AA 5001
PROGRAMMABLE
DISTORTION
ANALYZER

REFERENCE GUIDE
AC input and output connections are available on both the front panel and the rear interface. DC signals, corresponding to the displayed reading, are available through the rear interface. At power-up, the instrument performs a self-test and assumes front panel settings. For more detailed information on functions and specifications, see the Operating Instructions in the AA 5001 Instruction Manual. Also refer to the warning and caution statements in the Instruction manual.

Fig. 1-1. AA 5001 front panel controls.

Description of Controls

1. **INPUT RANGE**
   Selects input voltage range or AUTORANGE. The three most sensitive ranges operate in the LEVEL FUNCTION only. (The AA 5001 goes to AUTORANGE when in a remote state.)

2. **Release Latch**
   Pull to remove plug-in from power module.

3. **LEVEL**
   Button in selects input level measuring function.

4. **VOLTS**
   Button in selects voltage units for level function.

5. **dBM 600 ohms**
   Button in selects dBM units for level function. 0dB reference is 0.7746V corresponding to 1 mW into 600 ohms.

6. **dB RATIO**
   Button in selects dB ratio, with respect to preset level, as units for level function.
11] PUSH TO SET 0 dB REF
Push button to set display to 0 with input signal applied to INPUT terminals in LEVEL function. dB RATIO and LEVEL pushbuttons must be in for this feature to operate.

12] REAR INTFC-INPUT
Button in selects rear interface input; button out selects front panel input.

13] RESPONSE
Button in gives RMS detection (responds to the rms value of the input waveform). Button out gives average detection or quasi-peak detection (option 02 Instruments) both are rms calibrated for sinewaves.

14] THD+N
Button in selects total harmonic distortion function.

15] IMD
Button in selects intermodulation distortion function.

16] AUTO RANGE
Button in selects automatic distortion range selection (0.2% to 100% full scale). (The AA 5001 goes to AUTORANGE when in a remote state.)

17] 20%
Button in selects full scale distortion readout of 20% with 0.01% resolution.

18] 2%
Button in selects full scale distortion readout of 2% with 0.001% resolution.

19] 0.2%
Button in selects full scale distortion readout of 0.2% with 0.0001% resolution.

20] dB
Selects single equivalent 0 dB to -100 dB distortion display range with 0.1 dB resolution.

21] 400 Hz HI PASS
Button in connects filter before detector circuit in all functions.

22] 80 kHz LO PASS
Button in connects filter before detector circuit in all functions.

23] AUDIO BANDPASS
Button in connects filter before detector circuit in all functions.

24] ‘A’ WEIGHTING (CCIR WEIGHTING in Option 02 Instruments)
Button in connects filter before detector circuit in all functions.
SECTION 2
PROGRAMMING

Introduction
This section contains information for programming the TEKTRONIX AA 5001 Distortion Analyzer. All instrument functions are programmable via high level commands sent over a general purpose bus (GPIB), as specified in the IEEE Standard 488-1978. The IEEE interface function subsets that apply to the AA 5001 are listed in Table 2-1.

Table 2-1
IEEE 488 INTERFACE FUNCTION SUBSETS

<table>
<thead>
<tr>
<th>Function</th>
<th>Subset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Handshake</td>
<td>SH1</td>
</tr>
<tr>
<td>Acceptor Handshake</td>
<td>AH1</td>
</tr>
<tr>
<td>Basic Talker</td>
<td>T6</td>
</tr>
<tr>
<td>Basic Listener</td>
<td>L4</td>
</tr>
<tr>
<td>Service Request</td>
<td>SR1</td>
</tr>
<tr>
<td>Remote-Local Function</td>
<td>RL1</td>
</tr>
<tr>
<td>Parallel Poll</td>
<td>PP0</td>
</tr>
<tr>
<td>Device Clear</td>
<td>DC1</td>
</tr>
<tr>
<td>Device Trigger</td>
<td>DT1</td>
</tr>
<tr>
<td>Controller Function</td>
<td>C0</td>
</tr>
<tr>
<td>Electrical Interface</td>
<td>E2</td>
</tr>
</tbody>
</table>
The AA 5001 responds to query commands when in either the local or remote state. The AA 5001 responds to all other listed commands only when in the remote state.

