Clarinet ®

Conformance Testing

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Contents

The Powerful Clarinet ETS Conformance Tester

This photograph shows two Acacia Clarinet basic rate ISDN pods (both with one U port and one S/T port) connected to a notebook PC host via USB.

The large LCD color display clearly shows a trace file with Layer 3 protocol events followed by the TTCN test case result and purpose. Protocol messages can be displayed in HEX, partial HEX or fully decoded.

It is easy for the user to select the level of detail on the display and to automatically search for PASSED, FAILED, INCONCLUSIVE, or any text string within the trace file. Files can be printed to produce clear report documents.
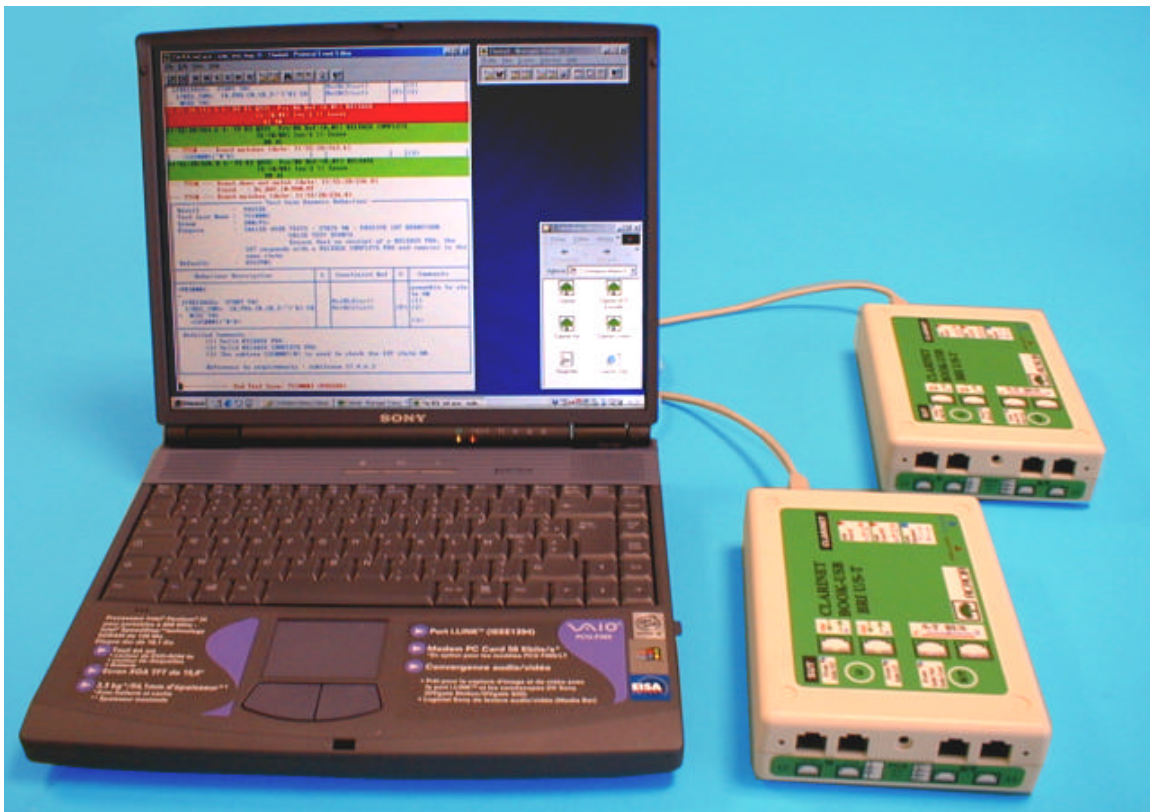

Figure 1.0

Introduction

The Acacia Clarinet system is a compact multiprocessor controlled interface pod which can be connected to a host PC via USB (or SCSI 2 for ATM pod and the former design) interfaces. The table below shows the complete range of interface pods available.

The test profile executed on the PC host allows a combination of pod types to be controlled simultaneously. All protocol messages and test stages are put into the same display window, time stamped with an accuracy of 100 uS (except ATM pod which is 100nS) and clearly identified for each interface pod. If several pods are used, time-stamping clocks are synchronised by hardware (1µs for ATM pods, 1 ms for others) between pods of the same type (USB or SCSI). In the case combination of SCSI and USB, synchronisation between the different types of pod is done by software (about 10 ms).

All events will be recorded directly to the PC hard disk drive and can be monitored in real time (with scroll up/down and search features) or reviewed after execution of the test. A powerful display filter allows the user to define exactly which messages at each layer or which conformance test stages and results are presented on the display.

