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DCN Digital Congress Network Architect’s and Engineer’s Specifications

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Executive summary

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Executive Summary

(I) Digital audio processing

The Bosch Digital Congress Network (DCN) provides the full advantages of digital audio signal processing. It is the world's first fully digital discussion and conference system, and enables virtually any congress configuration to be connected via a single network cable with just four cores. Up to 15 interpreted languages, the floor language and extra intercom channels can be digitally transmitted via this cable. Power for the DCN units is also supplied via the same cable.

It is a true digital system in which the analogue audio signals from the floor speaker(s), conference participants and interpreters are converted to a digital signal and transmitted via the DCN network cable. This means that all units connected to the DCN system are simply linked together in series, in loop-through (daisy chain) or series-connected branch configuration. Additional units can be connected to the network when required. The latest analogue-to-digital and digital-to-analogue conversion techniques ensure that very high audio quality is maintained. Unauthorised listening to conference proceedings is virtually impossible.

(II) The modular DCN equipment

The modularity of the DCN system leads to simple installation and enables cost-effective system modification and expansion. The DCN equipment range comprises contribution equipment, simultaneous interpretation equipment, central control equipment, information displays and installation equipment. A choice of table-top and built-in (flush-mounted) units is provided for contribution equipment. The central control equipment can be configured to run the DCN system without operator control, or can be controlled using a PC running DCN application software.

(III) Software control

If required, the DCN system can be software controlled. A number of specially developed software application modules that run in the familiar Windows® environment can be used to set-up, control and monitor conference proceedings. These user-friendly software modules can be specified according to individual congress requirements, and the applications can run simultaneously (multi-tasking).

(IV) Interfacing with other systems

The DCN system has facilities for interfacing with video hall displays. In this way, video cameras can be directed by the DCN system (to the current speaker, for example) and displayed on a large video screen in the conference venue, or to personal LCD video screens. Other integrated facilities also available to DCN system users include interfacing with public address systems, and distribution of interpreted languages via an infra-red system. It is also possible to link remote delegates via normal telecommunications lines into the DCN system.

(V) Using these Architect's and Engineer's Specifications

When preparing a specification, tender or quotation for a Bosch DCN congress installation, it may be necessary to supply a detailed functional description of all equipment supplied. The Architect's and Engineer's Specifications presented in this publication are intended to be used for these purposes, and may be copied and/or reproduced as required. A computer diskette containing the text files is available on request from Bosch Communication & Security Systems to make compiling tenders easier.

Special note: conference definition

For the purpose of this specification, a 'conference' is any gathering of delegates where audio amplification is required. This can range from a simple discussion without an operator or chairman in which all microphones have equal priority, to a large multi-lingual congress with a chairman, an operator, guest speakers, interpreters, delegates and observers. In addition to microphone management, these larger configurations often require facilities such as intercom, language interpretation and distribution, voting and audience response handling, information displays, delegate registration and database management.

1. Introduction

1.1 The Digital Congress Network

The Digital Congress Network (DCN) is a discussion- and conference control system that provides both the users and owners of assembly venues with a versatile means of fulfiling congress requirements. These may range from small gatherings without an operator or chairman to major international events requiring full conference control, interpretation, language distribution, electronic voting and delegate identification facilities.

The modular design of the DCN system enables the required facilities to be specified in any desired configuration, permitting a high degree of system flexibility. The system conforms to all the relevant ISO and IEC standards.

1.2 Architect's and Engineer's Specifications

This book of Architect's and Engineer's Specifications meets the needs of contractors, consultants and other professionals involved in project management, or in designing, specifying and procuring congress systems.

2. Scope of this specification

This specification shall cover the provision, installation and maintenance of the Digital Congress Network (DCN) system which includes specified functions for chairman and delegate identification, participation and voting. It shall also cover simultaneous interpretation on up to 15 separate language channels plus the floor language, and camera control for displaying active delegates on hall displays and monitors.

The specific functions needed in any individual situation shall be provided by selection and combination of the required modular system units. The system shall be extendible, both functionally and in size, simply and cost-effectively by the addition of the required compatible modular units.

3. System Summary

3.1 System overview

The DCN shall provide digital signal processing and transmission of all audio signals via a simple network system. It shall provide versatility, high audio quality, data transmission security and simplicity of operation and installation. It shall be possible to use the DCN stand-alone or via a PC running user-friendly DCN software. The software shall assist in preparation, controlling and monitoring conferences.

The DCN shall be a modular conference management system. It shall be possible to connect elements of a system simply and quickly, using a daisy-chain or loop-through configuration. Systems shall be expanded or reduced in size by adding or removing equipment. The DCN shall be suitable for situations from small, informal gatherings up to international multi-lingual congresses.

The full range of DCN products shall include conference- and discussion contribution units, central control units, simultaneous interpretation and language distribution equipment, application-specific software modules, information display systems and installation equipment. This range shall be complemented by external equipment such as video and dot matrix displays, PCs, monitors, booster amplifiers, cameras and accessories, loudspeakers and printers, all of which shall be fully compatible and easily integrated into the DCN system.

Signal transmission and processing shall be by means of advanced Bosch digital-audio technology. This shall include a 'Bitstream' system used for analogue-to-digital conversion in delegate microphone units. This technology shall be integrated into custom single-chip analogue-to-digital and digital-to-analogue converters around which most DCN units shall be based. Specially-designed dedicated protocol converter chips shall be used. This advanced digital technology shall result in high level audio performance with no losses in signal quality or level during transmission. There shall be virtually no background noise, interference, crosstalk or distortion.

A thin, flexible twin-coaxial cable shall carry all the system's digital signals. It shall be generally possible to run this cable through existing ducting and cable conduits. The cable shall be able to carry up to 16 high-quality contribution channels, 16 high-quality distribution channels, and 10 separate data channels for messages and other information. It shall be possible to 'tap' this cable at any point to connect extra DCN equipment. Mains power shall be supplied to all units via the cable.

The Central Control Unit shall have a built-in automatic equalisation function for loudspeakers in contribution units. This function shall be activated by means of a front panel switch.

The DCN conference system with microphone management facilities shall provide three main functions that facilitate the progress of conferences and promote orderly participation by delegates.

Firstly, the DCN conference system shall provide full facilities for sound management, including speech input by delegates, chairman and other participants, and the amplification and relaying of speech to all participants, under the control of the conference chairman and/or the system operator.

Secondly, the DCN conference system shall make it possible for a number of additional electronic functions, such as delegate identification (with a card reader or unique personal identification number for each delegate) to be added. This shall ensure that no unauthorised persons can participate in the proceedings. Electronic voting, which allows delegates to enter votes discreetly on the individual control units shall be possible, together with automatic vote totalling presentation of the results to a chairman display, delegate display or hall display.

Thirdly, the DCN conference system shall provide facilities for simultaneous interpretation. These shall include facilities for relaying the floor language to interpreters' booths, and for distributing the interpreted language(s) and the floor language to delegates requiring them.

Fourthly, the DCN conference system shall provide facilities for camera control. These shall include facilities for auto-matically switching camera outputs to hall displays or monitors.

All these functions shall be provided by the Bosch DCN conference system. The system shall be simple and logical to operate by all personnel concerned as well as by delegates, interpreters, chairmen and operators, and shall comply with accepted professional standards and practices for all the functions provided.

3.2 System functions

The DCN system in its most complete configuration shall provide all of the following functions by means of purpose-built professional equipment:

- controlling delegate unit microphones either fully automatically or manually by the chairman and/or system operator
- registering a delegate's request-to-speak, and automatic handling of the waiting list by means of a queuing procedure, with display of participants speaking and delegates on the waiting list on personal LCD screens, monitors and/or a hall display
- allowing communication between operator, chairman, and/or delegates and interpreters via an intercom channel
- electronic voting by delegates, with or without access control by means of identifying badges, and with facilities for secret or open voting and computing and display of results on individual displays, monitors and/or a hall display
- identifying delegates to the chairman and/or system operator by name and/or seat number
- controlling and distributing simultaneous interpretations in up to 15 different languages plus the original floor language, with language channel allocations under the control of the system operator
- providing interpretation facilities that meet commonly accepted professional standards, and comply with the relevant ISO and IEC standards
- displaying status information by means of the system operator's monitor, personal displays for chairman, delegates and interpreters, and/or a hall display
- making certain facilities available to other external systems for special purposes, including public address, control of fixed and moveable cameras, data and speech registration, hard-copy printing, and video display facilities
- entering system parameters and delegate database files for pre-selection, control and display of system status and operating modes for all functions carried out by a system operator from a central control position
- configuring and controlling a camera switching system to ensure that speaking delegates are displayed on hall displays and monitors

All equipment shall be capable of being combined as required to reach the desired specification in terms of system size and/or functions, and shall be capable of later field extension by the addition of the required functions and extra units.

3.3 Compliance

The DCN system shall comply with all applicable regulations and standards for equipment of this type, and especially with the ISO 2603 standard for interpretation equipment and IEC 60914 minimum requirements for congress equipment. In addition, the system shall comply with all applicable international, national and local regulations for the design, construction and installation of electrical equipment.

3.4 System configuration

The DCN system shall be an integrated modular configuration, with some or all of the following system components:

- a control position comprising a Central Control Unit (or units) with the option of a personal computer
- chairman position(s) with facilities for control, speech, identification, voting and language selection and intercom
- discussion chairman position(s) with facilities for control, speech and language selection
- delegate positions with facilities for speech, identification, voting, language selection and intercom
- discussion delegate position(s) with facilities for speech and language selection
- interpreter positions with facilities for speech, incoming language selection and outgoing language channel selection and intercom
- speaker position(s) with hand-held microphones, tie-clip microphones, podium microphones, etc.
- listener positions with language distribution facilities, headphones, loudspeakers, etc.
- display facilities with monitors, TVs and hall displays
- camera control facilities with cameras, video switcher and accessories
- interface facilities for external devices and systems such as video cameras, printers, data and speech recorders, and a public address system
- Open interface for remote control of certain DCN functions via third-party equipment and an RS232 port

3.5 System installation and interconnection

Installation of the delegate system shall be based on a modular concept, with delegates being handled in groups of up to 240, controlled by an individual Central Control Unit. Additional power supply units shall be required for groups of more than 60 delegates. Groups of more than 240 delegates shall be handled using master/slave combinations of Central Control Units (plus additional power supply units).

Wiring to the delegates' positions shall be via a special 4-core cable with purpose-designed 6-pole connectors. The connectors shall have a pole configuration that conforms to the DIN specifications for 6-pole connectors. The system shall use series cabling (loop-through or series-connected branch topology) for interconnection of all equipment. The contribution equipment shall be free-standing (table-top units) or built-in to furnishings (flush-mounted units). The modular principle of system configuration and the loop-though interconnection technique shall remain the same for both types of equipment.

A Trunk-Cable Splitter shall be available for dividing trunk-line cabling, to assist installers in achieving an optimum trunk-line layout. A Tap-Off Unit shall be available for creating short-circuit proof tap-off points on the trunk-line cabling. Each tap-off point shall accept up to four Channel Selector Panels or up to two table-top contribution units such as delegate-, chairman- or interpreter desks. A Tap-Off Unit consists of two tap-off points.

The installation and interconnection procedure shall feature some or all of the following:

- loop-through or series-connected branch cabling shall be used for connection of the delegate and chairman units;
- loop-through or series-connected branch cabling shall be used for connection of the interpreter desks;
- language distribution to delegates shall be an integral function without the need for additional cabling;
- interface facilities shall be provided for distribution of interpretation languages to non-participating observers via infra-red systems.

3.6 System operation

Operation and/or control of the system shall be possible at a number of different levels:

- technician, using one or more pre-set modes of operation that give automatic control over conference proceedings. These pre-set modes are selected using a switch on the front panel of the Central Control Unit;
- delegate, using one or more automatic pre-set modes that give delegates limited control in discussion proceedings;
- system operator(s), using one or more software programs running on a PC(s) connected to the DCN system.
- either single or multi PC systems shall be supported.

Appropriate control facilities shall be provided for each of these levels.

3.7 Conference or discussion units

There shall be two types of delegate- and chairman contribution units: conference and discussion. Conference units shall be intended for larger congresses where more facilities are required for participants. Discussion units shall be intended for smaller-scale discussions and gatherings. Discussion units shall be functionally similar to conference units, but shall not offer voting facilities or LCD screens for information display. Both conference- and discussion units shall use the same system cabling and shall be fully compatible and interchangeable with each other. Conference units shall be suitable for table-top use and flush-mounting

3.8 First-line system maintenance

The system design shall permit fast and effective fault location and correction by local personnel. This shall be supported by built-in self-diagnostic functions. Spare parts kits and instructions shall be provided.

In the event of a breakdown in system data communication with the PC, the system shall automatically revert to basic operational mode permitting continuance of both speech contribution and distribution, voting and interpretation.

Pre-selected system status and information entered into the system shall not be lost in the event of mains failure. In such a situation, the system shall automatically and immediately return to its last operating status when power is restored.

4. Functional description of DCN system without PC

The DCN system in a stand-alone configuration (without a PC and DCN software) shall provide the chairman with a high degree of control over conference proceedings and delegate participation.

4.1 Microphone management

Microphone management shall cover the way in which DCN system microphones are switched on and off, how many microphones may be simultaneously active, and under which microphone operation mode the system shall operate. Microphone management shall be carried out by the chairman and/or programmed into the Central Control Unit.