Figure 2-1 is an abbreviated listing of the AA 5001 commands and their relationship to the front-panel controls, nomenclature, and internal parameters.

Fig. 2-1a. Instrument commands and relationship to front panel controls.

Fig. 2-1b. Instrument commands and relationship to front panel controls.

Fig. 2-1c. Instrument commands and relationship to front panel controls.
GP1B Address and Terminator Setting

Both the GP1B primary address and message terminator are set from the rear panel. The address may be set to any number from 0 to 31. Address 31 effectively removes the AA 5001 from the bus. Address changes are recognized only at power-up initialization. The message terminator may be set to EOI and LF (ASCII line feed) or EOI ONLY. The AA 5001 is shipped with the address set to decimal 28 and with the message terminator set to EOI ONLY.

Refer to the AA 5001 Instruction manual for additional information.

Command Format

Each command consists of a header, usually followed by an alpha or numeric argument.

Examples:

FUnction Volts
TOLERance 5
SETtings?

All commands except query commands should be sent with a space between header and argument. Additional formatting characters (CR, LF, and SP) may be added between the space and the argument. Query commands must be sent without a space between the header and question mark character.

Argument Format

The AA 5001 accepts the following kinds of numbers for numeric arguments:

- Signed or unsigned integers, including zero. Unsigned integers are interpreted to be positive. Examples: +1, 2, -1, -10.
- Signed or unsigned decimal numbers. Unsigned decimals are interpreted to be positive. Examples: -3.2, +5.0, 1.2.
- Numbers expressed in scientific notation. Examples: +1.0E-2, -1.0E-2, 0.01E+0.

The AA 5001 sends an integer followed by a decimal point (may be in scientific notation) for data and many query responses.

Alpha arguments must be sent as listed in the command list.

Delimiters

The following message delimiters are used to punctuate commands to the AA 5001:

<table>
<thead>
<tr>
<th>Delimiter</th>
<th>Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;space&gt;</td>
<td>After header (except query commands)</td>
</tr>
<tr>
<td>&lt;comma&gt;</td>
<td>Between multiple arguments</td>
</tr>
<tr>
<td>&lt;semi-colon&gt;</td>
<td>After message unit (command)</td>
</tr>
</tbody>
</table>
Table 2-2
COMMAND LIST

NOTE

Brackets [ ] indicate the enclosed item is optional, and carets <> indicate a defined element. Capitalized letters are the required characters; the lower case letters may also be used.

Instrument Commands
Counts <num>
Counts?
DUst [ON]
DUst OFF
DUst?
ERRMsg?
ERROR?
EVENT?
[Filters] BPpass
[Filters] EXternal
[Filters] FLat
[Filters] HPpass
[Filters] LPass
Filters OFF
[Filters] Wtg
Filter?
FSet

Table 2-2 (cont)

[FUNCTION] DBm
[FUNCTION] IMDDb
[FUNCTION] IMDPct
[FUNCTION] THDDb
[FUNCTION] THDPct
[FUNCTION] Volts
FUNCTION?
HELP?
IDENTify?
INIT
OPC [ON]
OPC OFF
OP?
OVER [ON]
OVER OFF
OVER?
POint <num>
POInt?
[RESPONSE] AVG (standard instrument only)
[RESPONSE] AVE (standard instrument only)
[RESPONSE] RMS
[RESPONSE] Qpk (Option 2 only)
RESPONSE?
RD [ON]
RD OFF
RD?
SEND
SETtings?
TEST?
TOlerance <num>
TOlerance?
Table 2-3 (cont)

<table>
<thead>
<tr>
<th>Header</th>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counts</td>
<td>&lt;num&gt;</td>
<td>Sets the settling algorithm window in units of display counts.</td>
</tr>
<tr>
<td>Counts?</td>
<td></td>
<td>Returns the COUNTS setting.</td>
</tr>
<tr>
<td>DUs?</td>
<td>[ON] OFF</td>
<td>The DUS command tells the SEND command to delay sending a measurement until settling has occurred. Refer to the description for the SEND command.</td>
</tr>
<tr>
<td>DUs?</td>
<td></td>
<td>Returns DUS ON or DUS OFF.</td>
</tr>
<tr>
<td>ERRMsg?</td>
<td></td>
<td>Has the same action as the ERROR? query but includes a brief description string in the query response.</td>
</tr>
<tr>
<td>ERRor?</td>
<td></td>
<td>Returns an event code and a brief description of the event. If RQS is ON, the code indicates the most recent event.</td>
</tr>
</tbody>
</table>

Filters: BPass, EXternal, FLat, HPass, Lpass, OFF, Wtg

BPass?  FLat?  OFF

Error?  (cont)  The event code is then reset to 0. If RQS is OFF, the code indicates the highest priority event that has occurred.