A standard Clarinet-system is built with one interface pod, one notebook PC host with TFT Screen, CD ROM drive, floppy drive, carrying case, interface adapters (were applicable) and a single system software license. Other interface pods can be purchased separately for the ISDN, SS7 and V5.2 Conformance tests since these require multiple concurrent interface configuration.

Over 2500 Clarinet systems are in use worldwide and the standard software license enables analysis, simulation and traffic generation for a wide range of protocols. Powerful information element editors make it a superb test and development tool.

This brochure provides information relating to the use of our powerful Clarinet system as a 'home' or 'laboratory' conformance tester.

A separate brochure is available detailing the standard Clarinet-system features.

Reference	Clarinet Interface Pods and Software licence
2001	USB controlled Pod with switchable E1/T1 port
2002	USB controlled Pod with one BRI S/T port and one BRI 2B1Q U
2003	USB controlled Pod with switchable Ethernet 10/100 port
2004	USB controlled Pod with switchable V.24, V.11, V.36 and V.35 - 2Mbps
4010	SCSI Controlled Pod with two STS-3c/STM1 multi-mode fibre ports and two E3 BNC ports
4011	SCSI Controlled Pod with two STS-3c/STM1 single-mode fibre ports and two E3 BNC ports
4002	SCSI controlled Pod with one BRI S/T port and one 120W PRI E1 port
4003	SCSI controlled Pod with one BRI S/T port and one PRI T1 port
4007	SCSI controlled Pod with one BRI 2B1Q U port and one 120W PRI E1 port
4008	SCSI controlled Pod with one BRI 2B1Q U port and one PRI T1 port
8001	Software Package: Clarinet Run-time (one required per system host)

Conformance Test Profiles

Clarinet ETS software provides user-friendly, pre-configured test-profiles. They are pre-configured with 'typical' values making it easier to see what is required in each field.

The list of TestCases can be accessed through the profile-embedded database manager.

The Protocol Information Conformance Statement (PICS) and Protocol Information eXtra In Testing (PIXIT) parameters can also be accessed through the profile-embedded database manager.

Using the powerful Windows-based Clarinet database manager, it is very easy to modify and save these parameters
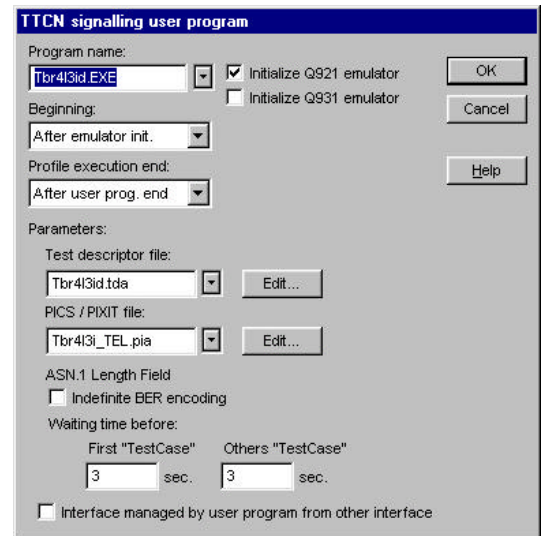
Figure 1.1

PICS/PIXIT Editor

The PICS are a collection of statements supporting the system being tested. Overlap Sending (OVS) on ISDN IUT is an example of PICS.

The PIXIT are parameters that are needed to carry out the testing, but do not affect the protocol. Bearer Capability Value (BCAPV) on ISDN IUT is an example of PIXIT. The PICS/PIXIT parameters used during execution are automatically inserted as a header in the event trace.

Figure 1.2

Selection of TestCases

Individual TestCases can be selected manually or automatically using the TestCase name or group. Due tot the entered PICS/PIXIT values, the Clarinet-system executes the ETS and automatically escapes TestCases that are not applicable (selection expression).
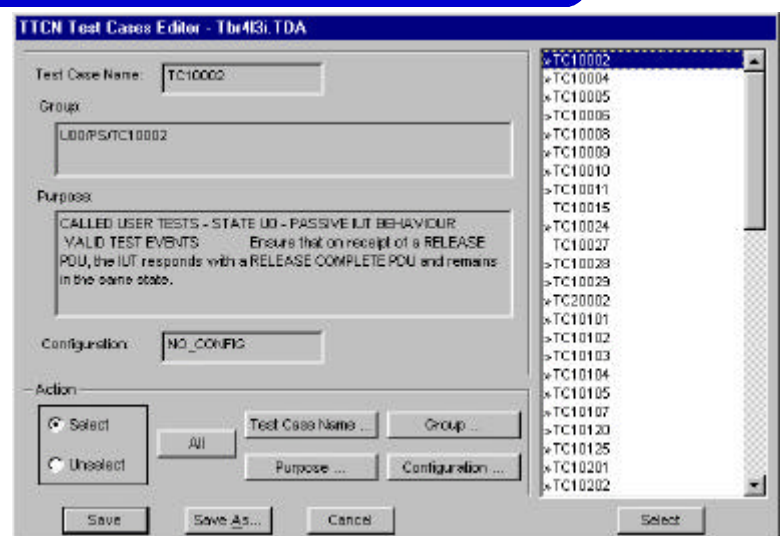
Figure 1.3