4.1.1 System operator

Selection and pre-setting of the DCN microphone operating mode shall be under the control of the system operator via the Central Control Unit. A selection of operating modes shall be provided, including:

- open mode (automatic control with up to four simultaneous speakers);
- override mode ('first-in, first-out'), with up to four simultaneous speakers;
- voice activated mode.

In open mode:
delegates requesting to speak shall automatically join a waiting list, and their microphones shall be activated in turn as speaking delegates switch off their microphones.

In override mode ('first-in, first out mode'):
delegates requesting to speak shall immediately join the group of speakers, while at the same time, the current speaker first having joined the group of speakers shall leave it.

In voice activation mode:
delegates shall activate their microphones automatically by speaking (no on/off key shall be required). They shall automatically be given active status while speaking.

4.1.2 Chairman

Control of delegate participation shall be in the hands of the chairman, using the Chairman Unit. The chairman has priority over other participating delegates. There shall be two types of Chairman units:

The Chairman Discussion Unit shall have a priority- and a microphone button for speaking. The unit shall incorporate a microphone and a loudspeaker. An illuminated red ring on the microphone shall indicate that the microphone is active. An additional red LED indicator on the chairman unit shall also indicate that the microphone is active. The chairman shall be able to speak at any desired time by activation of his/her microphone. It shall be possible to specify a Chairman Discussion Unit with a channel selector with volume control, two headphone sockets and an extra-long microphone stem.

The Chairman Conference unit shall have a priority- and a microphone button for speaking, and five soft keys for votingand/or control functions. The unit shall incorporate a pluggable microphone and a fold-away loudspeaker. A red indicator on the microphone on/off button shall indicate that the microphone is active. An additional red LED indicator on the Chairman unit and loudspeaker shall also indicate that the microphone is active. The chairman shall be able to speak at any desired time by activation of his/her microphone. The Chairman Conference unit shall have a graphic LCD screen, a chip-card reader, a channel selector with two volume controls, and two headphone connectors. It shall be possible to connect an Intercom Handset and Cradle for communication with the interpreters or delegates. It shall be possible to connect an external condenser microphone (for example, of a headset). Information on the LCD screen shall be available via the 'micros' menu. It shall be possible to monitor the numbers of participants speaking and delegates waiting to speak. Via the 'request' menu it shall be possible to cancel all requests-to-speak.

4.1.3 Delegate

There shall be two types of Delegate units:

The Delegate Discussion Unit shall have a button for request-to-speak. The unit shall incorporate a microphone and a loudspeaker. When a request-to-speak has been entered, a green LED shall start flashing to confirm that a request-to-speak has been made. A request-to-speak shall subsequently be cancelled by a second operation of the request-to-speak button. An illuminated red ring on the microphone shall indicate that the microphone is active. An additional red LED indicator on the delegate unit shall be provided to show that the microphone is active. It shall be possible to specify a Delegate Discussion Unit with a channel selector with volume control, two headphone sockets and an extra-long microphone stem. Delegate Discussion Units shall be free-standing (table-top).

The Delegate Conference unit shall have buttons for request-to-speak and five soft keys for voting and response register-ing functions. The unit shall incorporate a pluggable microphone and a fold-away loudspeaker. When a request-to-speak has been entered, a green LED will start flashing to confirm that a request-to-speak has been made. A request-to-speak shall subsequently be cancelled by a second operation of the request-to-speak button. Units with a graphic LCD screen shall display 'request accepted', 'request cancelled' 'speak now', response accepted and response cancelled messages when appropriate.

A red indicator on the microphone on/off button shall indicate that the microphone is active. An additional red LED indicator on the Delegate unit and loudspeaker shall be provided to show that the microphone is active. Information on the LCD screen shall be available via the 'micros' menu. It shall be possible to monitor the numbers of participants speaking and delegates waiting to speak.

It shall be possible to specify a Delegate Conference unit with a graphics LCD display, a chip-card reader, a channel selec-tor with two volume controls, two headphone sockets, an intercom socket and an external microphone input. Delegate Units shall be free-standing (table-top), or flush-mounted in the desktop. Flush-mounted Delegate units (other than table-top units) shall have separate microphones, which may be fixed (stem or goose-neck) or detachable (hand-held).

Facilities shall be provided for the connection and use of other microphone types having the same basic facilities as the delegate units. Participation of a delegate may be via a hand-held microphone, gooseneck microphone, stem microphone or tie-clip microphone which functions as a delegate unit.

Individual flush-mounted or built-in loudspeaker units shall be provided for speech relay of the floor language to delegate positions. Provision shall be made for the automatic muting of this loudspeaker at a delegate unit whenever the microphone at that delegate unit is activated.

Delegate Conference Units for table-top use shall be provided with a cardioid condenser microphone, able to be unplugged when the unit is not in use, and for convenient transportation and storage. Discussion units shall be equipped with (fixed) flexible stem microphones that allow sufficient bending for minimizing storage space.

4.2 Vote processing and display

Electronic voting shall allow delegates to cast their votes using four of the five soft keys on their Delegate Units. The votes shall be automatically totalled by the system and presented on LCD screens of Chairman Units and Delegate Units, and on hall displays. The parliamentary voting shall be controlled by the chairman.

4.2.1 Chairman

The Chairman Unit shall have control buttons to start, suspend, re-start and stop the parliamentary voting procedure. When the vote start button is pressed, the pre-selected voting mode will be enabled. The hold button shall allow voting to be suspended under the chairman's control. The stop button shall terminate the voting procedure. The chairman shall be able to cast a vote using the five soft keys on the Chairman Unit. These buttons shall have yellow LED indicators. If voting has been suspended, it shall be exclusively possible for the chairman who started the voting procedure to change his/her vote and re-start or stop the voting. The Chairman Unit shall have an LCD screen for display of voting results information.

4.2.2 Delegate

The Delegate Unit shall include an integrated electronic voting function. This shall comprise five soft keys that allow delegates to cast votes in parliamentary voting. Yellow LED indicators shall provide confirmation of the vote cast by a delegate. Delegate Units with an LCD screen shall display the text; 'present', 'no', 'abstain' and 'yes' before the delegate has voted, and also show the total number of participants present, 'no' votes, abstentions, 'yes' votes and participants who have not voted.

4.3 Interpretation

The system shall include provision for simultaneous interpretation facilities on up to 15 language channels, with a maximum of six interpreter desks able to be connected in each booth. Up to 30 language shall be possible on special request.

The interpretation system shall provide control facilities for the routing of floor and relay languages to the interpreters, and for the distribution of interpretation and floor languages to delegates.

4.3.1 System operator

The interpretation system shall include pre-setting facilities for language channel allocation, routing and interlocks under control of the system operator. This shall be carried out from the install mode of the Interpreter Desk.

It shall be possible for the interpreter to allocate the interpretation languages freely to the 15 interpretation channels, and to edit these language allocations whenever required.

Each Interpreter Desk shall have two language channels, A and B. Channel A shall normally be used for output languages directly interpreted from the floor language, and channel B shall be used for an output language for relay interpretation.

Each interpreter shall be able to pre-set and edit the language channel routings on both A and B channels on his/her Interpreter Desk. The interpreter shall be able to assign free selection of output language channel number on interpretation channel B. Three microphone interlock settings for between booths shall be available on Interpreter Desks. These settings shall determine whether microphones have to be switched off before other microphones can become active, or whether an override facility can be implemented, or neither.

4.3.2 Interpreter booth equipment

The interpretation system shall be able to accommodate up to six Interpreter Desks with LCD Screen per booth. Each desk shall be provided with a cardioid condenser microphone on a fold-away stem, two output sockets for connection of a headphone and one for connection of a headset. An illuminated red ring on the microphone shall indicate that the microphone is active. An additional red LED bar indicator shall be provided to show that the microphone is active It shall also be possible to use this LED bar for channel engaged indication, in addition to individual channel engaged indicators for the A and B output channels. A built-in loudspeaker with volume control shall automatically switch off when any microphones in the booth become active. A microphone on/off lever-type switch and a microphone mute key shall be provided. Tone and volume controls shall be provided for the headphone outputs. The number of language channels programmed into the Interpreter Desk during set up shall automatically become the number of channels available on each electronic program selector.

Selection of language output channel under control of the interpreter shall be restricted to the choice of output channels A or B; channel A for normal interpretation of the floor language, and channel B for relay interpretation, which can also be used as 'auto relay' language for interpretation from exotic languages.

Selection of channel A or channel B shall be by means of 'A select' and 'B select' buttons. Whenever channel A or channel B is enabled by the interpreter, the corresponding output language preset for that channel shall be displayed by means of a text display in the Interpreter Desk. This display shall also show language name and language number.

Red LED indicators adjacent to the channel selection buttons shall be provided to indicate the selection of either channel A or channel B. Yellow LED indicators shall be provided to indicate that the selected output channel is already engaged by another interpreter.

When channel B is selected at a particular interpreter desk, the interpreted language from that desk shall automatically be transmitted to the corresponding distribution channels and to other interpreter booths for relay interpretation into other languages (if the 'auto relay' function is enabled).

A green LED indicator shall be provided to show when the 'auto relay' function is in operation, that is, the language being received by an interpreter is a relayed interpretation. A select key shall be provided to allow fast switching between the floor language and the 'auto relay' language. A green LED indicator shall illuminate to show which has been selected.

When free selection of output language channel B is enabled, the interpreter at that desk shall be able to select any of the available output language channels for his/her interpretation by using a 'channel select' button. This status shall be indicated by a red LED indicator adjacent to the channel select button.

A rotary selector switch shall be provided in each interpreter desk to allow pre-selection of three incoming language channels, including the floor language. Three green LED indicators shall provide confirmation of the pre-selected language channels. The LCD screen on the Interpreter Desk shall display a mnemonic of the selected language, the corresponding language number, and an indication of whether the interpretation is direct (shown by a '+') or indirect (shown by a '-').

When the microphones in a booth are switched off, the floor language will be transmitted into the output channel for which no microphone is switched on.

A push button shall be provided to allow two-way voice communication between interpreter and the chairman via an intercom channel.

4.4 Intercom

The DCN system network shall allow two intercom channels to be configured for two-way communication from the chairman to delegates and interpreters. The intercom shall use a hand set that can be connected to the Chairman Unit, Interpreter Desk or Delegate Units. All communication shall be between the assigned intercom operator and one other delegate or interpreter.

4.5 Distribution

Distribution of the interpreted languages among the chairman and delegates shall be via the DCN cabling to Chairman Units, Delegate Units with Channel Selectors or Electronic Channel Selector Panels. There shall also be the possibility to distribute languages via an infra-red distribution system.

4.5.1 Infra-red distribution system

The infra-red distribution system shall use an infra-red transmitter connected to the DCN system, and shall provide infra-red receivers for two, seven or 16 language channels.

Distribution of the floor language and interpreted floor languages among the delegates shall be by means of an infra-red system comprising an infra-red transmitter unit, one or more infra-red radiators and a personal infra-red receiver unit for each delegate. The infra-red distribution system shall permit delegates to move around the hall freely while continuing to receive the interpreted language of their choice.

Each delegate shall have a personal receiver unit that receives the transmitted signals, and also contains a built-in program selector facility for up to 16 channels, depending on the type. A headphone socket and slider volume control shall be built into the personal receiver unit. Quick charging and trickle charging units shall be provided for recharging the personal receiver units. A storage case shall be provided for storing receiver units not currently in use.

The infra-red system shall be able to accommodate up to 16 language channels, and the number of delegates who can receive signals from such a system shall be unlimited. The infra-red radiator units shall be mains-powered and shall be suitable for wall mounting.

4.6 Connecting peripheral equipment

Provision shall be made for interconnection of the conference system with various external devices and systems as required.

4.6.1 Hall displays

Provision shall be made for system output to a numeric display panel serving as a hall display. The hall display panel shall comprise an electro-luminescent display, light-emitting diodes, liquid crystal, plasma or incandescent lamp displays, depending on the prevailing conditions in the conference hall.

The Numeric Hall Display shall show the total voting results. System output to the Numeric Hall Display shall be by means of a Data Distribution Board connected to the DCN system.

4.6.2 External system connections

Additional facilities shall be provided for the connection of external system equipment. These facilities shall comprise at least:

- an audio line output for connection to a public address system and/or to a voice logging system for audio registration of all spoken conference proceedings
- an Audio Media Interface and Power Supply Unit. This shall provide analogue outputs that allow broadcast-, recording- and sound distribution equipment to be connected to the DCN system
- use of a telephone coupler for connection to a remote participant or DCN system
- insertion of an external sound processing device such as a graphic equalizer in the audio path of the delegate loud-speakers
- An Analog Audio Input/Output module shall be able to provide on analog input and one analog output, each with a channel selector switch and channel status indicators. A remote control facility shall be available. The unit shall allow remote interpretation in the DCN system, music distribution via language channels and recording of DCN audio channels.

4.7 Automatic camera control

It shall be possible to use an automatic camera control system to ensure that speaking delegates are automatically dis-played on hall displays or monitors. The system shall be controlled by the microphone activity of the delegate- and chair-man units. The system shall allow camera control by means of fixed or moveable cameras with zoom lenses, pan and tilt heads and prepositions. Use of high-speed dome cameras shall be preferred. It shall be possible to connect up to 256 cameras to cover a maximum of 1500 delegate positions. There shall be video outputs for connecting at least one operator monitor and four audience displays. It shall be possible to display the names of speaking delegates in the video picture with one or two text lines comprising 16 characters each. An automatic camera control software application shall be available to configure and control the system. This shall be available in two versions, one for stand-alone systems, and the other for systems with PC control.

