

PRODUCT DATA

Conformance Test System for PSTN Telephones Base System — Type 6711 (version 2.0)



Conformance Test System for PSTN Telephones Type 6711 is a flexible test platform for voice conformance testing and pre-qualification, providing telephone manufacturers and test houses with all necessary test facilities. The test system has options for type approval of telephones according to a wide range of national PSTN voice standards. For detailed information about the standards available please refer to the separate Product Data for Type 6711 PSTN standards. At least one standard must be installed in order to operate the system.

The flexible configuration of the system makes it very suitable for general acoustical design and verification of PSTN telephones.

All measurement results can be documented in pre-defined report formats, or exported to several file formats for additional post-processing.

6711

Uses and Features

- USES**
- Voice conformance testing of PSTN telephones
 - Research and development testing of PSTN telephones
 - General acoustic design, verification and troubleshooting of PSTN telephones

- FEATURES**
- Turnkey system provided with a PC
 - Coverage of a wide range of national PSTN standards in Europe, North America and Asia
 - Completely software controlled using Microsoft® Windows®
 - Adaptive test methods for sine excitation ensuring highly accurate measurement results – even in noisy environments
 - Full digital equalisation of mouth simulator
 - Quick Data Browser showing graphs and tables of previously done measurements
 - Extensive on-line Help facilities
 - Automatic test report generation in Microsoft Word
 - Selection of extensive or short test report formats
 - Test case parameters and requirements can be user defined
 - Export of measurement results to a wide range of file formats

Introduction

Conformance Test System for PSTN Telephones Type 6711 is a modular system intended for voice conformance testing of PSTN telephones according to a wide range of national standards. The modularity of the test system makes it possible to successively add more standards to the system whenever it is required to test telephones according to other standards.

The test system is easily operated and fully controlled using Microsoft Windows based software. Automated test execution reduces the interaction from the test operator, as well as the time needed for testing the telephones. Using the context-sensitive Help facilities, the test operator can always find any guidance needed.

Type 6711 is well-suited for the acoustic design of telephones. The facilities in the test system enable customised setting up of all test parameters and requirements. This includes the artificial lines and impedances of a telephone network, simulated by the flexible and versatile Multinational Telephone Interface Type 4604. The measurement results, tolerances and set-up parameters can be exported in a wide range of data formats (spreadsheets, word processing, databases, HTML, ASCII) for additional post-processing.

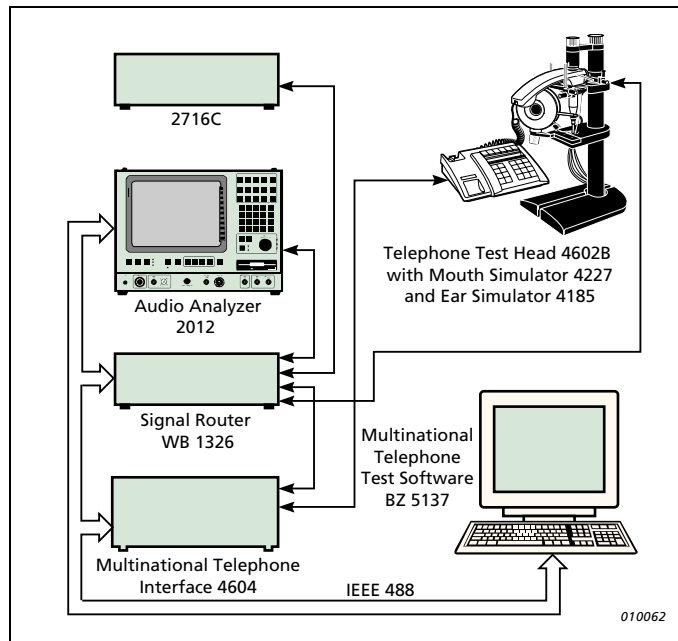
The test results are documented in pre-defined report formats. The test report is created in Microsoft Word enabling the user to customise the test report. Apart from measurement graphs and tables, the report optionally includes a thorough description of the measurement set-up as well as accuracy figures for the specific measurement results.