TTCN-GR trace and link

The Clarinet event file resulting from the ETS execution contains the full TTCN GR trace. This trace automatically merges in real time with protocol events. Every event is recorded and simultaneously placed in the standard Clarinet event file.
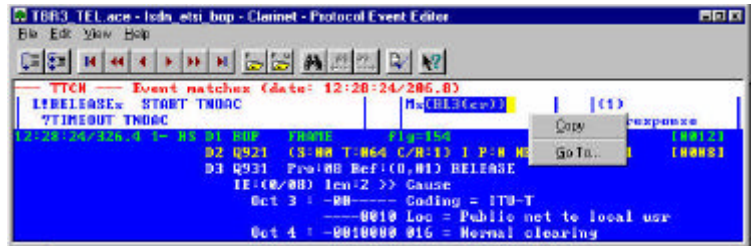
Figure 1.4

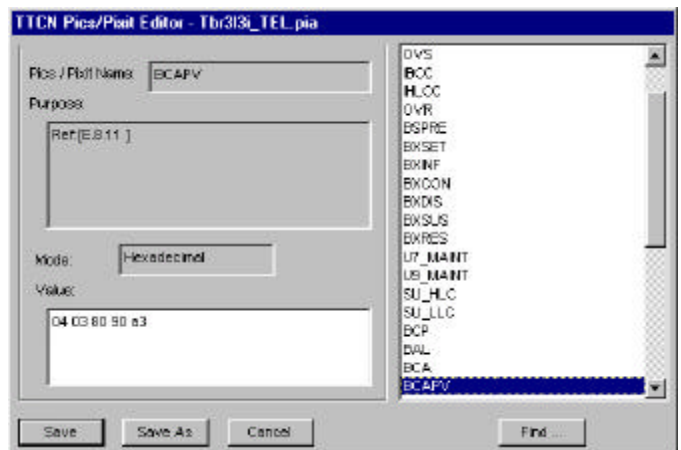Clarinet includes a tool that converts and splits the TTCN ATS into a tree of HTML files. Most of the ETS provided by Acacia automatically install the HTML tree. When editing the event file, Clarinet Event-Editor includes a feature which allows the user to automatically jump to TTCN html files by right-clicking on the mouse and selecting the "Go To" function.
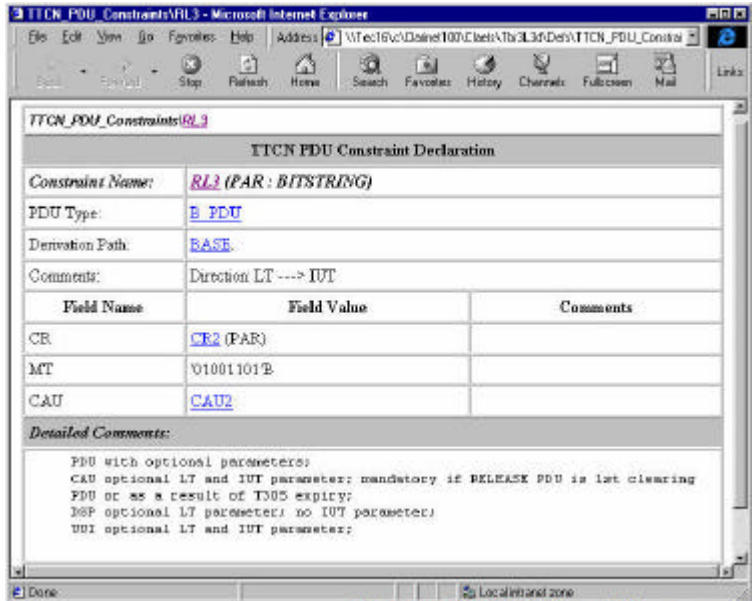
Figure 1.5

TTCN Test Report

Clarinet also includes a tool that automatically generates the report extracted from the Event-file. The event file resulting from ETS execution is exported in text format through the Clarinet Event-Editor. The add-on macros installed under Microsoft word 97 or word 2000 allows importing this file and automatically generates the report under the standard format.

Figure 1.6

ISDN User-side ETSI Conformance Test Suites

Since the beginning of 1997, Test Laboratories have been gearing themselves up to offer a service of verification for ISDN terminal equipment against the latest ETSI requirements.