Event?  Has the same action as the ERROR? query.

[Filters]  BPass  EXternal  FLat  HPass  Lpass  OFF  Wtg  BPass?  FLat?

NOTE: "A" WEIGHTING is used on the standard instrument only. "CCIR" WEIGHTING is used on Option 2 only. For the setting command, multiple arguments separated by commas are allowed. The arguments are processed from left to right, that is the last argument prevails.
<table>
<thead>
<tr>
<th>Filters?</th>
<th>Returns a list of the filters that are enabled.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPset</td>
<td>Sets the AA 5001 to the front panel settings even though it is under remote control. This is useful for allowing manually set input level and distortion ranges, as these are otherwise autoranged when in the remote state. Any other setting command made subsequently will defeat FPset.</td>
</tr>
</tbody>
</table>

### Table 2-3 (cont)

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBm</td>
<td>Selects level measurement in decibels.</td>
</tr>
<tr>
<td>IMDDb</td>
<td>Relative to 0.775 Volts.</td>
</tr>
<tr>
<td>IMDPct</td>
<td>IMDDB selects intermodulation distortion measurements in decibels.</td>
</tr>
<tr>
<td>THDDb</td>
<td>THDD selects total harmonic distortion measurements in percent.</td>
</tr>
<tr>
<td>THDPct</td>
<td>THDPC selects total harmonic distortion measurements in percent.</td>
</tr>
<tr>
<td>Volts</td>
<td>VOLTS selects level measurement in rms volts.</td>
</tr>
</tbody>
</table>

**NOTE:** DB RATIO is not programmable. References other than 0.775 volts (dBm), if needed, should be calculated by the controller.

| Function? | Returns the type of measurement selected. The Func header is not returned. |
**Table 2-3 (cont)**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HElp?</strong></td>
<td>Returns a list of all valid commands headers.</td>
</tr>
<tr>
<td><strong>iDentify?</strong></td>
<td>Returns &quot;ID TEK/AA5001, V81.1,Fx.y;&quot; (standard instruments only) or &quot;ID TEK/AA5001, V81.1,Fx.y, &quot;OPTION 2&quot; only). Fx.y identifies the firmware version number.</td>
</tr>
<tr>
<td><strong>INit</strong></td>
<td>Initializes the instrument settings to the following: VOLTS, RMS, FLAT, DUS ON, POINTS 3, TOLERANCE 2.0, COUNTS 2.0, OPC OFF, OVER OFF, RQS ON.</td>
</tr>
<tr>
<td><strong>OPc</strong></td>
<td>Controls the asserting of SRQ when a measurement is completed. When OPC is ON and a measurement completes, SRQ is asserted until the status is read via a serial poll or until cleared by RQS OFF or a Device Clear.</td>
</tr>
<tr>
<td><strong>OVer</strong></td>
<td>Returns OPC ON or OPC OFF.</td>
</tr>
<tr>
<td><strong>OVer?</strong></td>
<td>Controls the asserting of SRQ for display overrange, insufficient level, excessive input level, and unsettled conditions. These conditions are checked only when a measurement is attempted (see SEND command).</td>
</tr>
<tr>
<td><strong>Points</strong></td>
<td>Sets the number of sample points, 2 through 6, that must be within the settling algorithm’s tolerance window for settling to occur.</td>
</tr>
<tr>
<td><strong>Points?</strong></td>
<td>Returns the POINTS setting.</td>
</tr>
</tbody>
</table>