As well as making complete voice measurements, some of the standards implemented also feature various electrical tests, including DC characteristics, Return Loss, Echo Return Loss, complex impedance and DTMF signalling.

System Modularity

Fig.1 shows the components of a Type 6711 Base System. Each Type 6711 system is built around a Base System, to which hardware and software for the various standards can be added as desired. The Base System includes a 19" rack for all the hardware instrumentation, as well as a fully equipped Telephone Test Head and the software environment to control the test execution. Various options for national PSTN standards are available through dedicated test software for each standard as well as a hardware module containing the appropriate artificial lines. Furthermore, some standards may also require additional hardware. For exact information about the software and hardware required for each PSTN standard option, please refer to the Product Data (BP 1684) describing the standards available. At least one standard must be installed in order to operate the system.

Fig. 1
Type 6711 Base
System



Hardware

The equipment for the Base System is mounted in a standard 19" rack. Signal Router WB 1326 sets up the necessary signal paths. Power Amplifier Type 2716C supplies the necessary signal level for the Mouth Simulator in the Telephone Test Head.

System Controller

The test system is completely controlled by a PC. The PC is equipped with a CD-ROM drive and a 17" colour monitor. MS-DOS®, Windows, MS Word and MS Excel are pre-installed upon delivery.

Audio Analyzer Type 2012

The heart of the measurement system is Audio Analyzer Type 2012 which performs the signal generation and analysis. The analyzer's unique measurement facilities offer extensive distortion measurements as well as high rejection of background noise. These features make it ideal for telephone testing. The analyzer is fully controlled by the system software. However, the system software also allows manual use of the analyzer for non-conformance testing if desired.

Multinational Telephone Interface Type 4604

Type 4604 interfaces the telephone equipment under test with the measuring equipment in the test system.

The Multinational Telephone Interface contains the circuits necessary to simulate a telephone exchange: feeding bridge, generator- and termination impedances, signal conditioning, and interface for generator input and analyzer output.

Software

All control, measurement and report functions of Type 6711 are software controlled. The software is optimised to run under Windows, utilising the familiar Windows interface in a way that makes using the system intuitive for inexperienced users as well as efficient for more advanced operators. Furthermore, extensive on-line help is always available to provide guidance whenever a question arises during test execution.

The software, BZ 5137, is pre-loaded onto the System Controller when the system is delivered. The software consists of many integrated programs that together make up the test suite. Users of the system are presented with three main user interfaces – the Session Manager, the Test Manager and the Data Browser – from which all functions are accessed.

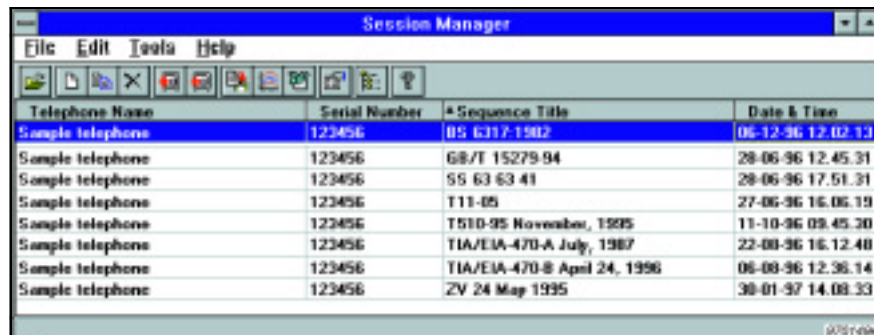
As well as the Multinational Telephone Test Software BZ 5137, the system is delivered with licensed copies of Microsoft Word and Microsoft Excel. In order to operate the software, at least one of the available standards must be installed.

Session Manager

This part of the software is used by the operator to gain access to the measurement sessions. A session is a set of tests conducted on a telephone according to a specific conformance standard. Only those conformance standards that have been purchased and licensed are available.

The Session Manager (see Fig.2) has sorting facilities to quickly find previous tests done on a telephone, and simple set-up procedures to perform new tests. Commonly used test sequences containing recurrent information, for example the name of the test house or telephone manufacturer, are easily copied into new sessions, considerably reducing the time required to test a “run” of similar telephones.