The former NET3 and NET5 tests have now been phased out and replaced with CTR3/TBR3 for the basic rate access and CTR4/TBR4 for the primary rate access. The powerful and comprehensive new tests are published by ETSI in the TTCN format and have been compiled to run on the Clarinet system.

Advisory notes published by ITAAB define some modifications on the TBR. A new version of ETS has been generated. Both version are provided to each TBR user.

The Clarinet user can modify the real time event editor screen to select how much detail is presented on the display and all protocol messages transmitted or received during the test cases can be clearly seen. This level of performance makes the Clarinet system an invaluable 'home tester' for verifying the operation of terminal equipment products against the mandatory requirements prior to 'Self Declaration' or submission to an official test house. Repeated visits to the test houses can prove to be very expensive allowing the Clarinet to pay for itself quickly through saved expense. When your equipment is submitted to the Test Laboratories for approval it is likely that it will be verified using the Clarinet since many of the Laboratories themselves are investing in this powerful system and its TTCN compiler.

Test scripts for ISDN terminal equipment and supplementary services are available separately as shown below and overleaf.

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8782	ETSI	34				34	Clarinet ETS TBR3 L2	ISDN TBR003 - Layer 2
8781	ETSI*	71				71	Clarinet ETS TBR3 L3	ISDN TBR003 - Layer 3
8784	ETSI	38				38	Clarinet ETS TBR4 L2	ISDN TBR004 - Layer 2
8783	ETSI*	61				61	Clarinet ETS TBR4 L3	ISDN TBR004 - Layer 3
8779	ETSI	9				9	Clarinet ETS TBR8	ISDN TBR008
8788	ETSI	36				36	Clarinet ETS TBR33 L2	ISDN TBR033 - Layer 2
8787	ETSI*	56				56	Clarinet ETS TBR33 L3	ISDN TBR033 - Layer 3
8790	ETSI	32				32	Clarinet ETS TBR34 L2	ISDN TBR034 - Layer 2
8789	ETSI*	55				55	Clarinet ETS TBR34 L3	ISDN TBR034 - Layer 3

*All the Advisory notes from ITAAB specifying TTCN ATS modifications of TBR3/TBR4 and TBR33/TBR34 are included in independent ETS delivered as additional packages.

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8691	ETSI	565				565	Clarinet ETS 300 402-7	ISDN Data Link Layer
8770	ETSI	689				689	Clarinet ETS 300 403-5	ISDN Basic Call User side
8540	ETSI	25				25	Clarinet ETS 300 188-4	ISDN 3PTY User side
8774	ETSI	154				154	Clarinet ETS 300 182-4	ISDN AOC User side
8542	ETSI	100				100	Clarinet ETS 300 359-4	ISDN CCBS User side
8775	ETSI	266				266	Clarinet ETS 300 207-4	ISDN CDIV User side
8536	ETSI	2				2	Clarinet ETS 300 092-4b	ISDN CLIP User side
8536	ETSI	2				2	Clarinet ETS 300 092-4p	ISDN CLIP User side
8537	ETSI	2				2	Clarinet ETS 300 093-4b	ISDN CLIR User side
8537	ETSI	2				2	Clarinet ETS 300 093-4p	ISDN CLIR User side
8538	ETSI	2				2	Clarinet ETS 300 097-4bm	ISDN COLP User side
8538	ETSI	2				2	Clarinet ETS 300 097-4pm	ISDN COLP User side
8539	ETSI	2				2	Clarinet ETS 300 098-4b	ISDN COLR User side
8539	ETSI	2				2	Clarinet ETS 300 098-4p	ISDN COLR User side
8776	ETSI	74				74	Clarinet ETS 300 185-4	ISDN CONF User side
8541	ETSI	11				11	Clarinet ETS 300 138-4b	ISDN CUG User side
8541	ETSI	11				11	Clarinet ETS 300 138-4p	ISDN CUG User side
8532	ETSI	14				14	Clarinet ETS 300 058-4b	ISDN CW User side
8532	ETSI	14				14	Clarinet ETS 300 058-4p	ISDN CW User side
8533	ETSI	17				17	Clarinet ETS 300 064-4b	ISDN DDI User side
8533	ETSI	17				17	Clarinet ETS 300 064-4p	ISDN DDI User side
8777	ETSI	107				107	Clarinet ETS 300 369-4	ISDN ECT User side
8534	ETSI	12				12	Clarinet ETS 300 130-4	ISDN MCID User side
8531	ETSI	16				16	Clarinet ETS 300 052-4b	ISDN MSN User side
8531	ETSI	16				16	Clarinet ETS 300 052-4p	ISDN MSN User side
8778	ETSI	68				68	Clarinet ETS 300 745-4	ISDN MWI User side
8535	ETSI	8				8	Clarinet ETS 300 061-4b	ISDN SUB User side
8535	ETSI	8				8	Clarinet ETS 300 061-4p	ISDN SUB User side
8543	ETSI	156				156	Clarinet ETS 300 286-4	ISDN UUS User side

ISDN User-side NIUF Conformance Test Suites

Companies supplying terminal equipment to the USA may be required to support the protocol test suite created by the National ISDN User Forum (NIUF). These are now available for the Clarinet system and are detailed below.