4.7.1 System operator

System configuration shall only require the use of a temporary PC with dedicated software for this camera control appli-cation. After downloading the configuration parameters to the central control equipment, the temporary PC shall be removed. The system operator shall be able to override the automatic camera selection and settings by using a control keyboard connected to the video switcher/control device.

5. Functional description of DCN system with PC

The DCN system under operator control shall provide the operator with full control over conference proceedings and delegate participation. Operator control of the DCN system shall be via one or more PCs running DCN application software modules. The software shall run in the Windows® graphic environment on a PC(s). The software shall be multi-tasking, and shall make use of most Windows facilities, including mouse operation. The software applications are modular, and the operator shall be able to configure a control system according to the needs of the congress application.

5.1 Microphone management

Microphone management shall cover the way in which DCN system microphones are switched on and off, how many microphones may be simultaneously active, and under which microphone operation mode the system shall operate. Microphone management shall be carried out by the system operator and chairman. Two DCN software modules, Microphone Management and Synoptic Microphone Control, shall provide the means for almost all microphone management requirements.

5.1.1 System operator

Setting microphone-related parameters in preparation for a conference and controlling microphone operation during a conference shall be under the control of the system operator via the DCN software running on a PC. It shall be possible for the system operator's PC to be connected anywhere in the network. The operator shall be provided with visual monitoring facilities via the PC monitor, and audio monitoring facilities via headphones at the operator's position.
Five operating modes shall be provided:

- Microphone control by operator with request list
- Microphone control by operator with request and response list
- Microphone control by delegate with request list
- Microphone control by delegate with override
- Microphone control by delegate with voice activation

In control by operator with request list mode:
provision shall be made for the system operator to pre-select the delegate sequence, activate the microphones of successive delegates in the pre-selected sequence, edit the list of pre-selected delegates during proceedings, and select any delegate for immediate microphone activation. Delegates shall be able to make requests to speak during a conference by activating a key on the delegate unit. Delegate microphones shall only be made active by the system operator. A list of delegates requesting to speak, as well as those currently speaking, shall be displayed on the system operator's monitor (and hall display, if used). It shall be possible for the system operator to cancel all requests-to-speak at any time.

In control by operator with request and response list mode:
it shall be possible for delegates to make a response request. This request shall be given temporary priority, and shall appear at the top of the request list. When such a response request is promoted to active status, the current speaker shall be deactivated, but remain on the speakers list, and the response delegate shall be promoted to the 'response' list. There shall be a maximum of five response requests, only one of which shall be active at any time.

In control by delegate with request list mode:
delegates requesting to speak shall automatically join a waiting list, and their microphones shall be activated in turn as speaking delegates switch off their microphones. A list of delegates requesting to speak, as well as those currently speak-ing, shall be displayed on the system operator's monitor (and hall display, if used). It shall be possible for the system operator to cancel all requests-to-speak at any time.

In control by delegate with override mode ('first-in, first-out' mode):
delegates requesting to speak shall immediately join the group of speakers, while at the same time, the current speaker first having joined the group of speakers shall leave it. Provision shall be made for the system operator to preset a limited speaking time from one to 60 minutes, after which the microphone of the following delegate in the waiting list shall automatically be activated and that of the currently speaking delegate switched off.

In control by delegate with voice activated mode:
delegates shall activate their microphones automatically by speaking (no on/off key shall be required). They shall automatically be given active status while speaking. No operator action shall be required. Provision shall be made for the system operator to enter the geographical locations of all delegates within the hall so that the locations of those delegates with activated microphones can be shown graphically on the system operator's monitor.

Provision shall be made to allow only authorized delegates having identified themselves as such by means of a card reader or PIN code to participate in the proceedings. It shall be possible to specify a 3-, 4- or 5-digit PIN code.

Provision shall be made for the system operator to enter the names and other details of delegates into the system, so that when they identify themselves to the DCN system their names are automatically shown on the monitor or hall display.

Provision shall be made for the entered information and system parameters to be saved. Provision shall be made to print hard copies of certain conference-related parameters.

5.1.2 Chairman

Control of delegate participation in the conference shall be in the hands of the chairman, using the Chairman Unit. The chairman has priority over other delegates in participation in the conference, although a priority status can also be assigned to other delegates by the system operator, using the appropriate DCN software. It shall be possible to confer spe-cial microphone status to any delegate with a valid seat number by entering their details into a notebook. A delegate on the notebook shall be granted immediate access to the speakers list. Chairmen shall automatically be included in the notebook. There shall be two types of chairman units:

The Chairman Discussion Unit shall have a priority- and a microphone button for speaking. The unit shall incorporate a microphone and a loudspeaker. An illuminated red ring on the microphone shall indicate that the microphone is active. An additional red LED indicator on the chairman unit shall also indicate that the microphone is active. The chairman shall be able to speak at any desired time by activation of his/her microphone. It shall be possible to specify a Chairman Discussion Unit with a channel selector with volume control, two headphone sockets and an extra-long microphone stem.

The Chairman Conference unit shall have a priority- and a microphone button for speaking, and five soft keys for voting and/or control functions. The unit shall incorporate a pluggable microphone and a fold-away loudspeaker. A red indicator on the microphone on/off button shall indicate that the microphone is active. An additional red LED indicator on the loudspeaker shall also indicate that the microphone is active.
The chairman shall be able to speak at any desired time by activation of his/her microphone. The Chairman Conference unit shall have a graphic LCD screen, a chip-card reader, a channel selector with two volume controls, and two headphone connectors. It shall be possible to connect an Intercom Handset and Cradle for communication with the interpreters or delegates. It shall be possible to connect an external condenser microphone (for example, a headset microphone). Information on the LCD screen shall be available via the 'micros' menu. It shall be possible to monitor the numbers of participants speaking and delegates waiting to speak. Via the 'request' menu it shall be possible to cancel all requests-to-speak.

5.1.3 Delegate

There shall be two types of Delegate units:

The Delegate Discussion Unit shall have a button for request-to-speak. It shall incorporate a microphone and loudspeaker. When a request-to-speak is entered, a green LED shall start flashing to confirm that a request-to-speak has been made. It shall be cancelled by a second operation of the request-to-speak button. An illuminated red ring on the microphone shall indicate the microphone is active. An additional red LED indicator on the delegate unit shall indicate the microphone is active. It shall be possible to specify a Delegate Discussion Unit with a channel selector with volume control, two headphone sockets and an extra-long microphone stem. Delegate Discussion Units shall be free-standing (table-top).

The Delegate Conference unit shall have buttons for request-to-speak and five soft keys for voting and response register-ing functions. The unit shall incorporate a pluggable microphone and a fold-away loudspeaker. When a request-to-speak has been entered, a green LED will start flashing to confirm that a request-to-speak has been made. A request-to-speak shall subsequently be cancelled by a second operation of the request-to-speak button. Units with a graphic LCD screen shall display 'request accepted', 'request cancelled', 'speak now', 'response accepted' and 'response cancelled' messages when appropriate.

A red indicator on the microphone on/off button shall indicate that the microphone is active. An additional red LED indicator on the loudspeaker shall be provided to show that the microphone is active. Information on the LCD screen shall be available via the 'micros' menu. It shall be possible to monitor the numbers of participants speaking and delegates waiting to speak.

It shall be possible to specify a Delegate Conference unit with a graphics LCD display, a chip-card reader, a channel selector with two volume controls, two headphone sockets, an external microphone input and an intercom socket. Delegate Units shall be free-standing (table-top), or flush-mounted in the desktop. Flush-mounted delegate units shall have separate microphones, which may be fixed (stem or goose-neck) or detachable (hand-held).

Facilities shall be provided for the connection and use of other microphone types having the same basic facilities as the delegate units. Participation of a delegate may be via a hand-held microphone, goose-neck microphone, stem microphone or tie-clip microphone which functions as a delegate unit. It shall be possible to assign special priority status to these microphones.

Provision shall be made for up to 15 delegates to be assigned priority status. The designated delegates with priority status shall be able to speak at any desired time by activation of their microphones.

Individual flush-mounted or built-in loudspeaker units shall be provided for speech relay of the floor language to delegate positions. Provision shall be made for the automatic muting of this loudspeaker at a delegate unit whenever the micro-phone at that delegate unit is activated.

Delegate Units for table-top use shall be provided with a cardioid condenser microphone, able to be folded away when the unit is not in use, and for convenient transportation and storage.

5.2 Vote processing and display

Electronic voting shall allow delegates to cast their votes using the five soft keys on their Delegate Units. The votes shall be automatically totalled by the system and presented on LCD screens of Chairman Units and Delegate Units, and on hall displays. A number of voting modes may be selected by the operator. These are: Parliamentary voting, For/Against voting, Audience Response voting, Rating voting, Multiple Choice voting and Opinion Poll voting. Voting shall be controlled by the system operator and/or chairman. Two DCN software modules; Multi Voting and Parliamentary Voting, shall provide the means for almost all voting requirements.

5.2.1 System operator

The system operator shall be able to specify the following voting-related parameters:
- voting result display options
- vote type; open or closed
- display of interim results
- required quorum
- required majority
- timed vote

The system operator shall also be able to carry out vote preparation, including the following:
- creating and editing voting scripts
- assigning a name and number to voting motions
- assigning a description to voting motions
- specifying a quorum and/or majority for each voting motion

Selection of the following voting modes shall be possible:
- Parliamentary voting - delegates cast their votes simultaneously (present, no, abstain or yes using four of the five soft keys on the delegate unit). All votes shall be totalled and displayed on personal LCD screens, LCD screens of Chair-man Units and Delegate Units, and on hall displays, both during voting and for one minute after voting is completed
- For/Against voting - delegates choose between two options (for and against), and all votes are totalled and displayed on hall displays during and after voting
- Audience Response voting - delegates choose a response rating (from --, -, 0, + and ++ using the five soft keys on the delegate unit), and all votes are totalled and displayed on hall displays during and after voting
- Rating voting - delegates choose an option (from 1 to 5 using the five soft keys on the delegate unit), and all votes are totalled and displayed on hall displays during and after voting
- Multiple Choice voting - delegates choose an option (from 1 to 5 using the five soft keys on the delegate unit), and all votes are totalled and displayed on hall displays during and after voting
- Opinion Poll voting - delegates choose an option (from 1 to 5 using the five soft keys on the delegate unit), and all votes are totalled and displayed on hall displays during and after voting

5.2.2 Chairman

The Chairman Unit shall have control buttons to start, suspend, re-start and stop the parliamentary voting procedure. When the vote start button is pressed, the pre-selected voting mode will be enabled. The hold button shall allow voting to be suspended under the chairman's control. The stop button shall terminate the voting procedure. The chairman shall be able to cast a vote using the five buttons on the Chairman Unit. These buttons shall have yellow LED indicators. If voting has been suspended, it shall be exclusively possible for the chairman who started the voting procedure to change his/her vote and re-start or stop the voting. The Chairman Unit shall have a graphic LCD screen which provides infor-mation about the motion number, motion description and voting results.

5.2.3 Delegate

The Delegate Unit shall include an integrated electronic voting function. This shall comprise five soft keys that allow del-egates to cast votes in parliamentary voting. Yellow LED indicators shall provide confirmation of the vote cast by a dele-gate. Delegate Units with a graphic LCD screen shall display the text; 'present', 'no', 'abstain' and 'yes' before the delegate has voted, and also show the total number of participants present, 'no' votes, abstentions, 'yes' votes and participants who have not voted. The LCD screen shall provide information about the motion number and motion description.

Provision shall be made for positive delegate identification in voting. This shall be possible by using the present button on delegate units, by presenting an identification card to a card reader built into specific types of delegate unit or by pre-senting an identification card and entering a PIN code via the five buttons on delegate units. It shall be possible for the system operator to preselect a voting procedure in which only delegates who have first identified themselves are able to participate.

5.3 Delegate identification

It shall be possible at the choice of the system operator to pre-set the system so that participation in the conference dis-cussion and/or use of the voting function by delegates are possible only after an authorized delegate has satisfied authori-sation requirements. This shall be done by using the present button on delegate units, by presenting an identification card to a card reader built into specific types of delegate unit or by presenting an identification card and entering a PIN code via the five buttons on delegate units.

It shall be possible for the names of delegates to be assigned to their respective cards by entry of their names and other details at the operator's position.

When prior delegate identification is required, the LCD screen on the Delegate Unit shall indicate to the delegate that the identification has been accepted by the DCN system, and that the delegate may participate in the subsequent conference procedure.

The delegate identification cards shall be uniquely coded. The PIN codes shall be assigned using the digits 1 to 5. Inser-tion by a delegate of the identification card (or entering the correct PIN code and identification card) shall indicate presence (if set in voting procedure). It shall be possible to display a list of present or absent delegates and a total list of pre-sent and absent delegates at the operator's position and on hall displays.

5.4 Interpretation

The system shall include provision for simultaneous interpretation facilities on up to 15 language channels (30 languages on request), with a maximum of six interpreter desks able to be connected in each booth.