Fig. 2
Session Manager
screen



The screenshot shows a Windows-style window titled "Session Manager". It has a menu bar with "File", "Edit", "Tools", and "Help". Below the menu bar is a toolbar with various icons. The main area contains a table with the following data:

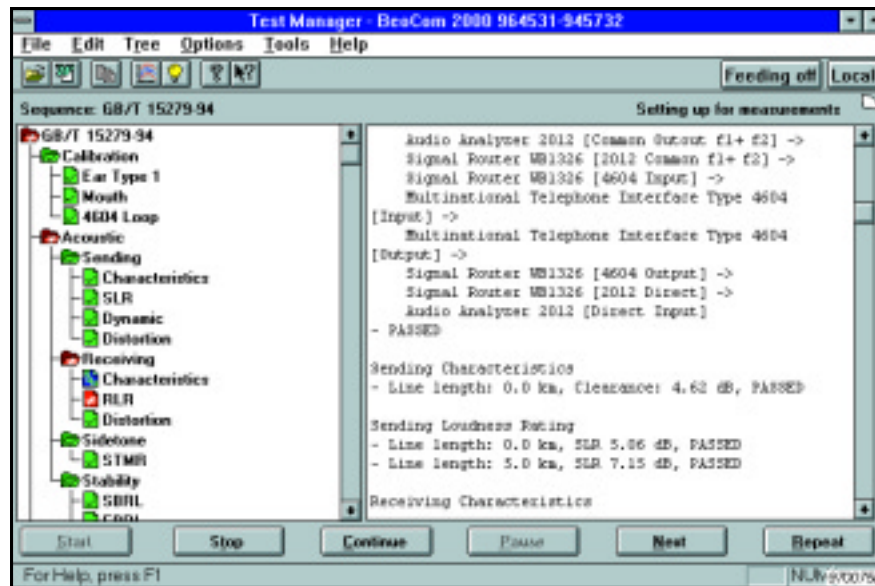
Telephone Name	Serial Number	Sequence Title	Date & Time
Sample telephone	123456	BS 6317:1982	06-12-96 12:02:13
Sample telephone	123456	GB/T 15279-94	28-06-96 12:45:31
Sample telephone	123456	55 63 63 41	28-06-96 17:51:31
Sample telephone	123456	T11-05	27-06-96 16:06:19
Sample telephone	123456	T510-95 November, 1995	11-10-96 09:45:30
Sample telephone	123456	TIA/EIA-470-A July, 1987	22-08-96 16:12:40
Sample telephone	123456	TIA/EIA-470-B April 24, 1996	06-09-96 12:36:14
Sample telephone	123456	ZV 24 May 1995	30-01-97 14:08:33

It is also possible to view the results of previously conducted tests by using the Data Browser, which can be called directly from the Session Manager. Reports of archived tests are easily printed with the report generator.

Test Manager

The Test Manager (see Fig. 3) is used by the operator to test a telephone based on the session profile selected in the Session Manager. When a session has been selected, the operator is presented with a hierarchical tree showing all the tests included in the session. By selecting the root of the tree, all tests will be done consecutively. It is also possible to select individual branches of the tree to do a limited range of tests, for example only sending characteristics. The results of a test are clearly indicated on the screen, making pass/fail judgements immediately obvious.