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8786	NIUF	228				228	Clarinet ETS NIUF 413-92	ISDN Layer 3 BRI User side
8785	NIUF	239				239	Clarinet ETS NIUF 421-93	ISDN Layer 3 PRI User side

ISDN Network-side NI2-PRI Conformance Test Suites

Companies supplying Network equipment to the USA may be required to support the protocol test suite created by Acacia to check the compliance with NI-1268 specification. This is now available for the Clarinet system and is detailed below.

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8786	NI-A	28	267			295	Clarinet ETS NI 1268	ISDN Layer 3 PRI Network side

ISDN User-side France Conformance Test Suites

Companies supplying terminal equipment to France may be required to support the protocol test suite created by France-Telecom CNET. These are yet available for the Clarinet system and are detailed below.

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8557	FT	37				37	Clarinet ETS F4XUB_IS	ISDN RTPB-VN4
8558	FT	36				36	Clarinet ETS F4XUP_IS	ISDN RTPP-VN4

ISDN User-side OSTC Conformance Test Suites

The Open Systems Testing Consortium (OSTC) wass a group of organisations with extensive experience of Interoperability and Conformance Testing objectives. There were currently fifteen members of the OSTC including Belgacom, France Telecom, Deutsche TeleKom AG, Swiss Telecom PTT and Telefonica together with other PTT and test equipment companies. These organisations advanced the work of the OSTC in different ways. Some provide harmonised accreditation testing or certification in line with the recommended ISO9646 methodology. Most helped in the production of test specifications which they contribute to internationally recognised standard bodies such as ISO, ITU, EWOS and ETSI. Other members built test tools like the Clarinet system which act as software engines to execute and interpret the tests defined in the test specifications. Reference implementations are also operated by the members to ensure that the test tools function in a controlled manner. The OSTC test scripts (called CTS Test Suites) were an alternative to the ETSI CTR3 and CTR4 which were preferred by some terminal equipment manufacturers depending upon the range of features they wished to test for their product market.

However the support of OSTC test suites has been more and more difficult:

- the executable files are only 16 bit mode.
- they can't be recompile with the current TTCN compiler because they are written in TTCN-DIS,
- the new tools developed by Acacia (full TTCN trace, report generator, HTML viewer) are unavailable.

The purposes written in the TestCases of ETS 300403_5 and ETS 300402_5 include a cross reference list to the CTS TestCases. The status of the cross reference list is defined in the ETS300402-6 by the following note:

```
NOTE 3: These references to I-ETS 300 313 helped in developing this ETS and are
of a purely informative nature.
```

The ETS 300 313 standard provided on a prior ETSI CD-ROM had the following introduction:

```
This Interim European Telecommunication Standard (I-ETS) has been produced by
the Signalling Protocols and Switching (SPS) Technical Committee of the European
Telecommunications Standards Institute (ETSI), based upon the layer 2 Abstract
Test Suite (ATS) developed by the Conformance Test Specification (CTS2) ISDN
project.
```

So at the end of 1999, a new release of ETS 300 403_5 and ETS 300 402_7 has been available. It includes different list of Testcases allowing to run subset of Testcases corresponding to a part of the former CTS Test suites.

ISDN Network-side ETSI Conformance Test Suites

The ISDN Network test suites developed for DSS1 consists of a new set of tests dedicated to testing the network providers delivery of the protocol defined by the ETSI standard.

The tests are split into two functional groups shown below:

- Basic operation of Layer 2 (Data Link) and Layer 3 (Basic Call)

- Supplementary service provision (Hold, CLIP, CLIR, AOC etc.,)

Depending on the number of interfaces supported, different Clarinet configurations (1 to 4 interface pods) are required as defined in the ETS. Unlike the User test scripts (CTR3/ CTR4), which only test basic operation, the Network scripts test conformance to all of the protocol 'rules'. This includes negative tests involving generation of valid, invalid and inopportune PDUs.

ASN1 encoding is used in the fields of the "facility" Information Element: Most of supplementary services include this type of information element and the ASN1 content can be fully decoded on the Clarinet system.

