

WHAT CLIP FUNCTION REPRESENTS

Now, the **CS8014** "Automatic FFT Telephone Test System"

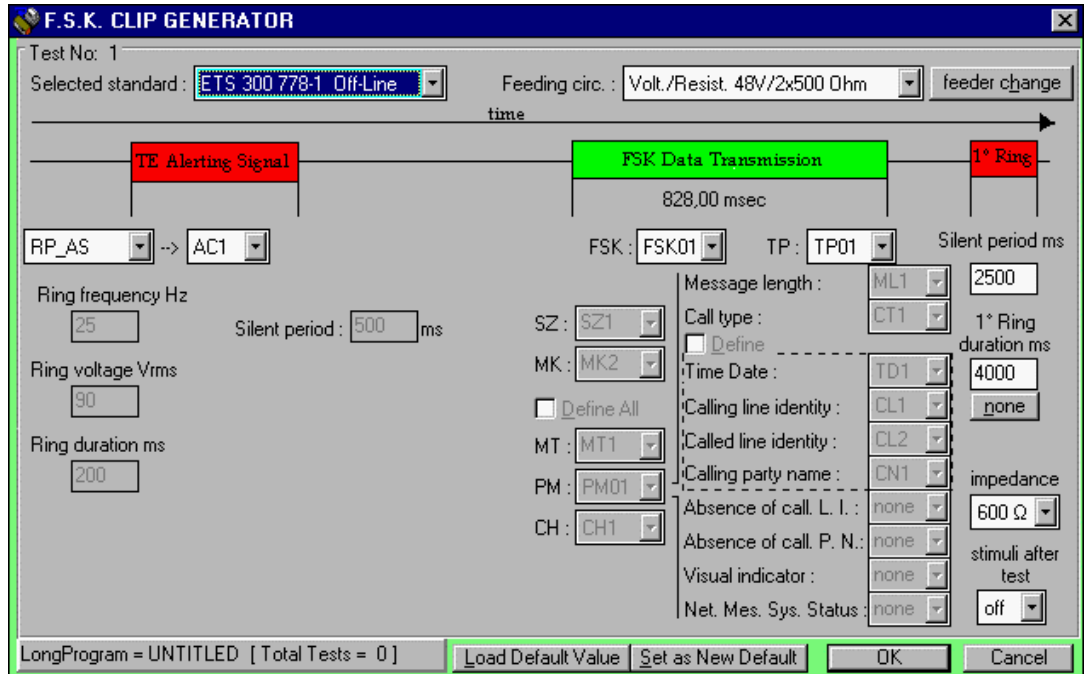
is able to test the modern Telephone Equipment having the so-called **CLIP** function. But, what **CLIP** Function represents?

The **Calling Line Identification Presentation** is a function, offered by some modern **PSTN** (Public Switched Telephone Network), able to transmit to the called telephone terminal the identification number or the name of the Caller.

Obviously, the called telephone terminal must be specialised for the **CLIP**, equipped with a receiver circuit other than an alphanumeric display for the **CLI** presentation.

◆ **ETS 300 659-1** rules define the PSTN subscriber line protocol, for display services, when the called telephone is in on-hook condition. The **CLI** is sent during or prior the ringing, with the synthetic structure shown in the windows below. Are scheduled two important kinds of the **CLI** data transmission protocols: the first is accomplished by using the **FSK¹-V23**

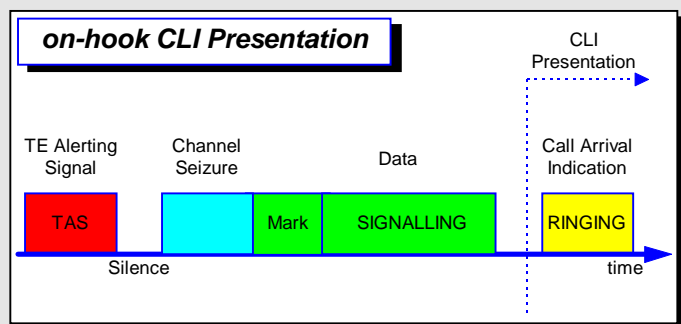
subscriber line protocol, the second use **DTMF** signals to allow the continuation of use in those networks that already implemented a **DTMF²** based subscriber line protocol. The first one is the most used over the



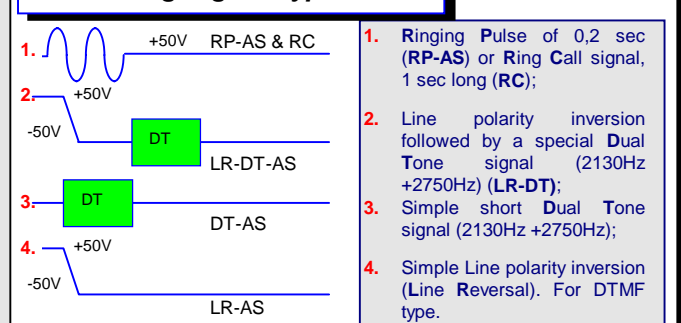
European PSTN telephone network.