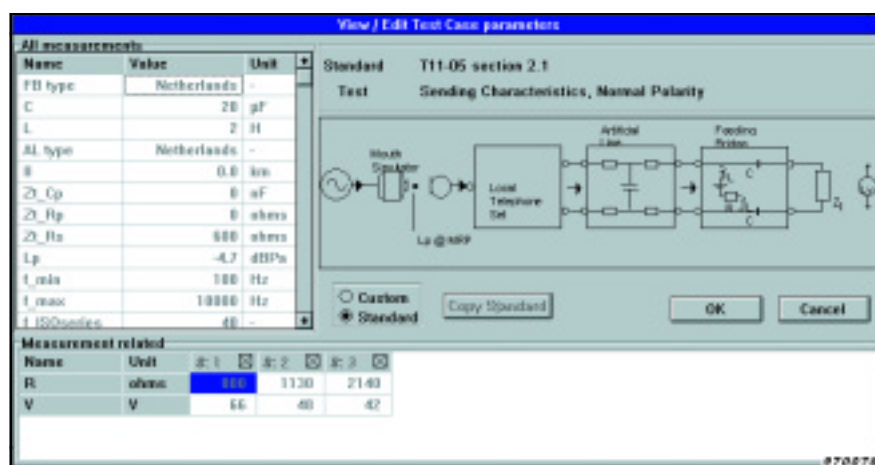
Fig. 3
The Test manager Window



Each test in a session can be done according to the standard set down by the issuing authority. Alternatively, the operator can select different parameters and tolerances (within the range of the hardware), allowing research and development testing to be done (see Fig. 6).

As each test is being done, an information window shows the current state of the system and the results of the test in numeric form. Using the Data Browser, it is also possible to see the results of tests graphically “as they happen”.

Fig. 4
The software allows customisation of all test case parameters and requirements



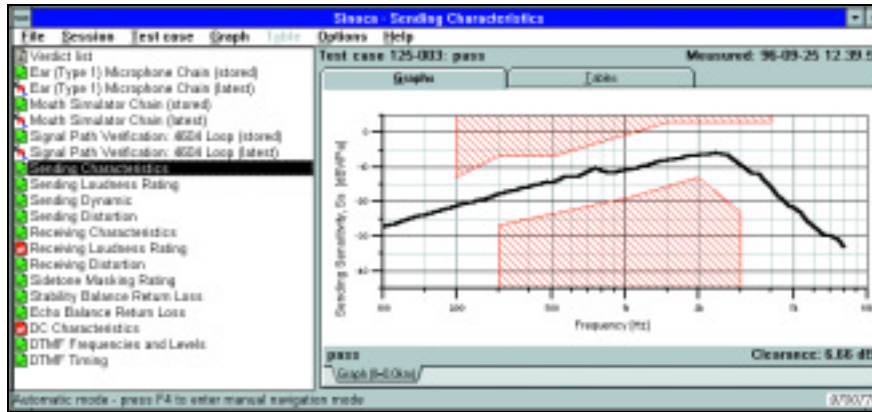
Data Browser

The Data Browser (see Fig. 5) is a fast and versatile graph drawing utility. Speed is essential within the Type 6711 system since each test produces vast amounts of measurement data – mainly due to the high accuracy used when testing. Versatility is required since each test produces different type of data (for example frequency responses, harmonic distortions, DTMF tests, etc.).

In combination, these two main features produce a tool for “surfing” the session database to instantly see the results of the current and previous tests. More than one Data Browser window can be open, allowing direct comparisons to be made on screen.

Using Windows’ copy-and-paste facility, the results can be copied to word processors or spreadsheets or the results can be printed.

Fig. 5
Speed and Versatility are the main features of the Data Browser



Report Generation

The Report Generator takes measurement data files, either singly when selected from the Data Browser, or collectively when selected from the Session Manager or the Test Manager, and rapidly converts the stored results into pre-formatted Microsoft Word documents. Each test can be presented in short form, producing only a graph and a table of the most important results, or in standard form, where the parameters, tolerances and detailed measurement data are given (see Fig. 6). Once in Microsoft Word format, the report can be printed, or the page lay-out can be modified to suit individual corporate images.

Data Export

The software also has powerful export facilities to take the “raw” measurement data and format it into files that can be imported into a wide variety of standard data-processing programs (see Fig. 7). Measurement data files can even be dynamically linked to a preferred spreadsheet format, so that automatic referencing and updating can be done. The file formats currently supported are: ASCII (tab, comma or semicolon separated), spreadsheet (support for Lotus[®] 1-2-3, Borland Quattro Pro[®] and MS Excel), Rich Text Format (general and MS Word optimised), HTML table and data base format (dBase IV and MS Access).