PICS/PIXIT parameters provided in the tests allow the user to select the type of interface for execution which can be ISDN Basic Rate (2B+D) or Primary Rate (30B+D or 23B+D). On selection of the interface, tests will be automatically selected and de-selected accordingly. ETSI standard reference numbers defined by the ATS for the DSS1 protocol tests have been used in the Clarinet system making it very easy to use. The Clarinet system behaves as an ISDN user in order to test the Exchange and the scripts vary greatly between 3 and 660 test cases per module. Network providers, protocol converter manufacturers, exchange manufacturers and anyone offering an ISDN Exchange port, will require to test their compliance with the ETSI protocol.

A list of test cases available for the Clarinet system is provided below and overleaf.

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8691	ETSI	565				565	Clarinet ETS 300 402-7	ISDN Data Link Layer
8692	ETSI	77	508	67		652	Clarinet ETS 300 403-7	ISDN Basic Call Network side
8757	ETSI			44	1	45	Clarinet ETS 300 188-6	ISDN 3PTY Network side
8693	ETSI	7	80			87	Clarinet ETS 300 182-6	ISDN AOC Network side
8764	ETSI		120			120	Clarinet ETS 300 359-6	ISDN CCBS Network side
8763	ETSI		71			71	Clarinet ETS 300 065-6	ISDN CCNR Network side
8759	ETSI	172		158	6	336	Clarinet ETS 300 207-6	ISDN CDIV Network side
8751	ETSI	6	20			26	Clarinet ETS 300 092-6	ISDN CLIP Network side
8752	ETSI		5			5	Clarinet ETS 300 093-6	ISDN CLIR Network side
8754	ETSI	6	18			24	Clarinet ETS 300 097-6	ISDN COLP Network side
8755	ETSI		5			5	Clarinet ETS 300 098-6	ISDN COLR Network side
8760	ETSI	6	44	14		64	Clarinet ETS 300 185-6	ISDN CONF Network side

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8756	ETSI		95			95	Clarinet ETS 300 138-6	ISDN CUG Network side
8696	ETSI			17		17	Clarinet ETS 300 058-6	ISDN CW Network side
8698	ETSI		4			4	Clarinet ETS 300 064-6	ISDN DDI Network side
8761	ETSI			158	37	195	Clarinet ETS 300 369-6	ISDN ECT Network side
8694	ETSI	4	39			43	Clarinet ETS 300 141-6	ISDN Hold Network side
8753	ETSI		20			20	Clarinet ETS 300 130-6	ISDN MCID Network side
8695	ETSI		3			3	Clarinet ETS 300 052-6	ISDN MSN Network side
8762	ETSI	44	28			72	Clarinet ETS 300 745-6	ISDN MWI Network side
8697	ETSI		4			4	Clarinet ETS 300 061-6	ISDN SUB Network side
8758	ETSI		252			252	Clarinet ETS 300 286-6	ISDN UUS Network side
8745	ETSI	562				562	Clarinet ETS 1_060_6	VPN Basic call Network side

QSIG Conformance Test Suites

It is possible to run conformance test packages on the Clarinet system for verification of an QSIG Private integrated service Network eXchange (PNX) over different interfaces (E1/T1).

The test suites currently available cover Basic Call and GFP as shown below.

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8521	ETSI	307	102			409	Clarinet ETS 300 805-2	QSIG Basic Call
8522	ETSI	88	160			248	Clarinet ETS 300 806-2	QSIG GFP

V5.1 and V5.2 Conformance Test Suites

The high speed Access Network (AN) will replace part or all of the local line distribution and will become an increasingly important element of the network. Network operators will wish to provide the full range of broadband and narrow-band services to end users connected to the access network. The V5.1 and V5.2 protocols were created to ensure that services such as ISDN and PSTN can be delivered in a consistent and standard manner by the access network to the end users and to allow interoperability of Access Network (AN) and Local Exchanges (LE). Network operators and equipment manufacturers will all need to ensure that they meet the appropriate standard.

The ATS corresponding to the Edition 1 have been updated by ETSI in 1998/99.

The ATS corresponding to the Edition 2 (En 300 324-4, 324-6) are in the Public Inquiry process (From December 99 to May 2000)

The Clarinet ETS CD-ROM (version 10.1edition 2000_090) includes:

- the new versions of V5.1 and V5.2 ETS packages which will replace the first versions.

- the ETS corresponding to Edition 2 of the protocol developed by Acacia. New packages referring to Edition 2 have been created.

