New Features

CID1500 vrs 2.01

FSK Based Caller ID Simulator Software

1) Support for ETSI ETS 300 659-1/2 Caller ID

The new CID1500 program fully supports the ETSI Caller ID standard for both Type I (on hook) and Type II (off hook) Caller ID. Included within the support of ETSI, are also the British Telecom SIN 242/227 standards, and the Cable Communications Association (CCA) TW/P&E/312 standard.

Along with supporting all of the ETSI signaling types, both the Call Setup and Message Waiting Indicator messages are supported, with the following parameter types:

- Date and Time
- Calling Line Identity
- Reason for absence of Calling Line Identity
- Called Line Identity
- Calling Party Name
- Reason for absence of Calling Party Name
- Complementary Calling Line Identity
- Call Type
- First Called Line Identity
- Network Message System Status
- Type of Forwarded call
- Type of Calling User
- Redirecting Number
- Extension for Network Operator use

2) New Signaling Type Drop-Down List

The signaling method now used by the CID1500 can now be selected from a drop-down list instead of manipulating many of the physical layer parameters. This provides a simple and quick method to send the Caller ID message with or without power ringing. The signaling types now support are as follows:

Bellcore: Type I (on hook)

- Transmit data during long silence interval
- Transmit data with no ringing

ETSI: Type I (on hook)

- Transmit data after Dual Tone Alert Signal (DTAS) with power ringing
- Transmit data after line reversal, then DTAS, with power ringing
- Transmit data after ringing burst, followed by power ringing
- Transmit data during long silence interval
- Transmit data after DTAS, with no power ringing
- Transmit data after line reversal, then DTAS, with no power ringing
- Transmit data after ringing burst, with no power ringing

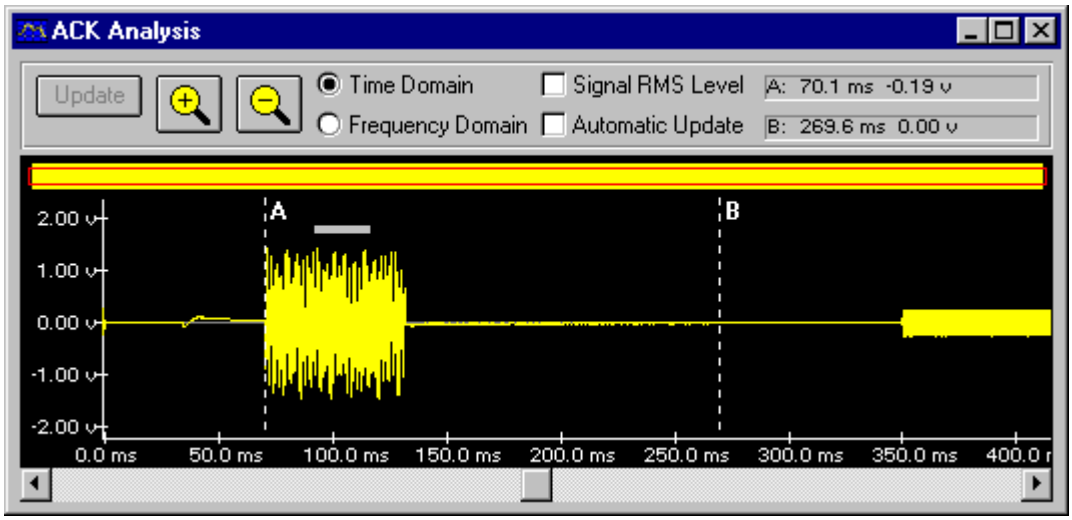
Bellcore & ETSI: Type II (off hook)

- Send CAS/DTAS signal, wait for ACK, then transmit data

3) ACK Tone Time/Frequency Domain Analyzer (Optional)