Fig. 6
Example of a Test Report page

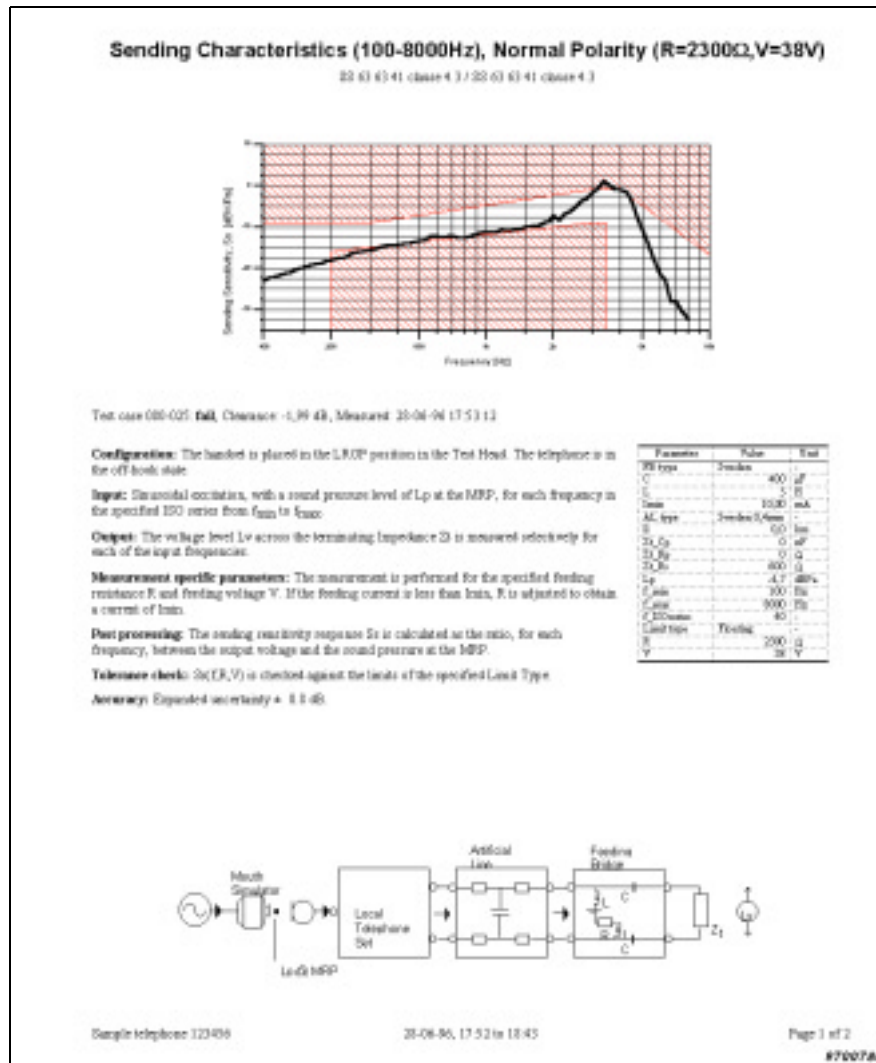
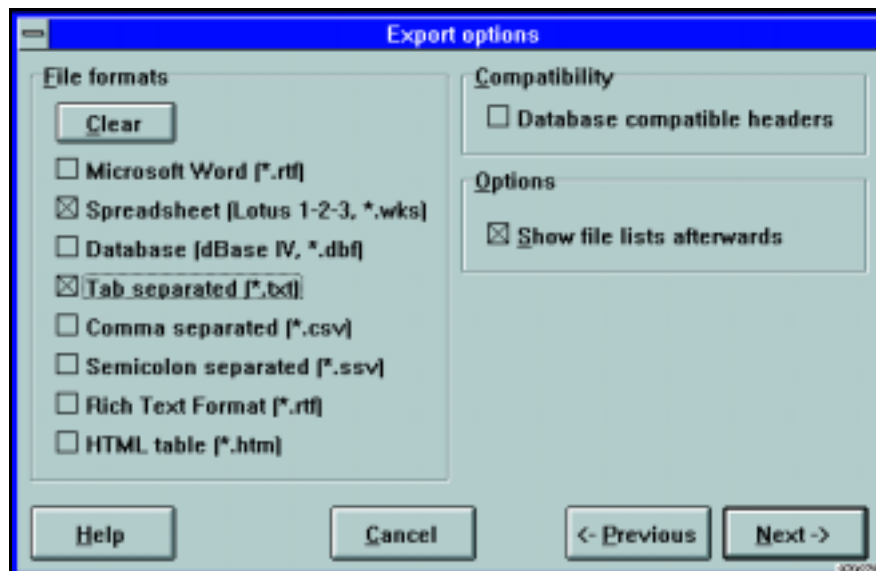