◆ **ETS 300 659-2** rules, defines the **CLI** protocol when the called telephone is in off-hook condition, that is during the conversation. The protocol becomes more different, as shown in rear side table.

On-Hook CLIP Typical Protocol (ETSI-300-659-1)



TE Alerting Signal Types - TAS



CLIP Type :

- ▲ FSK-V23 Type - Lets the transmission of alphanumeric messages as caller number or name, time group, service messages or other purpose messages.
- ▲ DTMF Type - Lets the transmission of numeric only messages as caller number.

Telephone Equipment Alerting Signal (TAS) :

- ▲ **TAS** Represents the first phase of the CLIP Protocol.
- ▲ After **TAS** the TE is alerted and changes its idle state to get ready to receive the successive data message. There are scheduled four kinds of **TAS**, as listed on the left side window.
- ▲ The DTMF based **CLIP** accept as **TAS**, only the **LR-AS** Line Reversal polarity.

Channel Seizure :

- ▲ The Channel Seizure is present only in FSK-V23 Protocol. It consists in a series of 90 to 300 alternate SPACE/MARK bits. The purpose of Channel Seizure is to prepare the TE to receive the next data message.
- ▲ The DTMF Based **CLIP** Protocol doesn't use any Channel Seizure.

Signalling Data :

- ▲ Signalling Data is the message of the **CLIP** Function.

Ringing :

- ▲ After received the message, there is the CLI presentation on the TE display. Then the ringing procedure start (or continue if Ring Call signal was used as **TAS**).

INCREASED TEST CAPABILITY OF CS8014

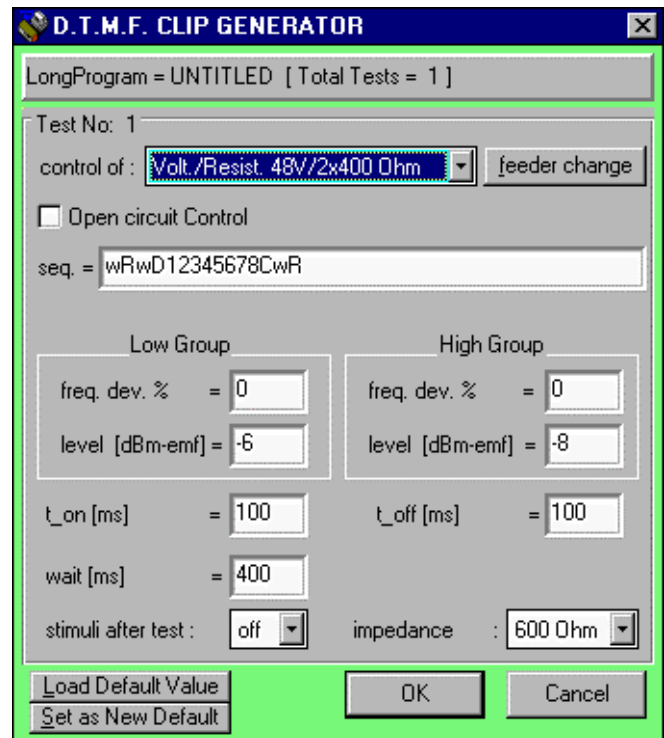
The above-mentioned NEW function, the **CLIP**, can be installed on all **CS8014** having the **SIGNAL-OPTION** already present. The installation requires some changes in firmware and hardware of the **CS8014** besides the upgrade of the **WIN8014** software for the host Personal Computer.

The new **WIN8014** Menus will propose the **CLIP** Family with its two **CLIP** kinds: **FSK-V23** or **DTMF** based. So the User will insert in its test sequence the wanted **CLIP** test.

