first time. This results in a "flat line" display on the Panadapter and no receive audio.

To resolve this issue, shut down PowerSDR and restart it. In most cases this action will resolve the flat line display issue. If not, please use the other troubleshooting steps listed below or submit a support <u>HelpDesk</u> ticket.

Checking the Compatibility of your Firewire Card

There is a utility in the FLEX Firewire control panel that allows you to verify that your OHCI Controller (Firewire card) is compatible with the FLEX 4.0 Firewire driver.

Please refer to the HelpDesk article <u>Verifying Firewire Card Compatibility with the FLEX Firewire Driver</u> for a step-by-step procedure for verifying Firewire Card compatibility.

VIA Firewire cards and Windows 7

We have determined that Firewire cards using the VIA chipset and some others that are running on Windows 7 have a higher probability of Firewire related connectivity issues when using the default Windows 1394 bus driver. If you are using a VIA Firewire card, please check that your Windows 1394 bus driver is using the "Legacy" version if you are experiencing connectivity issues. This change may also benefit other Firewire cards that are experiencing connectivity problems running on Windows 7.

If you have checked the compatibility of your Firewire card using the procedure above and it is has a VIA chipset, then refer to the HelpDesk article <u>Setting the Win7 1394 Bus Driver to the Legacy Version</u> for a step-by-step procedure for changing your Windows 7 OHCI Compliant Host Controller driver to the legacy version.

Note that after a Windows update, the Windows 7 OHCI Compliant Host Controller driver may be changed from legacy version back to the native driver, resulting in your radio having connectivity issues after previously running properly. If your PC stops working mysteriously, re-check to make sure your PC is still configured to the legacy Windows 7 OHCI Compliant Host Controller driver.

The remainder of this page has been intentionally left blank.

FLEX-5000 and FLEX-3000 Operation Notes

- 1. If you need to revert your FLEX-5000 or FLEX-3000 back to a version of PowerSDR less than v2.4.4 which uses the 3.x version of the Firewire driver, follow the procedure below:
 - A. Shut down PowerSDR and power off your software defined radio.
 - B. If the FLEX Firewire control panel is open, close it.
 - C. Un-install PowerSDR v2.4.x (or greater) using either the Control Panel method or by using the uninstall PowerSDR option in the Start Menu (FlexRadio Systems->PowerSDR application folder)
 - D. Using the Windows Control Panel, select the Remove Program applet.
 - E. Look for any instances of the FLEX Firewire driver. They will be listed as a variant of FlexRadio 3.x.x and or 4.x.x. Remove all instances of the FlexRadio Firewire driver.
 - F. If installed, uninstall PowerSDR v2.3.5 using the Control Panel's Remove Program applet
 - G. Reboot your PC.
 - H. Download the applicable manual Firmware Installation program for your radio.
 - Do not run the manual firmware installer at this time
 - a. FLEX-5000 Firmware: v1.3.0.8 <u>http://support.flexradio.com/Downloads.aspx?id=287</u>
 - b. FLEX-3000 Firmware: v1.2.5.6 <u>http://support.flexradio.com/Downloads.aspx?id=289</u>
 - I. Download PowerSDR v2.3.5 <u>http://support.flexradio.com/Downloads.aspx?id=393</u>
 - J. Run the PowerSDR 2.3.5 Installer setup program. This will install the v3.5.5 Firewire driver. Reboot your PC when prompted.
 - K. After the PC has completely booted up, power on the FLEX-x000 and allow the Firewire driver to complete its installation. For Vista and Win7 operating systems this is performed silently without any user intervention. For XP systems, the user will have to confirm three sub-driver installations.
 - L. **DO NOT START PowerSDR v2.3.5.** Run the manual FLEX-5000 or FLEX-3000 firmware installer downloaded in Step H. Wait for the relay click after the firmware loads. (you can power cycle the radio if you are unsure that the relay clicked)
 - M. Verify that the Firewire driver is properly installed by opening the FLEX Firewire Driver Control Panel. The FLEX-x000 should be a recognized device.
 - N. Start PowerSDR v2.3.5 and proceed with the initial setup wizard. You will be prompted to do a firmware update. Click OK to do the firmware update. Also you will be prompted if your radio is a FLEX-5000, if it is, acknowledge that prompt. If your radio is a FLEX-3000, click NO until you are prompted if your radio is a FLEX-3000, then acknowledge that prompt.
 - O. After the firmware install has completed, PowerSDR will be shut down. Restart PowerSDR v2.3.5
 - P. You should see the EEPROM data transfer dialog boxes indicating your radio is working properly. PowerSDR v2.3.5 will start normally. You may have to toggle the stop/standby button to get the audio stream to initialize the first time you start it.
- 2. You can run a FLEX-x000 SDR and a FLEX-1500 on the same PC at the same time. A radio "Chooser" will appear to allow you to select which radio you would like to operate. The software now keeps track of the database files for you. Just click "USE" next to the radio you want. If USE is grayed out, then check to make sure the radio is properly powered up.

NOTE: Currently you must start the FLEX-1500 FIRST for multiple radios to operate properly. Also, you can only have one (1) USB-based radio and one (1) Firewire based radio operating at one time.

