

**AT Command Set** (continued)

**Data and General Commands** (continued)

The <max\_rx\_rate> specifies the highest receive rate the modem will negotiate.

**Table 110. Valid <max\_rate> Range**

Value	Meaning
56000	Determined by modulation selected in <carrier> (default).
300—56000	Value limited by modulation selected in <carrier>.

**Table 111. Valid <max\_rx\_rate> Value for Each <carrier>**

Value	Meaning
V92	28000 bits/s—56000 bits/s in steps of 1333 bits/s.
V90	28000 bits/s—56000 bits/s in steps of 1333 bits/s.
V34	2400 bits/s—33600 bits/s in steps of 2400 bits/s.
V32bis	4800 bits/s—19200 bits/s in steps of 2400 bits/s.
V32	4800 bits/s—14400 bits/s in steps of 2400 bits/s.
V22bis	2400 bits/s.
V22	2200 bits/s.
V23C, Bell212A	1200 bits/s.
V.21, Bell103	300 bits/s.

**Table 112. +MS Extended Syntax Commands**

Command	Description
<b>+MS=&lt;carrier&gt;,&lt;automode&gt;,0,&lt;max_rate&gt;,0,&lt;max_rx_rate&gt;</b>	Selects the modem's default modulation selection parameters.
<b>+MS?</b>	Displays the current default modulation selection parameters.
<b>+MS=?</b>	Displays the range of values accepted by the <b>+MS</b> command.

Once a modulation is selected by the **+MS** command, the autorate in both directions and the automode are activated unless <max\_rate> is specified by the same command.

The settings of this command overwrite the settings of S28 and S37. Likewise, changes to these registers overwrite the settings of the **+MS** command.

**+PCW=<call\_waiting>—Call Waiting Enable**

Use this command to select how the modem responds to a call waiting signal. The controller-based response is also dependent on the current setting of the caller ID command, **+VCID** (+VCID=<pmode>—Caller-ID on page 90).

- OK if <call\_waiting> = 0—2.
- ERROR if <call\_waiting> ≠ 0—2.

## AT Command Set (continued)

### Data and General Commands (continued)

Table 113. Valid <call\_waiting> Values

Value	Meaning
0	Enables the call waiting detector. When a call waiting signal is detected, toggle V.24 circuit 125 and collect caller ID as set by <b>+VCID</b> .
1	Enables the call waiting detector. When a call waiting signal is detected, hang up the current call.
2	Disables call waiting detector (default).

Table 114. +PCW Extended Syntax Commands

Command	Meaning
<b>+PCW=&lt;call_waiting&gt;</b>	Enables or disables call waiting.
<b>+PCW?</b>	Displays the current call waiting configuration.
<b>+PCW=?</b>	Displays the supported <call_waiting> parameter values.

#### **+PIG=<value>**—PCM Upstream Ignore

Use this command to enable or disable PCM upstream in a V.92 connection.

Result codes:

- OK if <value> = 0, 1.
- ERROR if <value> ≠ 0, 1.

Table 115. Valid +PIG Commands

Command	Meaning
<b>+PIG=0</b>	Enables PCM upstream.
<b>+PIG=1</b>	Disables PCM upstream (default).

Table 116. +PIG Extended Syntax Commands

Value	Meaning
<b>+PIG= &lt;value&gt;</b>	Enables or disables PCM upstream.
<b>+PIG?</b>	Displays the current state of the <b>+PIG</b> command.
<b>+PIG=?</b>	Displays the supported <b>+PIG</b> parameter values.

#### **+PMH=<value>**—Modem On Hold Enable

Use this command to enable or disable modem on hold. Note that the **+PMH** command does not affect the parameters of the **+PMHT** (**+PMHT=<value>**—Modem On-Hold Timer on page 63) command. The **+PMH** command only enables or disables modem on hold. The **+PMHT** command configures the modem to deny a modem on hold request or grant a modem on hold request with the selected hold time.

Result codes:

- OK if <value> = 0, 1
- ERROR if <value> ≠ 0, 1

**AT Command Set** (continued)

**Data and General Commands** (continued)

**Table 117. Valid +PMH Parameter Values**

Value	Meaning
<b>+PMH=0</b>	Enables modem on hold.
<b>+PMH=1</b>	Disables modem on hold (default).

**Table 118. +PMH Extended Syntax Commands**

Value	Meaning
<b>+PMH= &lt;value&gt;</b>	Enables or disables modem on hold.
<b>+PMH?</b>	Displays the current state of the <b>+PMH</b> command.
<b>+PMH=?</b>	Displays the supported <b>+PMH</b> parameter values.

**+PMHD<dialing\_string>—Modem On-Hold DTMF Dialing**

Use this command to switch the line while modem on hold is active. Execution of the **+PMHD <dial\_string>** command causes the modem to use DTMF dialing to dial the characters in the **<dial\_string>**. Valid **<dial\_string>** characters are 0—9, #, and \*. This operation is not supported in all countries.

Result codes:

- *OK* if **<dial\_string>** is valid and modem on hold has been requested and granted.
- *ERROR* if **<dial\_string>** is invalid or the modem is not on hold when the command is executed.

**+PMHF—Modem On-Hold Hook Flash**

Use this command to generate a hook flash during modem on-hold operations. The command causes the modem to go on-hook for a period of time set by homologation parameter 26. Then the modem returns to the off-hook state for an equivalent amount of time.

Result codes:

- *ERROR* if the modem is not on hold when the command is executed.