Fig. 7
The Data Export Tool




Ordering Information

Type 6711 Conformance Test System for PSTN Telephones

Components included with Type 6711:

●	Included in the Full Type 6711 F System
●	Included in the Reduced Type 6711 R System
●	Included in the Basic Type 6711 B System
● ● ●	Type 2012 Audio Analyzer, Version 4
● ●	Type 2144 Dual Channel Real-time Frequency Analyzer
● ●	Type 3108 Generator Module for Type 2144
●	Type 2669 L Microphone Preamplifier (1/2")
● ● ●	Type 4191 Microphone Cartridge (1/2")
● ● ●	Type 4185 Ear Simulator for Telephonometry
●	3 × Type 4227 Mouth Simulator
● ●	1 × Type 4227 Mouth Simulator
● ● ●	Type 4231 Sound Level Calibrator
● ● ●	Type 4602 B Telephone Test Head
● ● ●	Type 4604 Multinational Telephone Interface
● ● ●	Type 2716 C Audio Power Amplifier
●	Type 9640 Turntable System
●	EA 8002 Test Rig for LSTR
● ● ●	KS 0027 Rack Mounting Kit for Type 2012
● ● ●	EB 8001 Calibration Resistor
● ● ●	WB 1326 Signal Router
● ● ●	EF 8001 Instrumentation Rack
● ● ●	BZ 5137 Multinational Telephone Test Software
● ● ●	WQ 0625 IEEE-488 Interface for PC
●	3 × BK 0021-S13 Installation and Training (1 day)
● ●	2 × BK 0021-S13 Installation and Training (1 day)
● ● ●	UL 0109 17" Monitor
● ● ●	VD 4404 Security Key
● ● ●	WQ 1287 System Controller (PC)
● ● ●	WQ 1322 Reference Telephone for PSTN
● ● ●	BZ 5321-GB MS Office
● ● ●	Cables for 6711

All supporting literature and software delivered with the system will be in English

	<p>Those Brüel & Kjær components of the Conformance Test System for PSTN Telephones that are individually CE or C-Tick marked comply with standards as detailed in their respective product data sheets.</p>
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National PSTN Standard Options

For information about the national PSTN standard options currently available for the Type 6711 system, please refer to the separate Product Data BP 1684
Please note, that at least one standard must be installed in order to operate the Type 6711

Optional Services

Accredited Calibration

Full system calibration, pre-calibration, initial calibration or certificates of conformance are available for all system components. Please contact your local Brüel & Kjær office for further details

System Upgrades

Type 6711 can be upgraded to include measurements on ISDN and DECT telephones. Please contact your local Brüel & Kjær representative for further information

Support and Delivery Information

Type 6711 is offered as a complete turnkey solution for telephone testing. The complete system is assembled and tested at Brüel & Kjær, Denmark before shipment. The system is then dismantled and shipped in standard instrument packages. At the site of the customer, the system is re-assembled and checked by a Type 6711 accredited Brüel & Kjær service engineer. After the system installation, one day of training will be given on-site

Integration of existing Brüel & Kjær equipment previously purchased by the customer is accepted by prior agreement only. Such equipment must be shipped to Brüel & Kjær Denmark at the owner's expense. It will then be integrated into the system, where checking and shipment will be carried out as described above

Brüel & Kjær reserves the right to change specifications and accessories without notice