

Model 8540, 8540B and 8540C Series

Instrument Security and Memory Sanitization Procedure



All 8540 Series were designed with the capability of storing 20 instrument states. In addition, the current settings are stored as the meter is powered down. These instrument states store various parameters pertaining to the power meter configuration and a frequency setting for the frequency correction factor. In the case of the 20 instrument states and the previous power done state, all data, including frequency correction, is erased through the use of the Clear All Memory function in the Service Menu of the 8540.

All power measurement data is stored in SRAM (Static Random Access Memory) and is cleared whenever new measurements are taken or when the power is disconnected from the power meter. Non-volatile RAM is used to store the instrument states and is maintained by a Lithium battery. All other memory such as EPROM, and ROM are used to store the system firmware. This type of memory does not contain information relating to current measurements or frequency settings, and is not directly accessible but can be modified by the user in certain cases. These cases are for the purpose of upgrading of the system firmware and adjusting the calibration factor of the calibrator used to calibrate the power meter.

Each sensor used with the power meter has an EEPROM that maintains frequency correction factors. The standard frequencies stored in the sensor upon shipment of the sensor are 50 MHz, and frequencies starting at 2 GHz and continuing in 1 GHz steps to the limit of the sensors frequency range. Example: 80301A has a frequency range of .01 to 18 GHz. The last frequency correction factor will be 18 GHz. The sensor will allow for the user to input special frequency correction factors. This data will contain the frequency and the sensor offset correction. The user must intentionally program these frequencies into the sensor. They cannot be inadvertently reprogrammed by normal use of the power meter.

Sensor EEPROM Access

Manual Operation

The sensor EEPROM stores standard frequency values and corresponding calibration factors. Additionally, the sensor will allow up to 4 special frequency locations. The sensor EEPROM is accessed through the Service Menu of the 8540C power meter. Using the up and down arrow cursors, select Sensor ROM and press the Enter button. Each time the Enter button is pressed, a new parameter will be displayed. Standard calibration frequencies are automatically calculated based on the start frequency, step frequency size and the number of standard frequencies. One to four special frequency correction points are allowed. The number of points is dependent upon the setting for number of special frequencies. Each sensor will have one special frequency at 50 MHz. This data point is used for sensor calibration to the meter and should not be changed. To completely delete additional special frequencies, a two-step process is recommended. First set the additional special frequencies to some arbitrary value



or 50 MHz and write the new values to the EEPROM. Next, re-enter the Sensor ROM menu and change the number of special frequencies to one. Write the new setting into the EEPROM and exit the Service Menu.

Remote Operation

The process for clearing information to the sensor EEPROM varies slightly to the manual operation. In this case, no command is used to specify the number of special frequencies. The frequencies are entered directly into the sensor. The format for the command is:

TEST EEPROM A FREQSP #, #, #, # where # represents the value of the frequency in Hertz.

To clear the special frequencies of any user added frequency information, the command TEST EEPROM A FREQSP 50e7 is sent followed by the command TEST EEPROM A Write 0

Memory Device list:

NEC	UPD431000ACZ-70L	1M SRAM (128k x 8)	2 each
	STORED USER SET-UPS AND LAST STATE SAVED		
AMD	AM27C010	1M EPROM (128k x 8)	4 each
	Power Meter Operating System Firmware		
Xicor	X2444P	256 bit NVRAM (16 x 16)	1 each
	Instrument SERIAL# and Calibrator Calibration Factors		

Device	Model #	Board Name	Part Number	Memory Type	Memory Size
8542B/ 8542C	NEC UPD431000ACZ-70L	CPU PC Assy	21165	1 M SRAM (128k x 8)	1 Mbyte
8542B/ 8542C	AMD AM27C010	CPU PC Assy	30438	1 M EPROM (128k x 8)	1 Mbyte
8542B/ 8542C	Xicor X24C444P	Analog PC Assy	19586	256 bit NV STATIC RAM (16 x 16)	256 bit

Cont.

<u>Model #</u>	<u>NV-Mem Location</u>	<u>Memory Usage</u>	<u>User accessible Y/N</u>	<u>In USER Data Path Y/N</u>	<u>Method to Clear/Review</u>
NEC JPD431000ACZ-70L	U27, U28 CPU PC Assy	Instrument State Storage	YES	YES	See NVRAM Clear procedure
AMD AM27C010	U33, U34, U35, U36 CPU PC Assy	Operating System Firmware	NO	NO	N/A
Xicor X24C444P	U 14 Analog PC Assy	Working Memory	NO	NO	N/A

NVRAM Clear Procedure

The 8540 series Universal Power Meter stores 20 instrument states in Non-Volatile RAM. The meter memory is cleared by opening the case and disconnecting the 3.6 volt lithium battery or through the following front panel operation:

- Press the Menu button
- Using the Up and Down Arrow cursor buttons, select the Service menu and press the Enter button
- Using the Up and Down Arrow cursor buttons, select the Clear All Memory menu and press Enter
- Using the Up and Down Arrow cursor buttons, select the Y choice and press Enter

Verification of Clear Procedure

- Press the Recall button
- Using the cursor buttons, change to recall operation selection to Instrument State 1 and press Enter
- Verify that the meter instrument state is set to the factory default state. See operations manual for default state configuration
- Repeat verification procedure for Instrument States 2 through 20