 To prevent the possibility of a conflicted hardware state with the Firewire card and the FLEX-5000 or FLEX-3000 resulting in a system crash or hang, set your Windows Power Options for High Performance so the PC does not go to "sleep" or into hibernation mode while the SDR is connected and powered up.

FLEX-1500 Operation Notes

- 1. Do not boot your computer with the FLEX-1500 powered up or the streaming USB drivers may not properly load. Use the following Power Up / Power Down sequence:
 - a.) Power off or make sure the FLEX-1500 is powered off
 - b.) Boot the PC and allow Windows to completely initialize
 - c.) Power on the FLEX-1500 and wait several seconds for Windows to load the drivers
 - d.) Start PowerSDR
 - e.) Shut down PowerSDR and wait several seconds for the database to close.
 - f.) Power off the FLEX-1500
 - g.) Shut down Windows
- 2. Performance optimization: The FLEX-1500 utilizes a real time driver to communicate between PowerSDR and the radio via USB. There are two steps to optimize the streaming performance of the USB interface. This varies by PC. Just because you have the fastest processor out today does not automatically mean that your PC's USB controller will achieve maximum performance. We have created a control to match the USB driver buffer streaming to your specific hardware. There are two steps to this process.
 - a. USB Driver Buffer control: The USB Driver Buffer control allows optimization of the low level USB stream. This control is found on the Setup/General/Options form as seen below. Note that PowerSDR must be in standby in order to change this control. The default setting has been chosen to allow successful startup of PowerSDR on most machines but may not provide optimal performance on your specific PC. More aggressive settings reduce latency and improve keying performance in CW. More conservative settings will allow lower performing USB controllers and/or CPUs to function smoothly. Choose the most aggressive setting that provides stable operation without popping or distortion of the received signal.

NowerSDR Setup			
General Audio Display DSP Transmit PA Settings Appearance Keyboard CAT Control Tests Hardware Config Options Calibration Filters RX2 Navigation Options Process Priority USB Driver Buffer V Spur Reduction Normal V Disable PTT Viscellanzon Conservative Aggressive			
All Mode Mic Disable Split on Band Change	Miscellaneous Conservative Aggressive Always On Top Disable ToolTips ✓ Snap Click Tune ✓ Enable Shortcuts ✓ Zero Beat - RIT ✓ Quick QSY Mouse Tune Step ✓ Wheel Tunes ✓ VFOB (red x-hairs) ✓ Custom Title Text		
Reset Database Import Database Export Database OK Cancel Apply			

- Audio Buffer Size: We recommend use of the smallest audio buffer setting on the Setup/Audio/Primary form that provides un-distorted audio and smooth CW keying. These will reduce latency to a minimum. The exact settings are dependent on your computer hardware but will usually be 512 or 256.
- 3. Using the FLEX-1500 on the same USB controller as low-speed devices, such as a mouse or keyboard will result in the FLEX-1500 be forced to a lower data transfer rate which will *significantly* affect the performance of the radio in regards to latency which is most evident when operating CW. Refer to this KB article regarding the use of USBDeview to determine if the FLEX-1500 is using the same USB controller as other USB devices (<u>http://kc.flexradio.com/KnowledgebaseArticle50459.aspx</u>)
- 4. You can run a FLEX-x000 SDR and a FLEX-1500 on the same PC at the same time. A radio "Chooser" will appear to allow you to select which radio you would like to operate. The software now keeps track of the database files for you. Just click "USE" next to the radio you want. If USE is grayed out, then check to make sure the radio is properly powered up.

NOTE: Currently you must start the FLEX-1500 FIRST for multiple radios to operate properly. Also, you can only have one (1) USB-based radio and one (1) Firewire based radio operating at one time.

5. To prevent the possibility of a conflicted hardware state with the USB controller and the FLEX-1500 resulting in a system crash or hang, set your Windows Power Options for High Performance so the PC does not go to "sleep" or into hibernation mode while the SDR is connected and powered up.

The remainder of this page has been intentionally left blank.

SDR-1000 Software Support Notice

Starting with PowerSDR v2.6.x, FlexRadio Systems formally announces the "End of Software Support" for the SDR-1000 transceiver. Repair services and technical support for the SDR-1000 transceiver will continue under the following conditions until further notice:

- FlexRadio will continue to provide repairs on the SDR-1000 as long as components and subsystems are available. Please submit a HelpDesk support request for an RMA before sending in your SDR-1000 for repair.
- While many SDR-1000 users enjoy some of the features of PowerSDR v2.x, the last RECOMMENDED stable version of PowerSDR for the SDR-1000 is v1.18.6. It is available at <u>http://support.flex-</u> radio.com/Downloads.aspx?id=322
- Customer support for the SDR-1000 will continue to be available via the <u>FlexRadio HelpDesk</u>. TELEPHONE SUPPORT FOR THE SDR-1000 WILL NO LONGER BE PROVIDED.
- 4. A full set of documentation for the SDR-1000 can be found on the Knowledge Center at: <u>http://kc.flexradio.com/KnowledgebaseCategory50.aspx</u>
- 5. For user supported software fixes and enhancements, versions of PowerSDR that support the SDR-1000, which are licensed under the GNU Public License (GPL), are available for continued development by sending a request for source code to gpl@flexradio.com.

The remainder of this page has been intentionally left blank.