The interpretation system shall provide full control facilities for the routing of floor and relay languages to the inter-preters, and for the distribution of interpretation languages to delegates. There shall be facilities for monitoring any lan-guage channel in the DCN system. The Simultaneous Interpretation DCN software module shall provide the means for almost all simultaneous interpretation and language distribution requirements.

5.4.1 System operator

The 15-channel interpretation system shall include pre-setting facilities for language channel allocation and routing under control of the system operator. This shall be carried out from a PC running the Simultaneous Interpretation DCN software module.

It shall be possible for the system operator to allocate the interpretation languages freely to the language channels, and to edit these language allocations whenever required.

Each Interpreter Desk shall have two language channels, A and B. Channel A shall normally be used for output languages directly interpreted from the floor language, and channel B shall be used for an output language for relay interpretation.

The system operator shall be able to pre-set and edit the language channel routings on both A and B channels to all Inter-preter Desks in the system. The system operator shall be able to assign free selection of output language channel number on interpretation channel B to any of the Interpreter Desks.

The system operator shall be able to release facilities to the Interpreter Desks in steps according to the requirements of each particular situation, thereby facilitating and clarifying operation by the interpreters.

5.4.2 Interpreter booth equipment

The interpretation system shall be able to accommodate up to six Interpreter Desks with LCD Screen per booth. Each desk shall be provided with a cardioid condenser microphone on a fold-away stem, two output sockets for connection of a headphone and one for connection of a headset. An illuminated red ring on the microphone shall indicate that the microphone is active. An additional red LED bar indicator shall be provided to show that the microphone is active. A built-in loudspeaker with volume control shall automatically switch off when any microphones in the booth become active. A microphone on/off lever-type switch and a microphone mute key shall be provided. Tone and volume controls shall be provided for the headphone outputs. The number of language channels programmed into the Interpreter Desk during set up shall automatically become the number of channels available on each electronic programme selector.

Selection of language output channel under control of the interpreter shall be restricted to the choice of output channels A or B; channel A for normal interpretation of the floor language, and channel B for relay interpretation, which can also be used as 'auto relay' language for interpretation from exotic languages.

Selection of channel A or channel B shall be by means of 'A select' and 'B select' buttons. Whenever channel A or channel B is enabled by the interpreter, the corresponding output language preset for that channel shall be displayed by means of a text display in the Interpreter Desk. This display shall also show language name and language number.

Red LED indicators adjacent to the channel selection buttons shall be provided to indicate the selection of either channel A or channel B. Yellow LED indicators shall be provided to indicate that the selected output channel is already engaged by another interpreter. It shall also be possible to use this LED bar for channel engaged indication, in addition to individual channel engaged indicators for the A and B output channels.

When channel B is selected at a particular interpreter desk, the interpreted language from that desk shall automatically be transmitted to the corresponding distribution chan-nels and to other interpreter booths for relay interpretation into other languages (if the 'auto relay' function is enabled).

A green LED indicator shall be provided to show when the 'auto relay' function is in operation, that is, the language being received by an interpreter is a relayed interpretation. A select key shall be provided to allow fast switching between the floor language and the 'auto relay' language. A green LED indicator shall illuminate to show which has been selected.

When free selection of output language channel B is enabled, the interpreter at that desk shall be able to select any of the available output language channels for his/her interpretation by using a 'channel select' button. This status shall be indi-cated by a red LED indicator adjacent to the channel select button.

A rotary selector switch shall be provided in each interpreter desk to allow pre-selection of three incoming language chan-nels, including the floor language. Three green LED indicators shall provide confirmation of the pre-selected language channels. The LCD screen on the Interpreter Desk shall display a mnemonic of the selected language, the corresponding language number, and an indication of whether the interpretation is direct (shown by a '+') or indirect (shown by a '-').

When the microphones in a booth are switched off, the floor language will be transmitted into the output channel for which no microphone is switched on.

A push button shall be provided to allow two-way voice communication between interpreter and the chairman via an intercom channel.

5.5 Intercom

The DCN system network shall allow at least 12 full-duplex intercom channels to be configured for two-way communication between system operator, chairman, interpreters and delegates. The intercom shall use a hand set that can be con-nected to the Chairman Unit, Interpreter Desk, Delegate Unit or Network Card for Personal Computer. The system operator shall be able to route private calls between chairman, delegates and interpreters and him/herself. The Intercom DCN software module shall provide the means for satisfying almost all intercom requirements.

5.6 Automatic camera control

It shall be possible to use an automatic camera control system to ensure that speaking delegates are automatically dis-played on hall displays or monitors. The system shall be controlled by the microphone activity of the delegate- and chair-man units. The system shall allow camera control by means of fixed or moveable cameras with zoom lenses, pan and tilt heads and prepositions. Use of high-speed dome cameras shall be preferred. It shall be possible to connect up to 256 cameras to cover a maximum of 1500 delegate positions. There shall be video outputs for connecting at least one operator monitor and four audience displays. It shall be possible to display the names of speaking delegates in the video picture with one or two text lines comprising 16 characters each. An automatic camera control software application shall be available to configure and control the system. This shall be available in two versions, one for stand-alone systems, and the other for systems with PC control.

5.7 Distribution

Distribution of the interpreted languages among the chairman and delegates shall be via the DCN cabling to Chairman Units, Delegate Units with Channel Selectors or Electronic Channel Selector Panels. There shall also be the possibility to distribute languages via an infra-red distribution system.

5.7.1 Infra-red distribution system

The infra-red distribution system shall use an infra-red transmitter connected to the DCN system, and shall provide infra-red receivers for two, seven or 16 language channels. Distribution of the floor language and interpreted languages among the delegates shall be by means of an infra-red system comprising an infra-red transmitter unit, one or more infra-red radiators and a personal infra-red receiver unit for each delegate. The infra-red distribution system shall permit delegates to move around the hall freely while continuing to receive the interpreted language of their choice.

Each delegate shall have a personal receiver unit which receives the transmitted signals, and also contains a built-in program selector facility for up to 16 channels, depending on the type. A headphone socket and slider volume control shall be built into the personal receiver unit. A charging unit shall be provided for recharging the personal receiver units.

The infra-red system shall be able to accommodate up to 16 language channels, and the number of delegates who can receive signals from such a system shall be unlimited. The infra-red radiator units shall be mains-powered and shall be suitable for wall mounting.

5.8 Connecting peripheral equipment

Provision shall be made for interfacing the conference system with various external devices and systems as required.

5.8.1 Hall displays

Provision shall be made for system output to an alphanumeric, numeric or geographic display panel serving as a hall dis-play. The hall display panel shall comprise an electro-luminescent display, light-emitting diodes, liquid crystal, plasma or incandescent lamp dis-plays, depending on the prevailing conditions in the conference hall.

The Numeric Hall Display shall show the total voting results and voting countdown time. System output to the Numeric Hall Display shall by means of the Data Distribution Board, connected to the DCN system.

The Alphanumeric Hall Display shall show microphone information such as speakers list or request-to-speak list, voting results and motion information, and mes-sages. The display information shall be generated using the relevant software modules and sent to the Alphanumeric Hall Display via the Text/Status Display DCN software module. System output to the Alphanumeric Hall Display shall be by means of the Data Distribution Board, connected to the DCN system.

The Geographic Hall Display shall comprise lamp modules of three different colours to show how each delegate has voted, either according to the seating plan or by name or district. System output to the Geographic Hall Display panel shall be by means of the Data Distribution Board, connected to the DCN system.

5.8.2 Printers

Two printer outputs shall be provided for connection of printers for hard-copy registration of conference-related information such as microphone activity, error messages and voting results with headings. A single-line printer shall be used to print information such as microphone activity and label printing. A laser printer shall be used to print information such as voting results with headings. The laser printer shall use the Windows printer driver supplied with the software.

5.8.3 External system connections

Additional facilities shall be provided for the connec-tion of external system equipment. These shall com-prise at least:

- a PC-driven interface for control of external equip-ment such as video cameras (via a video control matrix), video dis-plays, loudspeaker group switching and other special user facilities
- an audio line output for connection to a public address system and/or to a voice logging system for audio registration of all spoken conference proceedings
- audio line outputs from an Audio Media Interface and Power Supply Unit. This shall allow analogue broadcast-, recording- and sound distribution equip-ment to be connected to the DCN system
- an RS232 port for connecting third-party control equipment.
- recorder input/output for connection of audio regis-tration and playback equipment and audio mixers
- line input to allow connection of audio sources
- Analog audio input/output modules to allow remote interpretation

6. Contribution equipment

6.1 Table-top conference units

Standard Delegate Unit
The Standard Delegate Unit shall be portable with a plug for a stem condenser microphone. A red indicator above the microphone on/off button shall indicate that the microphone is active. The unit shall contain a fold-away full-range flat panel loudspeaker which automatically mutes when the microphone is on. The unit shall operate in delegate control mode with the possibility of operator intervention, or in operator control mode. The unit shall have the following controls and indicators:

- Microphone on/off and request-to-speak button
- 'Microphone on' red LED indicator
- 'Microphone on' red LED on the loudspeaker
- 'Request-to-speak' green LED indicator
- Five voting buttons with yellow LED confirmation indicators
- A de-init switch on the underside of the unit

Each unit shall have a socket for the pluggable con-denser microphone, 2 m captive cable terminated with a moulded 6-pole circular connector, and a 6-pole cir-cular connector socket for loop-through connections. There shall be a 6-pole modular jack connector for con-necting the Intercom Handset with Cradle. The unit shall be 50 x 275 x 155 mm (2.0 x 10.8 x 6.1 in). The unit shall be 30 x 275 x 155 mm (1.2 x 10.8 x 6.1 in) when flush mounted. The weight of the unit shall be approximately 1.4 kg (3.1 lb).

Delegate Unit with Channel Selector
The Delegate Unit with Channel Selector shall be portable with a plug for a stem condenser microphone. A red indicator on the microphone on/off button shall indicate that the microphone is active. The unit shall contain a fold-away full-range flat panel loudspeaker which automatically mutes when the microphone is on. There shall be a channel selector facility for accessing interpretations (when available). The unit shall operate in delegate control mode with the possibility of opera-tor intervention, or in operator control mode. It shall have the following controls and indicators:

- Microphone on/off and request-to-speak button
- 'Microphone on' red LED indicator
- 'Microphone on' red LED on the loudspeaker
- 'Request-to-speak' green LED indicator
- Five voting buttons with yellow LED confirmation indicators
- 'Up/down' channel select keys
- Channel number LCD
- Two headphone volume controls (left and right)
- A de-init switch on the underside of the unit

Each unit shall have a socket for the pluggable con-denser microphone, one 3.5 mm (0.14 in) stereo jack external micro-phone socket, two 3.5 mm (0.14 in) stereo jack headphone sockets, 2 m captive cable termi-nated with a moulded 6-pole circular connector, and a 6-pole circular connector socket for loop-through con-nections. The loudspeaker shall not be muted when a headphone is inserted. There shall be a 6-pole modular jack connector for connecting the Intercom Hand-set with Cradle. The unit shall be 30 x 275 x 155 mm (1.2 x 10.8 x 6.1 in) when flush mounted. The weight of the unit shall be approximately 1.4 kg (3.1 lb).

Delegate Unit with Chip-Card Reader, Graphic LCD Screen and Channel Selector

The Delegate Unit with Chip-Card Reader, Graphic LCD Screen and Channel Selector shall be portable with a plug for a stem condenser microphone. A red indicator above the microphone on/off button shall indicate that the microphone is active. The unit shall contain a fold-away full-range flat panel loudspeaker which automatically mutes when the microphone is on. There shall be a channel selector facility for accessing interpretations (when available). The unit shall operate in delegate control mode with the possibility of operator intervention, or in operator control mode. The unit shall have the following controls and indicators:

- Microphone on/off and request-to-speak button
- 'Microphone on' red LED indicator
- 'Microphone on' red LED on the loudspeaker
- 'Request-to-speak' green LED indicator
- Five soft keys with yellow LED indicators
- 'Up/down' channel select keys
- Channel number LCD
- Two headphone volume controls (left and right)
- Graphic LCD screen
- Electronic card-reader for access control by card reading or card reading plus PIN code
- A de-init switch on the underside of the unit

Each unit shall have a socket for pluggable condenser microphone, one 3.5 mm (0.14 in) stereo jack external microphone socket, two 3.5 mm (0.14 in) stereo jack headphone sockets, 2 m captive cable terminated with a moulded 6-pole circular connector, and a 6-pole circular connector socket for loop-through connections. The loudspeaker shall not be muted when a headphone is inserted. There shall also be a 6-pole modular jack connector for connecting the Intercom Handset and Cradle. The unit shall be 50 x 275 x 155 mm (2.0 x 10.8 x 6.1 in). The unit shall be 30 x 275 x 155 mm (1.2 x 10.8 x 6.1 in) when flush mounted. The weight of the unit shall be approximately 1.5 kg (3.3 lb).

