Software Changes for the ISD5008/ISD5116 ChipCorder Products
Avoiding High Speaker Output Offset Voltage and High Operating Current in the ISD5008 Device

Users of the ISD5008 may sometimes find the device in a mode such that it draws considerably more I_{CC} current than the datasheet specifies. They also may find that the Speaker + and Speaker – outputs have more offset in a static condition than specified in the datasheet. Unfortunately, the present datasheet doesn't make clear something very important: The Playback/Record bit (C6 of the command byte; opcode) should only be set LOW during a Record operation. ***At all other times***, this bit must be set to HIGH!

The 10/1999 datasheet is being modified to change the following Opcodes on page 14:

Opcode	Old Opcode	Revised Opcode	
POWERUP	0010 0000	0110 0000	Power up the Device
LOADCFG0	00X0 0010 <D15–D0>	01X0 0010 <D15–D0>	Load Config. Reg. 0
LOADCFG1	00X0 0100 <D15–D0>	01X0 0100 <D15–D0>	Load Config. Reg. 1
STOP	0X11 0000	0111 0000	Stops current operation
STOPWRDN	0X01 0000	0101 0000	Stop current operation and powers down
RINT	0X11 0000	0111 0000	Read Interrupt Status

Please note that in each case, the Opcode leaves the P/R bit HIGH.

Proper AGC and AutoMute™ Operation in the ISD5008/ISD5116 Devices
Another fact that was not discussed in much detail in the datasheets is the relationship between the microphone AGC amplifier and the AutoMute function. They are directly related from the fact that they both use the 4.7 uF capacitor fastened to the ACAP pin. In record mode the 4.7 uF capacitor determines the time constant of the AGC operation. In playback mode the capacitor determines the time constant of the AutoMute, which attenuates noise in the "quiet" time between words in a message. The bit that controls this pin, and the function, is the AGPD bit, which is D0 of the CFG1 byte. When the ISD5008/ISD5116 is recording from the microphone, this bit should be set LOW. ***At all other times***, this bit must be HIGH because, if not, it will prevent the AutoMute circuit from working during playback and will waste current when the AGC amp is not used in record.