Ten independent conformance test scripts are available for the Clarinet system as detailed below:

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8791	ETSI	146				146	Clarinet ETS 300 324-8	V5.1 Data Link Layer
8793	ETSI	176				176	Clarinet ETS 300 324-4	V5.1 Network AN-side
8792	ETSI	202				202	Clarinet ETS 300 324-6	V5.1 Network LE-side
8593	ETSI	182				182	Clarinet ETS 300 324e2-4	V5.1Ed2 Network AN-side
8592	ETSI	205				205	Clarinet ETS 300 324e2-6	V5.1Ed2 Network LE-side
8794	ETSI	146				146	Clarinet ETS 300 347-8	V5.2 Data Link Layer
8796	ETSI	248	61			309	Clarinet ETS 300 347-4	V5.2 Network AN-side
8795	ETSI	317	45			362	Clarinet ETS 300 347-6	V5.2 Network LE-side
8798	ETSI	262	61			323	Clarinet ETS 300 347e2-4	V5.2Ed2 Network AN-side
8797	ETSI	328	43			371	Clarinet ETS 300 347e2-6	V5.2Ed2 Network LE-side

SS7 Conformance Test Suites

It is possible to run conformance test packages on the Clarinet system for verification of an Signalling Point using the SS7 protocol.

These scripts may also be used to test protocol conversion equipment with an SS7 interface.

The test suites currently available cover INAP, ISUP SCCP, MTP2, MTP3 and TCAP variants as shown below.

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8741	ETSI	357				357	Clarinet ETS 300 374-4	SS7 INAP-CS1
8742	ETSI		267			267	Clarinet ETS 300 356-33	SS7 ISUP-V2-Basic Call
8743	ETSI	243	227			470	Clarinet ETS 300 356-36	SS7 ISUP-V2-Supp. services
8747	ITU*	143				143	Clarinet ETS Q781a	SS7 MTP2
8749	ITU*	174				174	Clarinet ETS Q782a	SS7 MTP3
8746	ETSI	153	81			234	Clarinet ETS 300 009-3	SS7 SCCP
8748	ITU	185				185	Clarinet ETS 300 287-3	SS7 TCAP

* TTCN-GR published by ITU. TTCN-MP generated by Acacia.

ATM Conformance Test Suites

It is possible to run conformance test packages on the Clarinet system for verification of an ATM Equipment on the UNI interface.

The test suites currently available cover SSCOP, Q2931, Q2971 as shown below.

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8712	ATMF	37				37	Clarinet ETS AF-TEST-0041	ATM AF-Test00041
8711	ATMF	37				37	Clarinet ETS AF-TEST-0060	ATM AF-Test00060
8722	ATMF	317				317	Clarinet ETS AF_SSCOP_1_2	ATM SSCOP
8721	ETSI	370				370	Clarinet ETS 300 436-4	ATM SSCOP
8723	ATMF		661			661	Clarinet ETS AF-0090	ATM UNI Basic Call Network side
8724	ETSI	11	600	199		810	Clarinet ETS 300 771-6	ATM UNI Point/multipoint

Frame-Relay Conformance Test Suites

It is possible to run conformance test packages on the Clarinet system for verification of an Frame-Relay Equipment over different interface (Vseries, E1/T1, ATM).

The test suites currently available cover SVC and PVC as shown below.

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8731	NIUF	90				90	Clarinet ETS 424-93	Frame-Relay PVC
8732	FRF	130				130	Clarinet ETS FR_SVC	Frame-Relay SVC

X25 Conformance Test Suites

It is possible to run conformance test packages on the Clarinet system for verification of an X25 Data Terminal Equipment over different interface (Vseries, E1/T1).

The test suites currently available cover Layer 2 and Layer 3 as shown below. A new edition of both ETS supports now all the 32bit features.

REF	STD	1i	2i	3i	4i	TC	Package name	Designation
8573	ISO	288				288	Clarinet ETS X25-L2-ISO	X25 L2 DTE - IS
8574	ISO	449				449	Clarinet ETS X25-L3-ISO	X25 L3 DTE - IS

Clarinet TTCN Compiler

Acacia has been involved in the activity of Conformance testing since 1991. Their first task was to develop a TTCN Compiler. The increased test activity based on the TTCN language comes mainly from the publishing of ATS by Standards Organizations, such as ETSI, ITU, etc. The TTCN compiler is used to generate executable test suites (ETS) to run on the Clarinet system. A great deal of important work has been carried out to ensure that reliable test suites are perfected and ready to be executed. Most of this work is completed in the 'Acacia Protocol Centre' at Sophia-Antipolis, France, where ETSI is also located. This office launched on the 1st of November in 1996. The technical team based there is responsible for ETS development and customer support. Since Acacia is developing the ETS, these will be available to all Clarinet system customers. Customers, such as Test Laboratories or Switch Manufacturers wishing to compile or modify their own TTCN test scripts, require our powerful TTCN-IS compiler. The Clarinet conforms to the latest ISO-9646 Standard, which supports concurrent testing of interfaces and ASN 1 facilities.

