

Canal+ Compatibility

The Teridian 73M2901CE is a V 22 *bis* single chip data modem intended to be integrated in any product that requires transferring data over the PSTN (Public Switched Telephone Network) also known as the PTT network. Canal+, a major digital television service provider, uses a V.22 *bis* or V.23 modem for applications such as “pay per view”, access to on-line services and for others interactive TV applications. In that regards, Canal+ specifies the basic requirements a modem must fulfill in their application in terms of features, Hayes commands supported, answer codes and S registers.

The 73M2901CE offers to the manufacturer as much as possible a Canal+ friendly interface. Its combination of dedicated features, Hayes commands, and S registers set make it perfectly suitable for all Canal+ applications with few or no alterations at all.

This application describes the compatibility and divergences between the 73M2901CE and the Canal+ requirements as described in a Canal+ document entitled *Hardware Specifications for Media Basic Box V3.01* dated 02/23/98.

This Canal+ document is split in 4 sub paragraphs under the main “Telephone line modem chapter”. We will reuse that structure in this application note mentioning for each paragraph the compatible points and the divergences. In addition, when necessary some comments will be given as how to fix all divergences.

Description

Compatible Features

The 73M2901CE modem handles:

- DTMF and pulse dialing.
- Originate and answer modes
- V.22 and V.22 *bis* modulations
- V.23 modulation with STUM and STUPAV specifications (manufacturer selectable)
- V.42 Error correction support (see Comments)
- V.42 *bis* Data Compression support (see Comments)
- AT command set
- Dedicated PTT testing AT commands for modem approval

Divergences

- No divergence

Comments

- The V.23 STUM and STUPAV features do not support the error correction protocol nor the software turnaround request (done via hardware signal RTS or DTR). Canal+ however does not use the error correction protocol as described in the STUM STUPAV specification, but uses its own stack.
- The V.42 error control and V.42 *bis* data compression are supported by the host processor. Teridian supplies that software stack in C language ready to be integrated into any environment. The 73M2901CE has a built in support allowing that configuration where the V.42 and V.42 *bis* is supported in combination with the host processor.

Hayes Command

Compatible Features

- ATD Dial command
- ATB Modulation selection
- ATE Character echo option
- ATH Hold line
- ATO Online
- ATQ Result codes option
- ATS[n]? Query S register
- ATS[n]=r Set S register
- ATV Verbose mode
- ATW Extended result codes
- ATX Call progress option
- ATZ Soft reset
- +++ Following TIES specification (see Comments)

Divergences

- ATI Not compatible. Canal+ requires the name of the Set top box manufacturer.
- AT&F The & character is not supported. The corresponding command (same feature) is ATF – Factory default -.
- AT&G The & character is not supported. The corresponding command (same feature) ATG – Guard tone selection -.
- AT&K The & character is not supported. The corresponding command (same feature) ATK – Flow control selection -.
- AT&R0 Not supported.
- AT&C2 Not supported. The corresponding feature is selectable through the S register S25 – Protocol selection -.

Comments

- As a general rule and in order to insure proper operation of the 73M2901CE, the manufacturer needs to parse the command line issued by the Canal+ application in order to
 - ✓ Respond properly to an ATI command (information must be stored in host memory).
 - ✓ Remove all & characters
 - ✓ Remove &R0 AT command
 - ✓ Replace &C2 by the S25=2 command and host processor V.42 stack configuration.
- The Teridian 73M2901CE implements the escape sequence following the TIES specification (Time Independent Escape Sequence) that includes the Hayes Escape Sequence.

Answer Codes to Command AT

Compatible Features

- OK Terse and verbose following ATX configuration
- CONNECT Terse and verbose following ATX configuration
- NO CARRIER Terse and verbose following ATX configuration
- ERROR Terse and verbose following ATX configuration
- CONNECT 1200 Terse and verbose following ATX configuration
- NO DIALTONE Terse and verbose following ATX configuration
- BUSY Terse and verbose following ATX configuration
- CONNECT 2400 Terse and verbose following ATX configuration
- CONNECT 75/1200 Terse and verbose following ATX configuration
- CONNECT 1200/75 Terse and verbose following ATX configuration
- CARRIER 1200/75 Terse and verbose following ATX configuration
- CARRIER 75/1200 Terse and verbose following ATX configuration
- CARRIER 1200 Terse and verbose following ATX configuration
- CARRIER 2400 Terse and verbose following ATX configuration

Divergences

- DELAYED (24) See Comments.
- BLACKLISTED (32) See Comments.

Comments

- The 73M2901CE do not support the blacklisting feature. This feature has to be implemented in the host processor as well as the corresponding result codes. While parsing the command line (which can be a dial command), the manufacturer has to check and generate those two result codes if appropriate.

S Register Description

Compatible Features

- S2 Escape character value
- S3 Carriage return value
- S4 Line feed character value
- S5 Backspace character value
- S7 Wait for carrier after dial
- S8 Pause time for comma
- S9 Carrier recover time
- S10 Lost carrier hang up delay

Divergences

- S12 Not supported. Since the 73M2901CE supports the TIES escape sequence, guard time is not needed.
- S13 Not Compatible. The corresponding S register is the S99 – Country selection - (see Comments).
- S14 Not compatible. The corresponding S register is the S66 – Wait for dial tone delay -.
- S30 Not supported in the 73M2901CE. Due to the specific V.42 architecture, this function is supported by the V.42 stack in the host processor.

Comments

- In order to ensure proper operation with the 73M2901CE, when parsing the command line:
 - ✓ Remove S12=xx from the command string.
 - ✓ Remove S30=xx from the command string.
 - ✓ Replace S14 with S66.

Replace S13 with S99 taking into account the differences in the country codes (39 stands for Italy in the 73M2901CE where Canal+ specifies 2 for Italy).

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