**+PMHR—Initiate Modem On Hold**

Use this command to initiate a modem on-hold request. Once the local modem receives this request from the user or controlling application, the controller-based modem requests that the remote modem go on hold. The remote modem either denies the request, grants the request, or generates an error if modem on hold is not enabled. If the request is granted, the remote modem initializes the modem on-hold timer and transmits the request index. If the request is denied, the remote modem only transmits the request index. The request index either identifies the maximum hold time until the request is granted, or it identifies a problem code when the request is denied.

The request index is encoded in a MH sequence. MH<sup>1</sup> sequences are used to exchange information during a modem on-hold procedure. In particular, bits 16—19 of the sequence define hold time.

<sup>1</sup> For additional information on modem on hold and MH sequences, reference ITU-T Recommendation V.92, Section 8.9 for modem on hold and Section 8.9.2 for MH sequences.

**AT Command Set** (continued)

**Data and General Commands** (continued)

The **+PMHR** command does not have any extended syntax command forms.

Result codes:

- *OK* if the modem on-hold request is granted.
- *ERROR* if modem on hold is not enabled.

**Table 119. Request Index**

Bits 16:19	T1
0000	Reserved for the ITU
0001	10 s
0010	20 s
0011	30 s
0100	40 s
0101	1 minute
0110	2 minutes
0111	3 minutes
1000	4 minutes
1001	6 minutes
1010	8 minutes
1011	12 minutes
1100	16 minutes
1101	no limit
1110	Reserved for the ITU
1111	Reserved for the ITU

**+PMHT=<value>—Modem On-Hold Timer**

Use this command to configure the controller-based modem to grant or reject a modem on-hold request. This command configures the modem so it can respond to a modem on-hold request. The command must be executed prior to reception of a modem on-hold request. If a modem on-hold request is made prior to execution of the **+PMHT** command, by default, the modem on-hold request is denied.

This command also sets the modem on-hold timer. The modem on-hold timer sets the amount of time the modem remains on hold waiting for the requesting modem to return to the line. If the timer expires, the controller-based modem hangs up the call.

Result codes:

- *OK* if <value> = 0—13.
- *ERROR* if <value> ≠ 0—13.

**AT Command Set** (continued)

**Data and General Commands** (continued)

**Table 120. Valid +PMHT Commands**

Command	Meaning
<b>+PMHT=0</b>	Denies modem on-hold request (default).
<b>+PMHT=1</b>	Grants modem on-hold request with a 10 s time-out.
<b>+PMHT=2</b>	Grants modem on-hold request with a 20 s time-out.
<b>+PMHT=3</b>	Grants modem on-hold request with a 30 s time-out.
<b>+PMHT=4</b>	Grants modem on-hold request with a 40 s time-out.
<b>+PMHT=5</b>	Grants modem on-hold request with a 1 min. time-out.
<b>+PMHT=6</b>	Grants modem on-hold request with a 2 min. time-out.
<b>+PMHT=7</b>	Grants modem on-hold request with a 3 min. time-out.
<b>+PMHT=8</b>	Grants modem on-hold request with a 4 min. time-out.
<b>+PMHT=9</b>	Grants modem on-hold request with a 6 min. time-out.
<b>+PMHT=10</b>	Grants modem on-hold request with a 8 min. time-out.
<b>+PMHT=11</b>	Grants modem on-hold request with a 12 min. time-out.
<b>+PMHT=12</b>	Grants modem on-hold request with a 16 min. time-out.
<b>+PMHT=13</b>	Grants modem on-hold request with an indefinite time-out.

**Table 121. +PMHT Extended Syntax Commands**

Value	Meaning
<b>+PMHT= &lt;value&gt;</b>	Configures the controller-based response to a modem on-hold request.
<b>+PMHT?</b>	Displays the current modem on-hold settings.
<b>+PMHT=?</b>	Displays the valid <b>+PMHT</b> parameter values.

**+PQC=<value>—V.92 Phase 1 and Phase 2 Control**

Use this command to configure the V.92 short training sequence. This command selects which short phases are used during initiation of a connection. Once the modem is configured, use the **+PSS** (+PSS=<value>—Use Short Sequence on page 65) command to enable or disable the short training sequence.

Result codes:

- OK if <value> = 0—3.
- ERROR if <value> ≠ 0—3.

**Table 122. Valid +PQC Commands**

Command	Meaning
<b>+PQC=0</b>	Enables short Phase 1 and short Phase 2.
<b>+PQC=1</b>	Enables short Phase 1 only.
<b>+PQC=2, 3</b>	Disables short Phase 1 and short Phase 2 (default).

**AT Command Set** (continued)

**Data and General Commands** (continued)

**Table 123. +PQC Extended Syntax Commands**

Value	Meaning
<b>+PQC= &lt;value&gt;</b>	Configures the controller-based V.92 short training sequence.
<b>+PQC?</b>	Displays the current short training sequence settings.
<b>+PQC=?</b>	Displays the valid <b>+PQC</b> parameter values.

**+PSS=<value>—Use Short Sequence**

Use this command to enable or disable the V.92 short training sequence.

Result codes:

- *OK* if <value> = 0.
- *ERROR* if <value> ≠ 0.

**Table 124. Valid +PSS Commands**

Command	Meaning
<b>+PSS=0</b>	Uses training sequence set in by the +PQC command.

**Table 125. +PSS Extended Syntax Commands**

Value	Meaning
<b>+PSS= &lt;value&gt;</b>	Selects whether the modem determines if the short sequence is used.
<b>+PSS?</b>	Displays the current short training sequence settings.
<b>+PSS=?</b>	Displays the valid <b>+PSS</b> parameter values.