The Clarinet TTCN Development Package includes the Clarinet TTCN Compiler, the Clarinet Application Program Interface (API), which requires the Microsoft Visual C++ package, and the TTCN Leonardo Editor..

The Clarinet TTCN compiler offers the same operator interface as the Clarinet run-time. This is used to set-up the options and run the different steps in order to generate the executable Test Suite from the MP file.
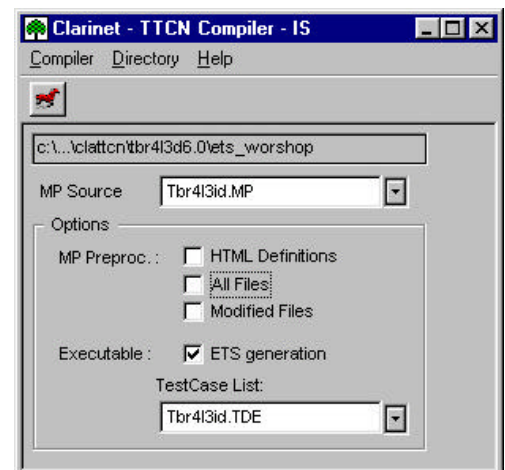

Figure 1.7

The Leonardo TTCN Editor from Da-Vinci communications is installed on the Clarinet PC platform. This allows the user to edit and modify the mp file. Leonardo also includes Advanced tree navigation functions, full-text search, and advanced formatting functions.
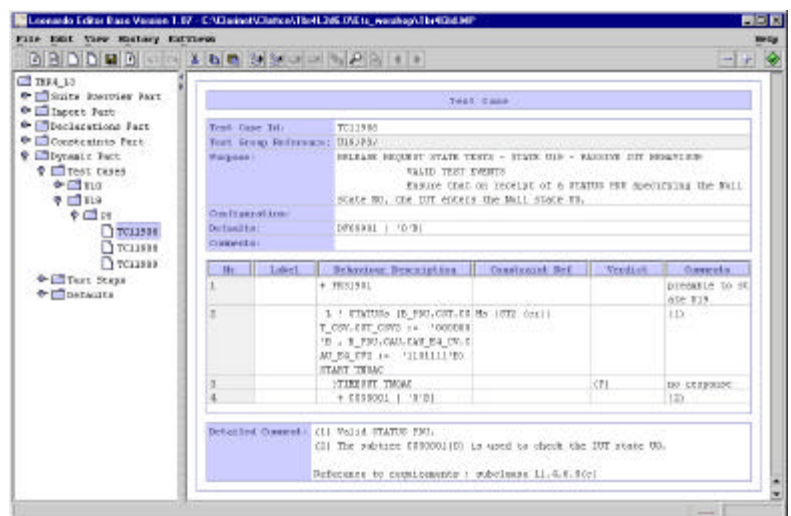

Figure 1.8

Summary

The Clarinet System forms a very powerful Conformance Test System with an easy graphical user interface. It is lightweight and compact which makes it an ideal choice for interdepartmental use as well as off site or international visits.

Combining a TTCN trace with the detailed Clarinet protocol event trace allows the user to see the exact sequence of events and exceptional behavior that results in a test failure. With this level of information, the requirement and scope of any necessary software modifications is easy to establish.

If your company needs to keep the cost of Conformance Testing to a minimum and ensure that mandatory product requirements are met, Clarinet system is the right tool for you.

Due to a policy of continuous development, specifications are subject to change without notice.

Glossarv of terms

AN	Access Network	OSTC	Open Systems Testing Consortium
ATS	Abstract Test Suites	PA	Primary Access (PRI)
BA	Basic Access (BRI)	PICS	Protocol Implementation Conformance Statement
BRI	Basic Rate Interface		
CTR	Conformance Test Requirements	PIXIT	Protocol Implementation eXtra Information for Testing
ETS	Executable Test Suites		
ETSI	European Telecommunications Standards Institute	PRI	Primary Rate Interface
		PVC	Permanent Virtual Circuit
FR	Frame Relay	PSTN	Public Switched Telephone Network
INAP	Intelligent Network Application Part		
ISDN	Integrated Services Digital Network	PNX	Private integrated service Network eXchange
ISUP	Integrated Services User Part	SCCP	Signal Connection & Control Part
ISO	International Standards Organisation	SS7	Signalling System Number 7
		SVC	Switched Virtual Circuit
ITAAB	ISDN Type Approval Advisory Board	TTCN	Tree & Tabular Combined Notation
ITU	International Telecommunications Union	TBR	Technical Basis for Regulation
		TP	Test Purpose
IUT	Implementation Under Test	TSS	Test Suite Structure
LE	Local Exchange	VPN	Virtual Private Network
NIUF	National ISDN User Forum		