Chairman Unit with Chip-Card Reader, Graphic LCD Screen and Channel Selector

The Chairman Unit with Chip-Card Reader, Graphic LCD Screen and Channel Selector shall be portable with a plug for a stem condenser microphone. A red indicator above the microphone on/off button shall indicate that the micro-phone is active. The unit shall contain a fold-away full-range falt panel loudspeaker which automatically mutes when the microphone is on. There shall be a channel selector facility for accessing interpretations and a priority key which, when pressed, sounds a chime tone, temporarily mutes all delegate microphones and activates the chairman microphone. The unit shall operate in manual control mode with the possibility of operator intervention, or in operator control mode. It shall have the following controls and indicators:

- Microphone on/off button
- Microphone priority key
- 'Microphone on' red LED indicator
- 'Microphone on' red LED on loudspeaker
- Five soft keys with yellow LED indicators
- 'Up/down' channel select keys
- Channel number LCD
- Two headphone volume controls (left and right)
- GraphicLCD screen
- Electronic card-reader for access control by card reading or card reading plus PIN code
- A de-init switch on the underside of the unit

Each unit shall have a socket for pluggable condenser microphone, one 3.5 mm (0.14 in) stereo jack external microphone socket, two 3.5 mm (0.14 in) stereo jack headphone sockets, 2 m captive cable terminated with a moulded 6-pole circular connector, and a 6-pole circular connector socket for loop-through connections. The loudspeaker shall not be muted when a headphone is inserted. There shall also be a 6-pole modular jack connector for connecting the Intercom Handset and Cradle. The unit shall be 50 x 275 x 155 mm (2.0 x 10.8 x 6.1 in). The unit shall be 30 x 275 x 155 mm (1.2 x 10.8 x 6.1 in) when flush mounted. The weight of the unit shall be approximately 1.5 kg (3.3 lb).

Table-Top Housing for Loudspeaker Panel or Two Flush-Mounted Units

The Table-Top Housing shall enable the Loudspeaker Panel or two flush-mounted units to be used in table-top applications. The Loudspeaker Panel shall click into place in the housing, which is designed so the loud-speaker shall face the del-egate. It shall be possible to fix the housing to the table top by means of two screws. The housing shall be 120 mm (4.72 in) wide, 73 mm (2.87 in) high, and 80 mm (3.14 in) deep. It shall weigh approximately 170 g (0.37 lb).

Intercom Handset and Cradle

The Intercom Handset and Cradle shall be hard-wired to the cradle by a cable of length (0.5 m (19.68 in) coiled, 2 m (78.74 in) uncoiled) There shall be two screw holes on the cradle for mounting purposes. It shall be possible to connect the handset to a Delegate-, Chairman- or Interpreter Unit. Each cradle shall have a cable terminated with a 6-pole modular jack connector. The Intercom Handset and Cradle shall be 53 mm (2.08 in) high and 210 mm (8.26 in) wide. It shall weigh approximately 0.5 kg (0.55 lb).

Basic Suitcase

The Basic Suitcase shall be used to protect DCN equipment in transit or while in storage. It shall have the capacity to hold 5 Interpreter Units, a standard Central Control Unit or Audio Media Interface Unit, and extension cables. It shall have metal edges, reinforced corner pieces and quick release fasteners. The internal packing shall be shaped to accommodate the DCN equipment. The suitcase shall be 400 mm (15.7 in) high, 660 mm (26.0 in) wide and 285 mm (11.2 in) deep. It shall weigh 10.6 kg (23.3 lb).

Extension Suitcase

The Extension Suitcase shall be used to protect DCN equipment in transit. It shall have the capacity to hold 10 Inter-preter Units. This suitcase shall have metal edges, reinforced corner pieces and quick release fasteners. The internal packing shall be shaped to accommodate the DCN equipment. The suitcase shall be 400 mm (15.7 in) high, 660 mm (26.0 in) wide and 285 mm (11.2 in) deep. It shall weigh 9.1 kg (20.0 lb).

Suitcase for DCN Conference units

The Suitcase for DCN Conference units shall be used to protect DCN equipment in transit. It shall have the capacity to hold 10 Chairman or Delegate Units and 10 pluggable microphones (standard or long) This suitcase shall have metal edges, reinforced corner pieces and quick release fasteners. The internal packing shall be shaped to accommodate the DCN equipment. The suitcase shall be 430 x 665 x 255 mm (16.9 x 26.2 x 10.0 in). It shall weigh 9.3 kg (20.5 lb).

6.2 Table-top discussion units

Standard Delegate Discussion Unit

The Standard Delegate Discussion Unit shall be portable with a microphone which has a built-in plop-shield and windshield and which is mounted on a flexible stem. An illuminated red ring on the microphone shall indicate that the microphone is active. The unit shall contain a loudspeaker which automatically mutes when the microphone is on. The unit shall operate in delegate control mode with the possibility of operator intervention, or in operator control mode. The unit shall have the following controls and indicators:

- Microphone on/off and request-to-speak button
- 'Microphone on' red LED indicator
- 'Microphone on' red LED ring
- 'Request-to-speak' green LED indicator
- Headphone volume control

The unit shall have 2 m captive cable terminated with a moulded 6-pole circular connector, and a 6-pole circular connector socket for loop-through connections. The unit shall have two 3.5 mm (0.14 in) headphone sockets, to allow two delegates to listen to the proceedings via headphones. There shall be a rotary control for headphone volume adjustment. There shall be a cable relief bracket located at the rear of the unit, which shall allow the 2 m (78.74 in) long cable to be fed downwards in permanent table-top applications. The unit shall be 63 mm (2.48 in) high, 124 mm (4.88 in) wide and 172 mm (6.77 in) deep, without microphone. The height shall be 127 mm (5.0 in) with the microphone in the horizon-tal position. The distance between the microphone and the mounting surface with the microphone extended shall be 313 mm (12.32 in). The weight of the unit shall be approximately 0.9 kg (1.98 lb).

Delegate Discussion Unit with Long Microphone

The Delegate Discussion Unit with Long Microphone shall be portable with a microphone which has a built-in plop-shield and windshield and which is mounted on an extra-long flexible stem. An illuminated red ring on the microphone shall indicate that the microphone is active. The unit shall contain a loudspeaker which automatically mutes when the microphone is on. The unit shall operate in delegate control mode with the possibility of operator intervention, or in operator control mode. The unit shall have the following controls and indicators:

- Microphone on/off and request-to-speak button
- 'Microphone on' red LED indicator
- 'Microphone on' red LED ring
- 'Request-to-speak' green LED indicator
- Headphone volume control

The unit shall have 2 m captive cable terminated with a moulded 6-pole circular connector, and a 6-pole circular connector socket for loop-through connections. The unit shall have two 3.5 mm (0.14 in) headphone sockets, to allow two delegates to listen to the proceedings via headphones. There shall be a rotary control for headphone volume adjustment. There shall be a cable relief bracket located at the rear of the unit, which shall allow the 2 m (78.74 in) long cable to be fed downwards in permanent table-top applications. The unit shall be 63 mm (2.48 in) high, 124 mm (4.88 in) wide and 172 mm (6.77 in), without microphone. The height shall be 127 mm (5.0 in) with the microphone in the horizontal position. The distance between the microphone and the mounting surface with the microphone extended shall be 488 mm (19.21 in). The weight of the unit shall be approximately 0.9 kg (1.98 lb).

Delegate Discussion Unit with Channel Selector

The Delegate Discussion Unit with Channel Selector shall be portable with a microphone which has a built-in plop-shield and windshield and which is mounted on a flexible stem. An illuminated red ring on the microphone shall indicate that the microphone is active. The unit shall contain a loudspeaker which automatically mutes when the microphone is on. There shall be a channel selector facility for accessing interpretations (when available). The unit shall operate in delegate control mode with the possibility of operator intervention, or in operator control mode. The unit shall have the following controls and indicators:

- Microphone on/off and request-to-speak button
- 'Microphone on' red LED indicator
- 'Microphone on' red LED ring
- 'Request-to-speak' green LED indicator
- 'Up/down' channel select keys
- Channel number LCD
- Headphone volume control

The unit shall have 2 m captive cable terminated with a moulded 6-pole circular connector, and a 6-pole circular connector socket for loop-through connections. The unit shall have two 3.5 mm (0.14 in) headphone sockets, to allow two delegates to listen to the proceedings via headphones. There shall be a rotary control for headphone volume adjustment. There shall be a cable relief bracket located at the rear of the unit, which shall allow the 2 m (78.74 in) long cable to be fed downwards in permanent table-top applications. The unit shall be 63 mm (2.48 in) high, 124 mm (4.88 in) wide and 172 mm (6.77 in) deep, without microphone. The height shall be 127 mm (5.0 in) with the microphone in the horizontal position. The distance between the microphone and the mounting surface with the microphone extended shall be 313 mm (12.32 in). The weight of the unit shall be approximately 0.9 kg (1.98 lb).

Delegate Discussion Unit with Channel Selector and Long Microphone

The Delegate Discussion Unit with Channel Selector and Long Microphone shall be portable with a microphone which has a built-in plop-shield and windshield and which is mounted on an extra-long flexible stem. An illuminated red ring on the microphone shall indicate that the microphone is active. The unit shall contain a loudspeaker which automatically mutes when the microphone is on. There shall be a channel selector facility for accessing interpretations (when available). The unit shall operate in delegate control mode with the possibility of operator intervention, or in operator control mode. The unit shall have the following controls and indicators:

- Microphone on/off and request-to-speak button
- 'Microphone on' red LED indicator
- 'Microphone on' red LED ring
- 'Request-to-speak' green LED indicator
- 'Up/down' channel select keys
- Channel number LCD
- Headphone volume control

The unit shall have 2 m captive cable terminated with a moulded 6-pole circular connector, and a 6-pole circular connector socket for loop-through connections. The unit shall have two 3.5 mm (0.14 in) headphone sockets, to allow two delegates to listen to the proceedings via headphones. There shall be a rotary control for headphone volume adjustment.

There shall be a cable relief bracket located at the rear of the unit, which shall allow the 2 m (78.74 in) long cable to be fed downwards in permanent table-top applications. The unit shall be 63 mm (2.48 in) high, 124 mm (4.88 in) wide and 172 mm (6.77 in) deep, without microphone. The height shall be 127 mm (5.0 in) with the microphone in the horizontal position. The distance between the microphone and the mounting surface with the microphone extended shall be 488 mm (19.21 in). The weight of the unit shall be approximately 0.9 kg (1.98 lb).

Chairman Discussion Unit

The Chairman Discussion Unit shall be portable with a microphone which has a built-in plop-shield and windshield and which is mounted on a flexible stem. An illuminated red ring on the microphone shall indicate that the microphone is active. The unit shall contain a loudspeaker which automatically mutes when the microphone is on. A priority key, when pressed, shall temporarily mute all delegate microphones and activate the chairman microphone. The unit shall operate in delegate control mode with the possibility of operator intervention, or in operator control mode. The unit shall have the following controls and indicators:

- Microphone on/off and request-to-speak button
- Microphone priority key
- 'Microphone on' red LED indicator
- 'Microphone on' red LED ring
- 'Request-to-speak' green LED indicator
- Headphone volume control

The unit shall have 2 m captive cable terminated with a moulded 6-pole circular connector, and a 6-pole circular connector socket for loop-through connections. The unit shall have two 3.5 mm (0.14 in) headphone sockets, to allow two delegates to listen to the proceedings via headphones. There shall be a rotary control for headphone volume adjustment.

There shall be a cable relief bracket located at the rear of the unit, which shall allow the 2 m (78.74 in) long cable to be fed downwards in permanent table-top applications. The unit shall be 63 mm (2.48 in) high, 124 mm (4.88 in) wide and 172 mm (6.77 in) deep, without microphone. The height shall be 127 mm (5.0 in) with the microphone in the horizontal position. The distance between the microphone and the mounting surface with the microphone extended shall be 313 mm (12.32 in). The weight of the unit shall be approximately 0.9 kg (1.98 lb).

Chairman Discussion Unit with Long Microphone
The Chairman Discussion Unit shall be portable with a microphone which has a built-in plop-shield and windshield and which is mounted on an an extra-long flexible stem. An illuminated red ring on the microphone shall indicate that the microphone is active. The unit shall contain a loudspeaker which automatically mutes when the microphone is on. A priority key, when pressed, shall temporarily mute all delegate microphones and activate the chairman microphone. The unit shall operate in delegate control mode with the possibility of operator intervention, or in operator control mode. The unit shall have the following controls and indicators:

- Microphone on/off and request-to-speak button
- Microphone priority key
- 'Microphone on' red LED indicator
- 'Microphone on' red LED ring
- 'Request-to-speak' green LED indicator
- Headphone volume control

The unit shall have 2 m captive cable terminated with a moulded 6-pole circular connector, and a 6-pole circular connector socket for loop-through connections. The unit shall have two 3.5 mm (0.14 in) headphone sockets, to allow two delegates to listen to the proceedings via headphones. There shall be a rotary control for headphone volume adjustment. There shall be a cable relief bracket located at the rear of the unit, which shall allow the 2 m (78.74 in) long cable to be fed downwards in permanent table-top applications. The unit shall be 63 mm (2.48 in) high, 124 mm (4.88 in) wide and 172 mm (6.77 in) deep, without microphone. The height shall be 127 mm (5.0 in) with the microphone in the horizontal position. The distance between the microphone and the mounting surface with the microphone extended shall be 488 mm (19.21 in). The weight of the unit shall be approximately 0.9 kg (1.98 lb).