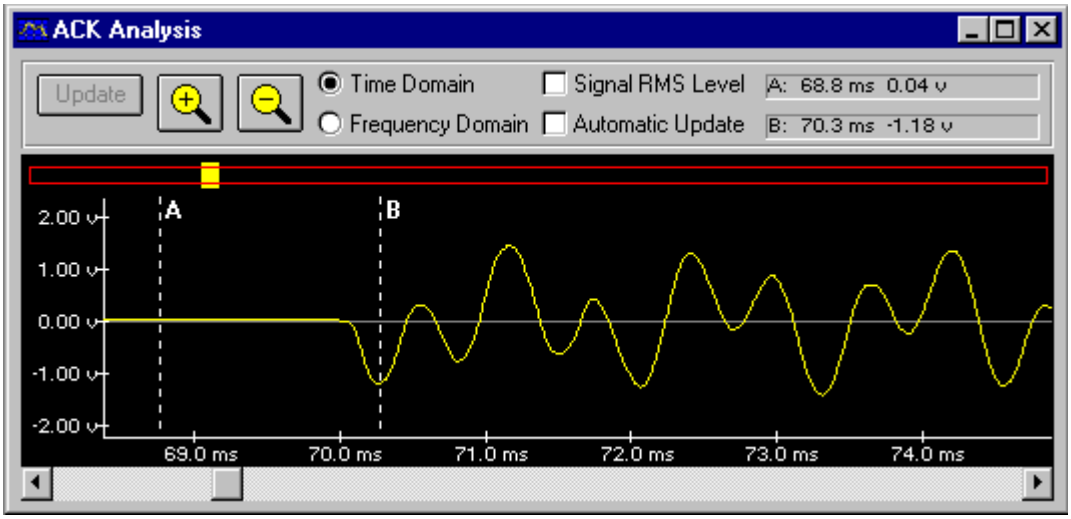
A powerful ACK analysis tool is available with the new CID1500 program. With this option enabled, the CID1500 program will sample and process the ACK tone generated by the CPE during a Type II caller ID transmission. The resulting data can be viewed much like a digital storage oscilloscope. This shows the user exactly the timing of the ACK tone in relationship to the CAS/DTAS signal generated by the CID1500.

In the example shown below, an ACK tone from a CPE was captured and is displayed in its full span. In this case the ACK tone was generated 70 msec after the end of the CAS/DTAS tone. A small transient signal can be seen to be generated by the CPE at a time of 40 msec. The lower level signal starting at a time index of 350 msec is the beginning portion of the FSK data being transmitted to the CPE.

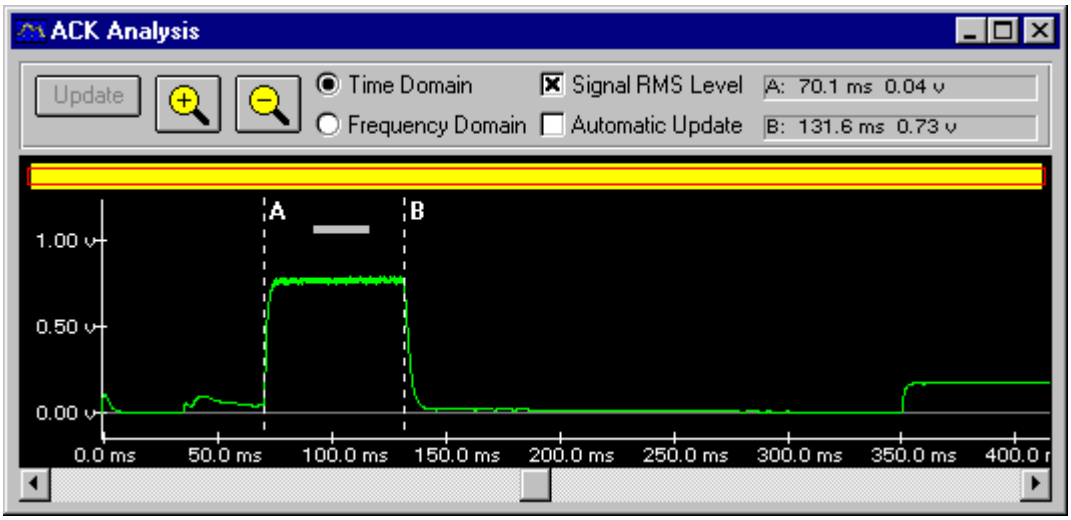


Two cursors can be used for reading measurement points from the waveform. By simply clicking the mouse buttons, the cursors can be positioned anywhere on the waveform. In this time domain view, any transient signals generated by the CPE before or after the ACK generation can be analyzed. This can become important in some CPE designs, as large transients generated in muting the CPE may interfere with ACK detection or FSK data reception. The next figure shows a close up view of the start of the ACK tone. The