**Table 2-3 (cont)**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OPc</strong></td>
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</tr>
<tr>
<td><strong>OVer</strong></td>
<td>Returns OPC ON or OPC OFF.</td>
</tr>
<tr>
<td><strong>OVer?</strong></td>
<td>Controls the asserting of SRQ for display overrange, insufficient level, excessive input level, and unsettled conditions. These conditions are checked only when a measurement is attempted (see SEND command).</td>
</tr>
<tr>
<td><strong>Points</strong></td>
<td>Sets the number of sample points, 2 through 6, that must be within the settling algorithm’s tolerance window for settling to occur.</td>
</tr>
<tr>
<td><strong>Points?</strong></td>
<td>Returns the POINTS setting.</td>
</tr>
<tr>
<td><strong>[REsponse]</strong></td>
<td>Set the AA 5001 for average (quasi-peak for option 2) or rms response.</td>
</tr>
</tbody>
</table>
### Table 2-3 (cont)

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REsponse?</strong></td>
<td>Returns the RE-SPONSE setting.</td>
</tr>
<tr>
<td><strong>RQs</strong></td>
<td>When RQS is ON, enables service request interrupt. When RQS is OFF, disables service request interrupt. The ERROR? query can be used while RQS is OFF to see if any SRO type conditions have occurred. SRQ will be asserted for any previously unreported SRO event when RQS is turned ON after being OFF.</td>
</tr>
<tr>
<td><strong>ROs?</strong></td>
<td>Returns RQS ON or RQS OFF.</td>
</tr>
<tr>
<td><strong>SENd</strong></td>
<td>Returns a measurement. If the DUS is OFF the most recent display update is returned. Any display reading may be returned only once. If DUS is ON, the measurement must be settled before it is returned. If settling does not occur within six (6) seconds, an average of the last two (2) seconds (6 display updates) is returned and if the OVER is ON, an unsettled SRO is generated.</td>
</tr>
<tr>
<td><strong>SENd(continuation)</strong></td>
<td>Returns a string list of the current settings of the instrument.</td>
</tr>
<tr>
<td><strong>SETtings?</strong></td>
<td>Causes execution of the ROM test and returns TEST 0 if the test passes, or TEST 394 if the test fails.</td>
</tr>
<tr>
<td><strong>Tolerance &lt;num&gt;</strong></td>
<td>Sets the tolerance window in percent of the reading for the settling algorithm.</td>
</tr>
<tr>
<td><strong>Tolerance?</strong></td>
<td>Returns the TOLER-ANCE setting.</td>
</tr>
</tbody>
</table>
SETTLING ALGORITHM

This Algorithm delays a measurement from being sent until settling has occurred. The Settling Algorithm is enabled by using the DUS ON command. A settled AA 5001 measurement is obtained by using the SEND command to return a measurement with the Settling Algorithm previously enabled.

The AA 5001 is considered settled when a series of measurement points (display updates) are within a specified tolerance of each other. The tolerance window is plus or minus the sum of the values set by the TOLERANCE command (in percent of reading from 0 to 100) and the COUNTS command (in display counts from 0 to 2000). The POINTS command sets the number of measurement points (from 2 to 6) that must be within the tolerance window for settling to occur. In general, specifying as wide a tolerance window and as few points as the accuracy of the measurement needed allows, will cause the instrument to return a valid measurement with a minimum of delay.

The measurement returned is the most recent measurement point taken at the time settling occurs.

If settling does not occur within approximately six (6) seconds after the SEND command is received, the AA 5001 returns the average of its last six (6) measurement points (approximately 2 seconds in duration). Additionally, if the OVER is ON, an unsettled SRO is generated, alerting the controller that averaging has occurred.

Sending Interface Control Messages

Bus communications are performed through use of controller input and output statements. Commands are transmitted in ASCII by TEKTRONIX 4041 and 4050-Series controllers using PRINT statements; INPUT statements are used to return data from the AA 5001. The AA 5001 GPIB address is factory set to decimal address 28; message terminator to EOI ONLY.

```
PRINT @25:="SET?"
INPUT @25:A
```

Interface control messages are sent to the AA 5001 using WBYTE statements (4050-Series controllers). In the following examples, A and B are the AA 5001 listen and talk addresses. A = AA 5001 primary address + 32, B = address + 64.