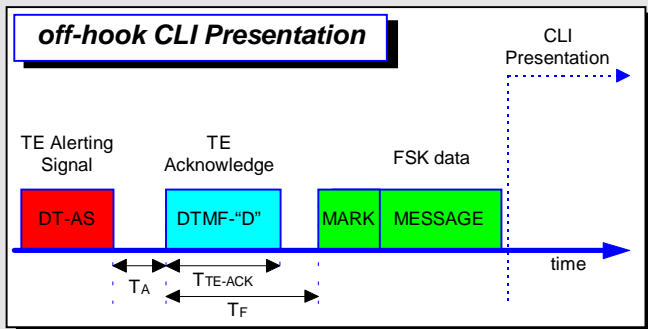
The **FSK CLIP GENERATOR** requires to test a **TE** by changing a lot of parameters, therefore to organise a needed series of tests shall be so hard to discourage also the most full of good-will engineer.

The solution come from **ETSI 300 778-1** and **ETSI 300 778-2** standard, where are proposed, in its annexes, a series of typical sequences of tests for a **TE** with **CLIP**. The **WIN8014** programming window lets the engineer to select the appropriate standard test, making he free of the parameter ensemble adjustment.

The programming window, as you can see on the picture in front page, for each protocol phase, suggest the name of the normalised test procedure, as listed on the annexes of **ETSI**



• **Off-Hook CLIP Typical Protocol**
(ETSI-300-659-2)



- **CLIP Type :**
 - ▲ FSK-V23 Type only - Lets the transmission of alphanumeric messages as caller number or name, time group, service messages or other purpose messages.
- **Telephone Equipment Alerting Signal (TAS) :**
 - ▲ **TAS** represents the first phase of the off-hook CLIP Protocol. **TAS** is sent by **LE** (Local Exchange) as **DT-AS** (see point 3 on-hook typical protocol).
 - ▲ After **TAS** the TE mutes voice paths, and returns a **TE-ACK** to the network (typically a DTMF "D"). **CS8014** measures all timings of this phase.
 - ▲ After **TE-ACK** recognition FSK data is transmitted to TE.
- **FSK data :**
 - ▲ Mark Signal - before the message, a series of Marks is sent to TE.
 - ▲ Message - all the information in alphanumeric form.
 - ▲ After the FSK data transmission the TE restores the voice paths.

300 778-1 and **ETSI 300 778-2** standards.

The newest software release let the engineer free to program its own messages, as the name of the Caller, the date and the number of the Called Subscriber.

On contrary, the **DTMF** based protocol don't requires complex program activity, it's needed only the choice of the feeding bridge parameters other than the numeric message to be send. A "D" DTMF signal is sent as *start-of-message*, followed, at the end of calling identifier, by a "C" signal as *end-of-message*.

¹ FSK = Frequency-Shift Keying
² DTMF = Dual Tone Multi-Frequency
³ Only for ETS 300 778-2

"CLIP" Generator Characteristics:

• CLIP FSK generator		
TE Alerting Signal	RP-AS & RC	- Ring Frequency 5 to 99 Hz; - Ring Voltage 0 to 120 Vrms; - Ring Duration 50 to 10.000 ms;
	DT-AS & LR+DT-AS	- Low & High frequency 5 to 6991Hz; - Low & High group level (emf) -42 dBV to 8 dBV; - Dual Tone duration 50 to 10.000 ms; - Silent period after LR 10 to 2550 ms;
TE Acknowledge³		Silent period after TAS 10 to 2550 ms; - TA - Acknowledge delay 10 to 520 ms; - TE-ACK Acknowledge duration 35 to 544 ms; - TF - Data Transmission delay from TE-ACK TE-ACK _{min} +5 ms to TE-ACK _{min} +1275 ms
FSK transmission		- Seizure Period - bits alternating Mark & Space 0 to 500; - Mark Period - Bits of continuous Marks 0 to 255; - Data Transmission CCITT-V23 1200 baud modem protocol Frequency Shift keying method; - Mark/Space - levels (emf) - -55dBV to 11dBV - step 1dB; - frequencies - 10 to 6991Hz - step 0.5 Hz; - Noise/Signal ratio -60dB to +6dB or none; - Impedance 600 Ohm or External.
• CLIP DTMF generator		
- frequencies	CCITT - P37 - Row and Column typical frequencies;	
- tolerance	row & column frequencies separate tolerance programming - between -5% and +5%;	
- levels (emf)	row & column levels programmable between +11 dBm and -40 dBm - step 0.2dB;	
- timing	Ton = 10 to 5500 ms-step 10ms (<2500ms) or 0.5s; Toff = 0 to 5000 ms-step 10ms (<2500ms) or 0.5s.	