Chairman Discussion Unit with Channel Selector
The Chairman Discussion Unit with Channel Selector shall be portable with a microphone which has a built-in plop-shield and windshield and which is mounted on a flexible stem. An illuminated red ring on the microphone shall indicate that the microphone is active. The unit shall contain a loudspeaker which automatically mutes when the microphone is on. A priority key, when pressed, shall temporarily mute all delegate microphones and activate the chairman microphone. There shall be a channel selector facility for accessing interpretations (when available). The unit shall operate in delegate control mode with the possibility of operator intervention, or in operator control mode. The unit shall have the following controls and indicators:

- Microphone on/off and request-to-speak button
- Microphone priority key
- 'Microphone on' red LED indicator
- 'Microphone on' red LED ring
- 'Request-to-speak' green LED indicator
- 'Up/down' channel select keys
- Channel number LCD
- Headphone volume control

The unit shall have 2 m captive cable terminated with a moulded 6-pole circular connector, and a 6-pole circular connector socket for loop-through connections. The unit shall have two 3.5 mm (0.14 in) headphone sockets, to allow two delegates to listen to the proceedings via headphones. There shall be a rotary control for headphone volume adjustment. There shall be a cable relief bracket located at the rear of the unit, which shall allow the 2 m (78.74 in) long cable to be fed downwards in permanent table-top applications. The unit shall be 63 mm (2.48 in) high, 124 mm (4.88 in) wide and 172 mm (6.77 in) deep, without microphone. The height shall be 127 mm (5.0 in) with the microphone in the horizontal position. The distance between the microphone and the mounting surface with the microphone extended shall be 313 mm (12.32 in). The weight of the unit shall be approximately 0.9 kg (1.98 lb).

Chairman Discussion Unit with Channel Selector and Long Microphone
The Chairman Discussion Unit with Channel Selector and Long Microphone shall be portable with a microphone which has a built-in plop-shield and windshield and which is mounted on an extra-long flexible stem. An illuminated red ring on the microphone shall indicate that the microphone is active. The unit shall contain a loudspeaker which automatically mutes when the microphone is on. A priority key, when pressed, shall temporarily mute all delegate microphones and activate the chairman microphone. There shall be a channel selector facility for accessing interpretations (when available). The unit shall operate in delegate control mode with the possibility of operator intervention, or in operator control mode. The unit shall have the following controls and indicators:

- Microphone on/off and request-to-speak button
- Microphone priority key
- 'Microphone on' red LED indicator
- 'Microphone on' red LED ring
- 'Request-to-speak' green LED indicator
- 'Up/down' channel select keys
- Channel number LCD
- Headphone volume control

The unit shall have 2 m captive cable terminated with a moulded 6-pole circular connector, and a 6-pole circular connector socket for loop-through connections. The unit shall have two 3.5 mm (0.14 in) headphone sockets, to allow two delegates to listen to the proceedings via headphones. There shall be a rotary control for headphone volume adjustment. There shall be a cable relief bracket located at the rear of the unit, which shall allow the 2 m (78.74 in) long cable to be fed downwards in permanent table-top applications. The unit shall be 63 mm (2.48 in) high, 124 mm (4.88 in) wide and 172 mm (6.77 in) deep, without microphone. The height shall be 127 mm (5.0 in) with the microphone in the horizontal position. The distance between the microphone and the mounting surface with the microphone extended shall be 488 mm (19.21 in). The weight of the unit shall be approximately 0.9 kg (1.98 lb).

Suitcase for DCN Discussion Units
The Suitcase shall be used to protect DCN discussion equipment in transit. It shall have the capacity to hold any combination of 10 Chairman/Delegate Units with standard-length microphones. The internal packing shall be shaped to accommodate the DCN discussion equipment. This suitcase shall have handles on the top and side, and two wheels on the underside. It shall have two separate locks. The suitcase shall be 560 mm (22.04 in) high, 795 mm (31.29 in) wide, and 235 mm (9.25 in) deep. The outer casing shall be constructed of 3 mm (0.12 in) thick ABS. The weight of the suitcase shall be 6 kg (13.20 lb).

6.3 Flush-mounted units

Dual Audio Interface Unit
The Dual Audio Interface Unit shall be used for the purpose of connecting floor- podium- or wireless microphones and line sources to the DCN system. It shall be used free-standing or mounted into a wall, table-top or chair arm rest. This unit shall have two separate balanced audio inputs which can be assigned separate seat numbers, allowing two delegate positions to be served. Each input shall have three switches, for selecting:

- Microphone or line selection
- Asymmetrical microphone input, symmetrical microphone/line input or symmetrical microphone input with phantom power selection
- Input attenuation selection of 0, 6, 12 or 18 dB

There shall be a ±3 dB input level fine adjustment potentiometer. There shall be the following interconnection facilities:

- Two balanced audio inputs for line (0 dB) or microphone (-60 dB) sources with or without phantom power supply.
  (2 x 8-pole 262° DIN-type sockets)
- Remote control inputs (switches) and outputs (LEDs) matching hand-held microphone and microphone with control panel control facilities
- Two 3.5 mm (0.14 in) stereo jack sockets for loudspeaker or headphones
- 2 m captive cable terminated with a moulded 6-pole circular connector
- 6-pole circular connector for loop-through system

The unit shall be 35 mm (1.37 in) high, 100 mm (3.93 in) wide and 170 mm (6.69 in) deep, excluding cables. It shall weigh 500 g (1.10 lb).

Hand-Held Microphone
The Hand-Held Microphone shall be a unidirectional condenser microphone with a built-in plop-shield and windshield. The microphone housing shall contain an on/off button, a red LED 'Microphone on' indicator and a green LED 'Request-to-speak' confirmation indicator. The microphone shall be used hand-held or mounted to objects such as a stand, wall or chair using the Mounting Clamp. It shall be connected to the DCN system via either a Dual Audio Interface Unit or Multi-Purpose Connection Unit. It shall have 5 m (196.85 in) captive cable terminated with an 8-pole 262° DIN-type plug. It shall be 215 mm (8.46 in) long with a maximum diameter of 30 mm (1.18 in). It shall weigh 0.35 kg (0.77 lb).

Hand-Held Microphone with Coiled Cable
The Hand-Held Microphone with Coiled Cable shall be a unidirectional condenser microphone with a built-in plop-shield and windshield. The microphone housing shall contain an on/off button, a red LED 'Microphone on' indicator and a green LED 'Request-to-speak' confirmation indicator. The microphone shall be used hand-held or mounted to objects such as a stand, wall or chair using the Mounting Clamp. It shall be connected to the DCN system via either the Dual Audio Interface Unit or the Multi-Purpose Connection Unit. It shall have a captive cable of length 0.4 m (15.74 in) coiled, 1.4 m (55.11 in) uncoiled, terminated with an 8-pole 262° DIN-type plug. It shall be 215 mm (8.46 in) long with a maximum diameter of 30 mm (1.18 in). It shall weigh 0.35 kg (0.77 lb).

Microphone with Control Panel
The Microphone with Control Panel shall be a unidirectional condenser microphone mounted on a flush-mounted control panel by means of a flexible stem. The microphone shall have a built-in plop-shield and windshield. An illuminated red ring on the microphone shall indicate that the microphone is active. The control panel shall contain an on/off but-ton, a red LED 'Microphone on' indicator and a green LED 'Request-to-speak' confirmation indicator. It shall be connected to the DCN system via either the Dual Audio Interface Unit or the Multi-Purpose Connection Unit. The unit shall have a 2 m (78.74 in) captive cable terminated with an 8-pole 262° DIN-type plug. The control panel shall be 40 mm (1.57 in) high and 120 mm (4.72 in) wide with a built-in depth of 30 mm (1.18 in). The microphone stem shall be 310 mm (12.20 in) long. It shall be mounted in a 2 mm (0.078 in) thick metal panel using the click-to-fit method and secured using two screws. It shall weigh approximately 0.2 kg (0.44 lb).

Pluggable Microphone Control Panel
The Pluggable Microphone Control Panel shall be a flush-mounted control panel. The control panel shall contain a microphone socket, an on/off button, a red LED 'Microphone on' indicator and a green LED 'Request-to-speak' confirmation indicator. It shall be connected to the DCN system via either the Dual Audio Interface Unit or the Multi-Purpose Connection Unit. The unit shall have a 2 m (78.74 in) captive cable terminated with an 8-pole 262° DIN-type plug. The control panel shall be 40 mm (1.57 in) high and 120 mm (4.72 in) wide with a built-in depth of 30 mm (1.18 in). It shall weigh approximately 125 g (0.28 lb).

Pluggable microphone for Conference units
The Pluggable Microphone shall be a unidirectional condenser microphone which can be plugged into a Conference unit by means of a connector on the flexible stem. The microphone shall have a built-in plop-shield and windshield. An illuminated red ring on the microphone shall indicate that the microphone is active. The microphone shall be available with a 310 mm (12.1 in) stem and weighing 110g (0.24 lb).

Pluggable microphone with long stem for Conference units
The Pluggable Microphone shall be a unidirectional condenser microphone which can be plugged into a Conference unit by means of a connector on the flexible stem. The microphone shall have a built-in plop-shield and windshield. An illuminated red ring on the microphone shall indicate that the microphone is active. The microphone shall be available with a 480 mm (18.9 in) stem and weighing 125g (0.28 lb).

Chairman Priority Control Panel
The Chairman Priority Control Panel shall be suitable for flush mounting and shall incorporate a priority button and a red LED indicator to indicate when the priority function is active. Pressing the priority key shall cause a chime tone to sound, all delegate microphones to be temporarily muted and the chairman microphone to be activated. The chairman priority control panel shall be connected to the DCN system via either the Dual Audio Interface Unit or the Multi-Purpose Connection Unit. The unit shall have a 2 m (78.74 in) captive cable terminated with an 8-pole 262° DIN-type plug. It shall be 40 mm (1.57 in) high and 120 mm (4.72 in) wide with a built-in depth of 30 mm (1.18 in). It shall be mounted in a 2 mm (0.078 in) thick metal panel using the click-to-fit method and secured using two screws. It shall weigh approximately 125 g (0.28 lb).

Microphone with Extended Stem Length and Control Panel
The Microphone with Control Panel shall be a unidirectional condenser microphone mounted on a flush-mounted control panel by means of a flexible stem. The microphone shall have a built-in plop-shield and windshield. An illuminated red ring on the microphone shall indicate that the microphone is active. The control panel shall contain a microphone and microphone socket an on/off button, a red LED 'Microphone on' indicator and a green LED 'Request-to-speak' con-firmation indicator. It shall be connected to the DCN system via either the Dual Audio Interface Unit or the Multi-Pur-pose Connection Unit. The unit shall have a 2 m (78.74 in) captive cable terminated with an 8-pole 262° DIN-type plug. The control panel shall be 40 mm (1.57 in) high and 120 mm (4.72 in) wide with a built-in depth of 30 mm (1.18 in). The microphone stem shall be 480 mm (18.89 in) long. It shall be mounted in a 2 mm (0.078 in) thick metal panel using the click-to-fit method and secured using two screws. It shall weigh approximately 0.2 kg (0.44 lb).

Loudspeaker Panel
The Loudspeaker Panel shall be suitable for flush mounting on surfaces such as table tops or the rears of seats. It shall consist of a loudspeaker behind a rectangular grill. It shall be connected to the DCN system via either the Dual Audio Interface Unit or the Multi-Purpose Connection Unit. It shall be 80 mm (3.14 in) high and 120 mm (4.72 in) wide or 120 mm (4.72 in) high and 80 mm (3.14 in) wide, depending on the orientation. It shall have a built-in depth of 30 mm (1.18 in). It shall be mounted in a 2 mm (0.08 in) thick metal panel using the click-to-fit method and secured using two screws. It shall weigh approximately 0.2 kg (0.44 lb).

Multi-Purpose Connection Unit
The Multi-Purpose Connection Unit shall be suitable for use as an element in flush-mounted constructions, and shall be suitable for the assembly of delegate and chairman positions. It shall have facilities for connecting the following:
- Voting Control Panel with LCD Screen
- Voting Control Panel without LCD Screen
- Chip-Card Reader Panel
- Intercom Handset
- Microphones (2), loudspeaker or headphones, priority switch for chairman

This unit shall be used free-standing or mounted into a wall, table-top or chair arm rest. The unit shall have two switches, for selecting:
- Asymmetrical microphone input, symmetrical microphone/line input or symmetrical microphone input with phantom power selection
- Input attenuation selection of 0, 6, 12 or 18 dB

There shall be a ±3 dB input level fine adjustment potentiometer. There shall be an internal jumper switch to allow use as a delegate unit or a chairman unit.
There shall be the following interconnection facilities:

- 20-pole connector for connection of Delegate Voting Control Panel or Delegate/Chairman Voting Control Panel with LCD Display
- 10-pole connector for Chip-Card Reader Panel
- 6-pole modular jack connector for Intercom Handset
- Two balanced audio inputs for line (0 dB) or microphone (-60 dB) sources with or without phantom power supply (2 x 8-pole 262° DIN-type sockets)
- Remote control inputs (switches) and outputs (LEDs) matching Hand-Held Microphone, Hand-Held Microphone with Coiled Cable and Microphone with Control Panel control facilities
- A 3.5 mm (0.14 in) stereo jack socket for a loudspeaker or headphones
- 2 m (78.74 in) captive cable terminated with a moulded 6-pole circular connector
- 6-pole circular connector for loop-through system cabling
- Internal soldering connections to enable the unit to be used as either a delegate unit or chairman unit or an entrance/exit unit for access control

The Multi-Purpose Connection Unit shall be 35 mm (1.37 in) high, 100 mm (3.93 in) wide and 170 mm (6.69 in) deep, excluding cables. It shall weigh 0.5 kg (1.10 lb).