- Listen (MLA) WBYTE @ A:
- Unlisten (UNL) WBYTE @ 63:
- Talk (MTA) WBYTE @ B:
- Untalk (UNT) WBYTE @ 95:
- Device Clear (DCL) WBYTE @ 20:
- Selected Device Clear (SDC) WBYTE @ A.4:
- Go to Local (GTL) WBYTE @ A.1:
- Remote With Lockout (RWLS) WBYTE @ A.17:
- Local With Lockout (LWLS) WBYTE @ 17:
- Group Execute Trigger (GET) WBYTE @ A.8:
- Serial Poll Enable (SPE) WBYTE @ 24:
- Serial Poll Disable (SPD) WBYTE @ 25:

Refer to the 4041 and 4050-Series controller manuals for information on using RBYTE statements.
Power-up Settings

When powered up, the AA 5001 performs a diagnostic self-test. If no internal errors are detected, the instrument enters the Local State (LOCS) and asserts SRQ. It assumes the front panel settings and the following:

- DUS ON
- POINTS 3
- TOLERANCE 2.0
- COUNTS 2.0
- OPC OFF
- OVER OFF
- RQS ON

If an internal error is found during self test, a front panel error is displayed. See the AA 5001 Instruction manual for front panel error display power-up self tests.

Talker Listener Programs

Refer to the AA 5001 Instruction Manual for additional Talker/Listener program information.

NOTE

The double asterisks shown in the 4052A and 4041 program code lines indicate a line wrap-around and are not part of the program coding.
4052A Controller Program

The following program allows a user to send any AA 5001 commands from the controller to the instrument and return data from the AA 5001 to the controller. The program includes an SRQ handler.

540 INIT
550 DIM Aa_response$(300), Aa_command$ ** (100), Addr_list (15) **
560 Aa_pri_addr=28
570 **
580 CALL "config", Config_code:Addr_list
590 IF Config_code THEN
600 PRINT "Configuration routine failed due to problem on GPIB."
610 STOP
620 END IF
630 **
640 ON SRQ THEN 780
650 **
660 PRINT "AA 5001 TALKER/LISTENER PROGRAM"
670 **
680 PRINT "Enter command message: ":
690 INPUT Aa_command$
700 PRINT @Aa_pri_addr: Aa_command$
710 INPUT @Aa_pri_addr: Aa_response$
720 PRINT Aa_response$
730 GOTO 680
740 END
750 **
760 : Serial poll routine
770 LOCAL Aa_report$
780 DIM Aa_report$(80)
790 POLL Addr_list, spoll_stat, Addr_list
800 IF Addr_list(Addr_list_index)=Aa_pri_addr ** THEN

4041 Controller Program

The following program allows a user to send any AA 5001 command from the controller to the instrument and return data from the AA 5001 to the controller. The program includes an SRQ handler.

550 Dim response$ to 300, command$ to ** 100, aastrem$ to 20
560 Integer as_pa, spollsta, spolladd, aa_ ** port
570 As_pa=28
580 As_port=0
590 **
600 Aastrem$="gpiib\"astr\{|aa_port|\}\" (pri= ** \"astr\{|aa_pa|\})"
610 Open #100:aastrem$
620 Select aastrem$
630 On srq then call pollbus
640 Enable srq
650 **
660 Tlk_lisn$: input prompt "Enter command ** message: "command$
670 Input #100 prompt command$; response$
680 Print response$! AA 5001 returns blank ** line if not queried in command$
690 Goto tlk_lisn$
700 End! Main
800 Sub pollbus local report$
SECTION 3
ERROR CODES

Status Reporting

Through the Service Request function (defined in the IEEE-488 Standard), the instrument may alert the controller that it requires service. This service request is also a means of indicating that an event (a change in status or an error) has occurred. To service a request, the controller performs a Serial Poll. In response, the instrument returns a Status Byte (STB), which indicates whether it was requesting service or not. The STB can also provide a limited amount of information about the request. The format of the information encoded in the STB is given in Fig. 3-1.

Note that, when data bit 8 is set, the STB conveys Device Status information, which is contained in bits 1 through 4.