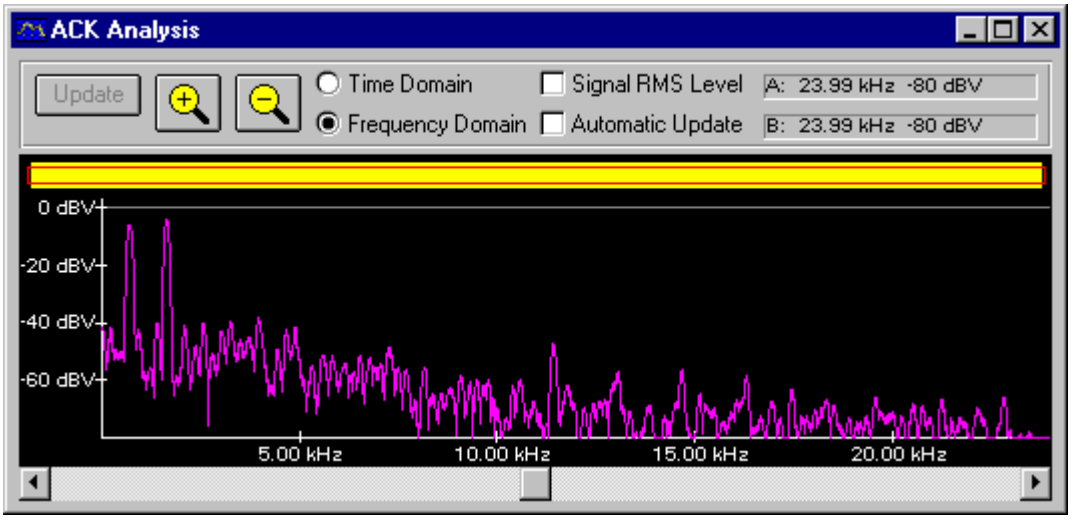
ACK tone generated by this CPE can be seen to have a very fast and clean start with little distortion or transient signals generated.



The example below shows the RMS signal level of the ACK tone. This view also indicates a slight transient occurring at approximately 40 msec, and the FSK data signal starting at a time index of 350 msec after the end of the CAS/DTAS tone. Displaying the RMS signal level can be useful in verifying that the ACK signal level is constant over its entire period. Such that there are no slow ramp ups, or fluctuations in the signal level during the ACK tone.



The last example below shows the frequency domain response of the ACK tone. A 1024 point FFT can be calculated over any 21 msec span. The short horizontal bar displayed over the above figure represents the time span over which the FFT is calculated. Since this bar is positioned over the ACK tone, the FFT will generate a frequency domain plot of the ACK tone. Moving the FFT bar is as simple as clicking the mouse on it, and sliding it anywhere on the time domain waveform. In this manner, an FFT can be generated that will display the spectral components of the captured signal over any 21 msec span.



In this case, the FFT reveals the spectral components of the ACK tone. The above figure shows the full span view from 0 kHz to 24 kHz. Two distinct spectral peaks are clearly visible representing the two frequency components of the ACK tone. Since this particular CPE responds with a DTMF A tone, the spectral components are at a frequency of 697 Hz and 1633 Hz. Like the time domain view, the display can be zoomed into and the cursors used to measure the signal levels at various frequencies.

The ACK Tone Analyzer can be added to any existing AI 150 Caller ID Simulator as an option. It is recommended that the PC on which the software resides on is at least a 486DX class machine, as this option is quite intensive in its floating point use. PC's without a floating point processor or a processor speed below 33 MHz will still operate with this option, however the program operation will appear to be quite slow at times.

4) Scripting Language Enhancements

New Command: Signaling

The new SIGNALING command changes the signaling type of the Caller ID transmission. For the Bellcore standard, the signaling command can be used to enable or disable the power ringing. For the ETSI standard, any of the seven signaling types can be selected. The syntax for the command is as follows:

Signaling (type)

Where (type) can be one of the following possibilities:

- Data_after_Ring — Bellcore (send data in first long silence interval)
- No_Ringing — Bellcore (send data with no power ringing)
- Send_CAS_wait_ACK — Bellcore (send CAS and wait for ACK tone)
- DTAS_with_Ring — ETSI (use dual tone alerting signal)
- RBAS_with_Ring — ETSI (use ring burst alerting signal)
- Rev_DTAS_with_Ring — ETSI (line reversal then dual tone alert)

- DTAS_no_Ring ETSI (use dual tone alerting signal, no power ringing)
- RBAS_no_Ring ETSI (use ring burst alerting signal, no power ringing)
- Rev_DTAS_no_Ring ETSI (line reversal, then DTAS, no power ringing)
- Data_after_Ring ETSI (send data in first long silence interval)
- DTAS_wait_ACK ETSI (send DTAS and wait for ACK tone)

Enhanced Printscreen and Printlog command:

The PRINTSCREEN and PRINTLOG command can now display the value of parameters. This makes it very simple to cycle through a range of parameter values and display the current value with the printscreen or printlog command. An example of this is:

```
Parameter FSK_LEVEL = -10                ;set level to -10 dBm
loop 40                                  ;loop 40 times
  printscreen "The level is " [FSK_LEVEL]  ;display level on screen
  start                                  ;send Caller ID transmission
  parameter FSK_LEVEL -= 1               ;decrement fsk level by 1 dB
loopend
```

This short program will cycle through FSK levels from -10 dBm to -50 dBm. The printscreen command will show the following on the script execution window for the first caller ID transmission, and will decrement by 1 dB for every transmission afterward.

```
The level is -10 dBm
```

To display any parameter value, its name is simply enclosed in rectangular brackets. It is also possible to display more than one parameter value by simply cascading the parameter names.

Enhanced Packet command:

Like the PRINTSCEEN and PRINTLOG commands, the PACKET command can be used to send the value of a parameter to the CPE as part of the caller ID message. A modification of the following example illustrates this.

```
Parameter FSK_LEVEL = -10                ;set level to -10 dBm
loop 40                                  ;loop 40 times
  packet calling_name value [FSK_LEVEL]
  printscreen "The level is " [FSK_LEVEL]  ;display level on screen
  start                                  ;send Caller ID transmission
  parameter FSK_LEVEL -= 1               ;decrement fsk level by 1 dB
loopend
```

By adding the boldface line above, the value of the FSK_LEVEL parameter will be displayed as the calling name. So as each caller ID transmission is sent, the value of the FSK level will be displayed by the CPE in its calling name field. This makes it very easy to know what the FSK sensitivity of the CPE is. It's just the last caller ID message that was displayed.

Any parameter value can be specified in this manner. It just has to be enclosed by the rectangular brackets. The packet used to send this information can be any text based packet, like the following:

- Calling Number Bellcore & ETSI
- Calling Name Bellcore & ETSI
- DDN Bellcore
- Called Line ETSI
- Complementary Calling Line ETSI
- First Called Line ETSI
- Called Line ETSI
- Redirecting Number ETSI

Resetting Parameter Values:

An new option for the PARAMETER command allows for resetting all of the parameter values back to their default settings in one simple command. This can be useful when complex script program changes a large number of parameters that must be reset at the end of the test. The format for this command is:

Parameter Reset

5) Other Changes and Enhancements

Specify Script or Configuration Files at Program Startup:

It is now possible to load a script program or configuration file at the program startup. This is done by specifying the file to load on the program command line. For example, the default command line that windows uses to run the CID1500 program is:

CID1500

However, this can be changed to specify the immediate loading of a script or config file at program start by appending either “s=(script file name)”, or “c=(config file name)”. Two examples of this are given below.

CID1500 s=sr3004_A.scr
CID1500 c=c:\test1.cfg

The first example loads the script file called “sr3004.scr” that is located in the same program directory as the CID1500 program. The second example loads the configuration file “test1.cfg” from the root directory of C drive.

More Ringing Possibilities:

For both the Bellcore and ETSI standards, up to 6 state ringing is now available. Each of the three ringing active times and three ringing inactive times that make up a complete cycle can be independently specified. The number of ringing states is specified under the Advanced Setup window, and can take on values of either 2 ringing states, 4 ringing states, or 6 ringing states.

A Quick way to Send Invalid Checksums

At times it can be convenient to send caller ID transmissions to a CPE that have a known invalid checksum. Rather than manually editing the checksum data, a new command under the Transmit menu will invert the current checksum and start a caller ID transmission. This feature can also be activated by pressing the F4 key. Each time F4 is pressed, the checksum value is inverted and sent to the CPE.

Improved Handling of Log Buffer Overflows:

The data log buffer can hold up to 32 Kbytes of data. However in previous program versions, once the buffer was full, no additional data would be accepted. This has been changed such that new data is always entered into the data log buffer. If the buffer size exceeds 32 Kbytes of data, then the oldest data stored in the buffer is flushed, such that the latest 32 Kbytes of data is always visible. Also, if data has been flushed from the buffer, a notice to this effect is displayed at the beginning of the buffer.

New SAVE Command:

A quicker way to save the script programs is now available with the new SAVE command under the FILE menu. The SAVE AS command is still available; however, when constantly saving the same script program, the SAVE command is easier to use. The shortcut for this command is CTRL-S.