Delegate Voting Control Panel

The Delegate Voting Control Panel shall contain five voting buttons with yellow LED confirmation indicators. It shall provide delegates with the means to participate in parliamentary-, multiple choice- and audience response voting. It shall be suitable for flush mounting on surfaces such as table tops or the rears of seats. It shall have a 1 m captive flat ribbon cable terminated with a 20-pole connector for connection to Multi-Purpose Connection Unit. The Delegate Voting Control Panel shall be 40 mm (1.57 in) high and 120 mm (4.72 in) wide with a built-in depth of 30 mm (1.18 in). It shall be mounted in a 2 mm (0.078 in) thick metal panel using the click-to-fit method and secured using four screws. It shall weigh approximately 115 g (0.25 lb)

Delegate/Chairman Voting Control Panel with LCD Screen

The Delegate/Chairman Voting Control Panel with LCD Screen shall be suitable for flush mounting on surfaces such as table tops or the rears of seats. It shall have five soft keys with yellow LED confirmation indicators that provide the operator with facilities to start, stop, suspend and participate in parliamentary-, multiple choice- and audience response voting. It shall have a 2-line, 40-character LCD screen that enables the operator to access information such as soft key descriptions, voting- and microphone-related information and public and personal messages (depending on software configuration). It shall have mounting facilities for the Chip-Card Reader Panel. It shall have a 2 m (78.74 in) captive flat ribbon cable terminated with a 20-pole connector for connection to Multi-Purpose Connection Unit. It shall be 80 mm (3.41in) high and 240 mm (9.44 in) wide with a built-in depth of 30 mm (1.18 in) exclusive Chip-Card Reader, or 100 mm (3.93 in) inclusive Chip-Card Reader. It shall be mounted in a 2 mm (0.078 in) thick metal panel using the click-to-fit method and secured using four screws. It shall weigh approximately 260 g (0.57 lb).

Chip-Card Reader Panel

The Chip-Card Reader Panel shall provide a means of electronically reading delegate Chip-cards and, based on the infor-mation received, granting/denying access to certain DCN equipment. It shall be suitable for flush mounting on surfaces such as table tops or the rears of seats. It shall be suitable for connection to the Multi-Purpose Connection Unit. It shall incorporate a card reader slot for reading the magnetic information on delegate Chip-cards and a 'card accepted' LED indicator. It shall have a 1 m captive flat ribbon cable terminated with a 10-pole connector. It shall be 120 mm (4.72 in) high, 40 mm (1.57 in) wide and 100 mm (3.93 in) deep. It shall be mounted in a 2 mm (0.078 in) thick metal panel using the click-to-fit method and secured using four screws. It shall weigh approximately 165 g (0.36 lb).

Blanking Panel

The Blanking Panel shall be used to close off a slot in a flush-mounted unit that is not in use. It shall be 40 mm (1.57 in) high and 120 mm (4.72 in) long and shall weigh 30 g (0.07 lb).

Table-Top Housing for Loudspeaker Panel or Two Flush-Mounted Units

The Table-Top Housing shall enable the Loudspeaker Panel or two Flush-Mounted Units to be used in table-top appli-cations. The Loudspeaker Panel shall click into place in the housing, which is designed so the loudspeaker shall face the delegate. It shall be possible to fix the housing to the table top by means of two screws. The housing shall be 120 mm (4.72 in) wide, 73 mm (2.87 in) high, and 80 mm (3.14 in) deep. It shall weigh 170 g (0.37 lb).

Hand-Held Microphone

The Hand-Held Microphone shall be a directional cardioid microphone which is almost frequency-independent. The microphone housing shall contain an on/off slider switch and a 3-pole XLR plug. The microphone shall be supplied with an adjustable angle quick-release clip. A stand adaptor for mounting on 3/8", 1/2" and 5/8" Whitworth screw fittings shall be provided. It shall be 210 mm (8.26 in) long with a maximum diameter of 53 mm (2.08 in). It shall weigh 0.3 kg (0.66 lb).

Gooseneck Microphone

The Gooseneck Microphone shall be a uni-directional condenser microphone on a gooseneck. It shall be suitable for connection to a Dual Audio Interface Unit or a Multi-Purpose Connection Unit. It shall have a 2 m (78.74 in) cable. The microphone plus gooseneck shall be 500 mm (19.68 in) long and shall weigh 0.30 kg (0.66 lb).

Floor Stand

The Floor Stand shall be a collapsible matt black floor stand with a height adjustable between 85 (33.46 in) and 160 cm (62.90 in). The head of the stand shall have a 3/8" Whitworth thread. It shall be 85 cm (33.46 in) high and 11 cm (4.33 in) wide when folded, and shall weigh 2.4 kg (5.28 lb).

Adjustable Boom

The Adjustable Boom shall be an adjustable matt black boom with a maximum reach of 67 cm (26.37 in). It shall incorporate a quick-release boom lock and a 3/8" Whitworth thread, suitable for connection to Floor Stand. It shall be 840 mm (33.07 in) long and shall weigh 0.7 kg (1.54 lb).

Universal Microphone Clamp

The Universal Microphone Clamp shall be a quick-release microphone clamp shall with a plastic swivel stand adaptor suitable for accommodating conically shaped microphones. The clamp internal diameter range shall be from 19 to 32 mm (0.74 - 1.25 in). It shall incorporate a 3/8" Whitworth thread, suitable for connection to Floor Stand. It shall weigh 60 g (0.13 lb).

Audio Feedback Suppressor

The audio feedback suppressor shall be a digital device for increasing the maximum sound pressure level in difficult acoustic conditions.

6.4 Manufacturer's type numbers

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Standard Delegate Unit	LBB 3544/00
Delegate Unit with Channel Selector	LBB 3545/00

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Delegate Unit with Chip-Card Reader, LCD Screen and Channel Selector	LBB 3546/00
Chairman Unit with Chip-Card Reader, LCD Screen and Channel Selector	LBB 3547/00

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Table-Top Housing for Loudspeaker Panel or Two Flush-Mounted Units	LBB 3527/00
Intercom Handset and Cradle	LBB 3555/00
Mounting Plate	LBB 3556/00
Basic Suitcase	Audipack 6399
Extension Suitcase	Audipack 6400
Suitcase for DCN Conference units	Audipack 12759

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Standard Delegate Discussion Unit	LBB 3530/00
Delegate Discussion Unit with Long Microphone	LBB 3530/50
Delegate Discussion Unit with Channel Selector	LBB 3531/00

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Delegate Discussion Unit with Channel Selector and Long Microphone	LBB 3531/50
Chairman Discussion Unit	LBB 3533/00

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Chairman Discussion Unit with Long Microphone	LBB 3533/50
Chairman Discussion Unit with Channel Selector	LBB 3534/00

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Chairman Discussion Unit with Channel Selector and Long Microphone	LBB 3534/50
Suitcase for DCN Discussion Units	LBB 3312/00
Dual Audio Interface Unit	LBB 3535/00

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Hand-Held Microphone	LBB 3536/00
Hand-Held Microphone with Coiled Cable	LBB 3536/10
Microphone with Control Panel	LBB 3537/00
Pluggable Microphone Control Panel	LBB 3537/20
Pluggable microphone for Concentus unit	LBB 3549/00
Pluggable microphone with long stem for Concentus unit	LBB 3549/50

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Chairman Priority Control Panel	LBB 3537/10
Microphone with Extended Stem Length and Control Panel	LBB 3537/50
Loudspeaker Panel	LBB 3538/00
Multi-Purpose Connection Unit	LBB 3540/15

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Delegate Voting Control Panel	LBB 3541/00
Delegate/Chairman Voting Control Panel with LCD Screen	LBB 3542/00
Chip-Card Reader Panel	LBB 3543/15

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Blanking Panel	LBB 3539/00
Table-Top Housing for Loudspeaker Panel	LBB 3527/00
Hand-Held Microphone	LBB 9600/20
Gooseneck Microphone	LBB 1949/00
Floor Stand	LBC 1221/01
Adjustable Boom	LBC 1226/01
Universal Microphone Clamp	LBC 1215/01
Audio Feedback Suppressor	LBB 4003/00

7. Interpretation and language distribution equipment

7.1 Simultaneous interpretation equipment

Interpreter Desk with LCD Screen
The Interpreter Desk with Backlit LCD Screen shall be portable with a folding stem condenser microphone, which has a built-in plop-shield and windshield. An illuminated red ring on the microphone shall indicate that the microphone is active. The unit shall contain a full-range loudspeaker with volume control for distrib-ution of the floor language. There shall be a channel selector facility for accessing interpretations (when available). The units shall operate in delegate con-trol mode with the possibility of operator intervention, or in operator control mode. This interpreter desk shall have the following controls and indicators:

- Backlit LCD screen for language and channel infor-mation, programming instructions and messages
- Headphone volume, treble and bass controls
- Rotary switch for selecting incoming language channels
- Three channel selection keys with green LED indicators for rapid access of pre-specified language channels
- Switch with two green LED indicators for selecting floor- or auto-relay incoming language
- Switch with a red LED indicator for selecting A- or B- channel for output
- Up/down switch for selecting outgoing B-channel language
- 'Channel engaged' yellow LED indicators for A and B outputs
- Microphone on/off lever-type switch
- 'Microphone on' red LED bar indicator
- 'Microphone on' red LED ring
- Microphone mute key
- Switch for selecting external headset or built-in microphone
- Outgoing message key
- Call key to activate two-way communication between interpreter and chairman/system operator

Each unit shall have one 3.5 mm (0.14 in) and one 6.3 mm (0.25 in) stereo jack headphone socket, and one 5-pole 180° DIN-type socket for headphones or headset. Each unit shall have 2 m (78.74 in) captive cable terminated with a moulded 6-pole circular con-nector, and a 6-pole circular connector socket for loop-through connections. There shall be a 6-pole modular jack connector for connecting the Intercom Handset and Cradle. The front panel shall be 100 mm (3.93 in) high and 295 mm (11.61 in) wide, and the unit foot-print shall be 100 mm x 295 mm (3.93 in x 11.61 in). The weight of the unit shall be approximately 1 kg (2.20 lb).

Analog Audio Input/Output Module
The Analog Audio Input/Output module shall enable remote interpretation via video conferencing, standard telephone or ISDN telephone link. It shall be possible to interface the DCN with external analog audio sources and with other DCN systems. It shall be possible to dis-tribute analog music from an external source via a DCN language channel. It shall be possible to output DCN language channels for external monitoring or recording. The Analog Audio Input/Output module shall have the following controls and indicators:

- Limiter on/off switch with LED indicator for channel output level
- Two rotary switches for selecting the input channel and output channel
- Module initialization/de-initialization switch
- Active input and output channel indicator LEDs
- Engaged channel LED
- Error indication LED
- 'Remote control present' LED indicator
- 'Module not initialized' LED indicator
- Power on LED indicator

The module shall have a 25-pole D-type connector for connecting a remote control panel, two 3-pole XLR connectors for input and output connections, a 6-pole female connector for loop-through connection to other DCN units and a 0.3 m (12.6 in) cable terminated with a 6-pole male connector for connection to DCN trunk line. The front panel shall be 128.4 mm (5.1 in) high and 50 mm (2.0 in) wide.

Interpreter Headphones
The Interpreter Headphones shall be lightweight, dynamic headphones with a 1.5 m (59.05 in) captive cable terminated with a 6.3 mm (0.25 in) jack plug, and shall be suitable for connection to the Interpreter Desk with LCD Screen. The weight of the headphones shall be 78 g (0.17 lb).

Intercom Handset and Cradle
The Intercom Handset and Cradle shall be hard-wired to the cradle by a cable of length (0.5 m (19.68 in) coiled, 2 m (78.74 in) uncoiled). There shall be two screw holes on the cradle for mounting purposes. It shall be possible to attach the handset to an Interpreter Unit by using the Mounting Plate. Each cradle shall have a cable terminated with a 6-pole modular jack connector. The Intercom Handset and Cradle shall be 53 mm (2.08 in) high and 210 mm (8.26 in) wide. It shall weigh approximately 0.50 kg (0.55 lb).

Mounting Plate
The Mounting Plate shall be made from metal and shall be used to attach the Intercom Cradle to an Interpreter Unit.

7.2 Distribution equipment

Electronic Channel Selector Panel
The Electronic Channel Selector Panel shall provide the user with the means of selecting language channels in a DCN system. Channel selection shall be automatically limited to the number of channels available. The Electronic Channel Selector Panel shall be suitable for flush mounting on surfaces such as table tops or the arm rests of seats. In combination with Housing for Channel Selector it shall be suitable for use as a table-top unit. It shall have the following controls and indicators:

- LCD screen for channel number indication
- Two 'up/down' push buttons for selecting the lan-guage channel
- Two 'up/down' push buttons for volume control

It shall have a 3.5 mm (0.14 in) stereo jack headphone socket, 2 m (78.74 in) captive cable terminated with a moulded 6-pole circular connector, and a 6-pole circu-lar connector socket for loop-through connections. It shall be suitable for mounting in a 2 mm (0.078 in) thick metal panel using the click-to-fit method and secured using four screws. It shall be 40 mm (1.57 in) high and 120 mm (4.72 in) wide, and shall weigh 0.2 kg (0.44 lb).