Because the STB conveys limited information about an event, the events are divided into classes; the Status Byte reports the class. The instrument can provide additional information about many of the events, particularly the errors reported in the Status Byte. After determining that the instrument requested service (by examining the STB), the controller may request the additional information by sending an ERR query (ERRY). In response, the instrument returns a code that defines the event. These codes are described in Table 3-1.
If there is more than one event to be reported, the instrument continues to assert SRQ until it reports all events. (SRQ "stacking" consists of reporting only the latest event of each priority level.) Each event is automatically cleared when it is reported via Serial Poll. The Device Clear (DCL) interface message may be used to clear all events except Power-On.

Commands are provided to control the reporting of some individual events and to disable all service requests. For example, the OPERATION COMPLETE command (OPC) provides individual control over the reporting of a completed measurement. The Request for Service command (RQS) controls whether the instrument reports any events with SRQ.

RQS OFF inhibits all SRQ's. When RQS is OFF, the ERR query allows the controller to find out about events without first performing a Serial Poll. With RQS OFF, the controller may send the ERR query at any time and the instrument will return an event waiting to be reported. The controller can clear all events by sending the ERR query until a zero (0) code is returned, or clear all events except Power-Up through the DCL interface message.

With RQS OFF, the controller may perform a Serial Poll, but the Status Byte contains only Device Dependent Status information.

With RQS ON, the STB contains the class of the event; a subsequent error query returns additional information about the previous event reported in the STB.

Error Codes

The error codes for the AA 5001 are classified in two groups: normal condition and abnormal condition codes. When the instrument reports error (event) codes, the power-up condition code is reported first, then abnormal condition codes, and last, normal condition codes. The order in which events in each group are reported depends upon the state of the Service Request (RQS) interrupt. If RQS is on, the first event reported is the most recent event; if RQS is off, the first event is the highest priority event. Table 3-1 lists all AA 5001 event codes, event descriptions, error query responses, serial poll and responses. The list is divided into classes; these classes are defined as follows:

Command Errors—Indicate receipt of a command the instrument cannot understand.

Execution Errors—Indicate the instrument has received a command that it cannot execute.

Internal Errors—Indicate detection of a hardware error.

Execution Warnings—Indicate that the instrument is operating, but the user should be aware of potential problems.

System Events—Indicate an event that is common to instruments in a system; for example, power-up, user request, etc.

Device Dependent Events—Indicate a device dependent event.
### Table 3-1
ERROR QUERY AND
STATUS INFORMATION

<table>
<thead>
<tr>
<th>Event</th>
<th>Abnormal Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Command Errors</strong></td>
<td>Command header error 101</td>
</tr>
<tr>
<td><strong>Execution Errors</strong></td>
<td>Command not executable in local mode 201</td>
</tr>
<tr>
<td><strong>Internal Errors</strong></td>
<td>Interrupt fault 301</td>
</tr>
</tbody>
</table>

### Table 3-1 (cont)
Normal Conditions

<table>
<thead>
<tr>
<th>Event</th>
<th>Normal Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Events</strong></td>
<td>Power-up 401</td>
</tr>
<tr>
<td><strong>Execution Warning</strong></td>
<td>Display overrange 601</td>
</tr>
<tr>
<td><strong>Device Dependent Events</strong></td>
<td>Insufficient input level 701</td>
</tr>
<tr>
<td>No Errors or Events</td>
<td>With data not ready 0</td>
</tr>
</tbody>
</table>

**NOTE**
The 4050-Series controller POLL command returns 0 for serial poll responses above 128; the serial poll responses above 128 can only be obtained by using WBYTE/RBYTE statements.
Fig. 3-1. Definition of STB bits.

<table>
<thead>
<tr>
<th>STATUS BYTE (Example)</th>
<th>DECIMAL WEIGHT</th>
<th>128</th>
<th>64</th>
<th>32</th>
<th>16</th>
<th>8</th>
<th>4</th>
<th>2</th>
<th>1</th>
<th>Bit 6</th>
<th>Bit 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Conditions:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Power-up</td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>x</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>65</td>
</tr>
<tr>
<td>Operation complete</td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>x</td>
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- 0: STB indicates event class
- 1: STB indicates device class
- 1 if requesting service
- 1 indicates an abnormal event
- 1 if message processor is busy

DECIMAL: not asserted asserted

(4596-07/4597-08)