Electronic Channel Selector Panel with Backlighting
The Electronic Channel Selector Panel with backlight-ing shall provide the user with the means of selecting language channels in a DCN system. Channel selection shall be automatically limited to the number of chan-nels available. The Electronic Channel Selector Panel with Backlighting shall be suitable for flush mounting on surfaces such as table tops or the arm rests of seats. In combination with Housing for Channel Selector it shall be suitable for use as a table-top unit. It shall have the following controls and indicators:

- Back-lit LCD screen for channel number indication
- Two 'up/down' push buttons for selecting the lan-guage channel
- Two 'up/down' push buttons for volume control

It shall have a 3.5 mm (0.14 in) stereo jack headphone socket, 1 m (39.37 in) captive input cable terminated with a moulded 6-pole male circular connector, and a 1 m (39.37 in) captive output cable terminated with a moulded 6-pole female circular connector. It shall be suitable for mounting in a 2 mm (0.078 in) thick metal panel using the click-to-fit method and secured using four screws. It shall be 40 mm (1.57 in) high and 120 mm (4.72 in) wide, and shall weigh 0.2 kg (0.44 lb).

Table-Top Housing for Channel Selector
The Housing for Channel Selector shall be suitable for accommodating the Electronic Channel Selector Panels and Elec-tronic Selector Panel with Backlighting and allowing it to be used as a table-top unit.

Termination Plug for DCN Cable
This Termination Plug shall be specially designed for use with open-ended DCN cabling. It shall be connected to the output cable of the last Channel Selector Panel with two captive cables.

7.3 Delegate headphones

Lightweight Stereo Headphones
The Lightweight Headphones shall have a captive 1.3 m (4 ft) cable terminated with a 3.5 mm (0.14 in) jack plug. They shall weigh 70 g (0.16 lb).

Replacement Earpads for Lightweight Headphones
The Replacement Earpads shall be a set of 100 pairs of replacement earpads that are suitable for use with the Lightweight Headphones.

Under The Chin Headphones
The Under The Chin Headphones shall be lightweight headphones for under the chin use. They shall be fitted with a 1.2 m (47.2 in) cable terminated with 3.5 mm (0.14 in) jack plug. They shall weigh 33 g (0.07 lb).

Replacement Eartips for Under The Chin Headphones
The Replacement Eartips shall be a set of 1000 replacement eartips that are suitable for use with the Under The Chin Headphones.

Single Earphone
The Single Earphone shall be a lightweight unit fitted with a 1.2 m (47.2 in) cable terminated with a 3.5 mm (0.14 in) jack plug. It shall weigh 25 g (0.06 lb).

High-Quality Dynamic Headphones
The High-Quality Dynamic Headphones shall have a captive 1.2 m (47.2 in) cable terminated with a 3.5 mm (0.14 in) jack plug. They shall weigh 90 g (0.20 lb).

Replacement Earpads for High-Quality Dynamic Headphones
The Replacement Earpads shall be a siet of 25 pairs of replacement earpads, suitable for use with the High-Quality Dynamic Headphones.

7.4 Manufacturer's type numbers

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Interpreter Desk with LCD Screen	LBB 3520/10
Analog Input/Output Module	LBB 3513/00

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Interpreter Headphones	LBB 9095/30
Intercom Handset and Cradle	LBB 3555/00
Mounting Plate	LBB 3556/00
Electronic Channel Selector Panel	LBB 3524/00
Electronic Channel Selector Panel with Backlighting	LBB 3524/10
Table-Top Housing for Channel Selector	LBB 3525/00

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Termination Plug for DCN Cable	LBB 4118/00
Lightweight Headphones	LBB 3440/00
Replacement Earpads for LBB 3440/00 Headphones	LBB 3440/50
Under The Chin Headphones	LBB 3441/00
Replacement Eartips for LBB 3441/00 Headphones	LBB 3441/50
Single Earphone	LBB 3442/00
High-Quality Dynamic Headphones	LBB 3015/04
Replacement Earpads for LBB 3015/04 Headphones	LBB 9095/50

8. Central control equipment

8.1 Control Units

Basic Central Control Unit

The Basic Central Control Unit shall be microprocessor-controlled and shall provide facilities for conference control in a stand-alone configuration. It shall provide the following:

- Control facilities for up to 240 contribution units such as Delegate Units, Chairman Units, Interpreter Desks, Dual Audio Interface Units and Multi-Purpose Connection Units
- A built-in power supply unit for itself and to supply power to 90 contribution units with a Power Consumption Factor of 1
- Control facilities for an unlimited number of distribution units such as Audio Media Interface Units, Data Distribu-tion Boards and Electronic Channel Selector Units
- Four separate intercom channels
- Digital audio control and processing facilities for thirty Hi Q digital audio channels
- An automatic audio equalizer for delegate- and chairman loudspeakers
- Control and processing facilities for ten 64 kilobit data channels
- Basic microphone management facilities including three operational modes
- Basic voting control which provides a parliamentary voting procedure
- Basic simultaneous interpretation functions with up to 11 interpretation channels plus the floor language
- Stand-alone automatic camera control

This Central Control Unit shall have the following controls and indicators:

- Mains on/off switch with green LED indicator
- 'Active Microphone' button with three yellow LED indicators to select the maximum number of delegate micro-phones that may be activated simultaneously (one, two or four) in stand-alone systems
- 'Microphone Mode' button with yellow LEDs to select microphone operating mode (OPEN, OVERRIDE and VOICE) in stand-alone systems
- Equalizer button with a green LED indicator to indicate ON and a red LED indicator to indicate BUSY, plus a switch to initiate audio equalizer adjustment
- Rotary loudspeaker tone controls for bass and treble adjustment
- Rotary loudspeaker volume control

It shall provide the following interconnection facilities:

- Three outlet trunk-line cable 6-pole circular connectors for connection of contribution-, distribution-, and interpretation units, and extension power supplies. Each connector shall be protected against short-circuit
- Three red LED indicators for trunk-line overload
- Two cinch-type line input connectors for two asymmetrical inputs
- Two cinch-type line output connectors for one symmetrical or two asymmetrical outputs
- Cinch-type tape/cassette recorder input and output
- Euro-mains socket with built-in fuse and 1.7 m (66.92 in) of matching mains cable
- 9-pole D-type diagnostics connector for testing purposes and automatic camera control

It shall be suitable for use free-standing or mounted in a 19" rack. It shall be 100 mm (3.93 in) high, 440 mm (17.32 in) wide and 308 mm (12.12 in) deep. The width including 19" brackets shall be 483 mm (19.01 in). The depth including handles shall be 348 mm (13.70 in). It shall weigh 9.3 kg (20.5 lb). Mounting brackets for 19-inch rack mounting shall be included.

Extended Central Control Unit

The Extended Central Control Unit shall be microprocessor-controlled and shall be used in combination with an IBM-compatible personal computer and DCN software modules to provide facilities for conference control. In the event of computer failure it shall revert to a default operating mode which is identical to that of the Basic Central Control Unit. It shall be possible to connect the Extended Central Control Unit directly to a PC. It shall provide the following:

- Control facilities for up to 240 contribution units such as Delegate Units, Chairman Units, Interpreter Desks, Dual Audio Interface Units and Multi-Purpose Connection Units
- A built-in power supply unit for itself and to supply power to 180 contribution units with a Power Consumption Factor of 1
- Control facilities for an unlimited number of distribution units such as Audio Media Interface Units, Data Distribution Boards and Electronic Channel Selector Units
- Four separate intercom channels
- Digital audio control and processing facilities for thirty Hi Q digital audio channels
- An automatic audio equalizer for delegate- and chairman loudspeakers
- Control and processing facilities for ten 64 kilobit data channels
- Basic microphone management facilities including three operational modes
- Extended microphone management facilities depending on installed software (Microphone Management and/or Syn-optic Microphone Control DCN software modules)
- Basic voting control which provides a parliamentary voting procedure
- Up to six voting modes depending on installed software (Multi Voting or Parliamentary Voting DCN software modules)
- Basic simultaneous interpretation functions with up to 11 interpretation channels plus the floor language
- Extended simultaneous interpretation facilities if the Simultaneous Interpretation software module is installed

These shall include:

  - Channel/desk assignment
  - Specifying the microphone interlock mode
  - Printing interpreter configuration information
  - On-line monitoring of interpreter activity
  - Monitoring channel- and desk routing
  - 15 interpretation channels plus the floor language

- Additional extended facilities depending on which DCN software modules are installed:
  - Intercommunication (max. 23 channels fully duplex)
  - Delegates Database compilation
  - Attendance registration
  - Message generation and distribution
  - Hall display of conference-related data
  - Video display

The Extended Central Control Unit shall have the following controls and indicators:

- Mains on/off switch with green LED indicator
- 'Active Microphone' button with three yellow LED indicators to select the maximum number of delegate microphones which may be activated simultaneously one, two or four) in stand-alone systems
- 'Microphone Mode' button with yellow LEDs to select microphone operating mode (OPEN, OVERRIDE and VOICE) in stand-alone systems
- Equalizer button with a green LED indicator to indicate ON and a red LED indicator to indicate BUSY, plus a switch to initiate audio equalizer adjustment
- Rotary loudspeaker tone controls for bass and treble adjustment
- Rotary loudspeaker volume control

It shall provide the following interconnection facilities:

- Three outlet trunk-line cable 6-pole circular connectors for connection of contribution-, distribution-, and interpretation units, and extension power supplies. Each socket shall be protected against shortcircuit
- Three red LED indicators for trunk-line overload
- Two cinch-type line input connectors for one symmetrical or two asymmetrical inputs
- Two cinch-type line output connectors for one symmetrical or two asymmetrical outputs
- Cinch-type tape/cassette recorder input and output
- Euro-mains socket with built-in fuse and 1.7 m (66.92 in) of matching mains cable
- 9-pole D-type diagnostics connector for testing purposes
- Two RS-232 serial data connectors for PC, camera control, remote control systems/devices or diagnostic equipment

It shall be suitable for use free-standing or mounted in a 19" rack. It shall be 100 mm (3.93 in) high, 440 mm (17.32 in) wide and 308 mm (12.12 in) deep. The width including 19" brackets shall be 483 mm (19.01 in). The depth including handles shall be 348 mm (13.70 in). It shall weigh 10.9 kg (24.0 lb). Mounting brackets for 19-inch rack mounting shall be included.

Multi Central Control Unit
The Multi Central Control Unit shall be microprocessor-controlled and shall be used in combination with an IBM-compatible personal computer and DCN software modules to provide facilities for conference control. It shall be possible to connect up to eight Multi Central Control Units together. In the event of computer failure it shall revert to a default operating mode which is identical to that of the Extended Central Control Unit. It shall be possible to connect the Extended Central Control Unit directly to a PC.
It shall provide the following:
- Up to 16 Multi CCUs can be connected together
- Control facilities for up to 3840 (1500 if used with Delegate Database software) contribution units such as Delegate Units, Chairman Units, Interpreter Desks, Dual Audio Interface Units and Multi-Purpose Connection Units (eight Multi CCUs required)
- A built-in power supply unit for itself and to supply power to at least 180 contribution units with a Power Consumption Factor of 1
- Control facilities for an unlimited number of distribution units such as Audio Media Interface Units, Data Distribution Boards and Electronic Channel Selector Units
- Four separate intercom channels
- Digital audio control and processing facilities for thirty Hi Q digital audio channels
- An automatic audio equalizer for delegate- and chairman loudspeakers
- Control and processing facilities for ten 64 kilobit data channels
- Basic microphone management facilities including three operational modes
- Extended microphone management facilities depending on installed software (Microphone Management and/or Synoptic Microphone Control DCN software modules)
- Basic voting control which provides a parliamentary voting procedure
- Up to six voting modes depending on installed software (Multi Voting or Parliamentary Voting DCN software modules)
- Basic simultaneous interpretation functions with up to 11 interpretation channels plus the floor language
- Extended simultaneous interpretation facilities if the Simultaneous Interpretation software module is installed These shall include:
  - Channel/desk assignment
  - Specifying the microphone interlock mode
  - Printing interpreter configuration information
  - On-line monitoring of interpreter activity
  - Monitoring channel- and desk routing
  - 15 interpretation channels plus the floor language
- Additional extended facilities depending on which DCN software modules are installed:
  - Intercommunication (max. 23 channels, fully duplex)
  - Delegates Database compilation
  - Attendance registration
  - Message generation and distribution
  - Hall display of conference-related data
  - Video display

The Multi Central Control Unit shall have the following controls and indicators:
- Mains on/off switch with green LED indicator
- 'Active Microphone' button with three yellow LED indicators to select the maximum number of delegate micro-phones which may be activated simultaneously one, two or four) in stand-alone systems
- 'Microphone Mode' button with yellow LEDs to select microphone operating mode (OPEN, OVERRIDE and VOICE) in stand-alone systems
- Equalizer button with a green LED indicator to indicate ON and a red LED indicator to indicate BUSY, plus a switch to initiate audio equalizer adjustment
- Rotary loudspeaker tone controls for bass and treble adjustment
- Rotary loudspeaker volume control
- Switch to select single or Multi CCU mode, with error indication

It shall provide the following interconnection facilities:
- Three outlet trunk-line cable 6-pole circular connectors for connection of contribution-, distribution-, and interpretation units, and extension power supplies. Each socket shall be protected against short-circuit
- Two BNC connectors for input/output closed-loop connection to other Multi CCUs and Multi CCU PC
- Three red LED indicators for trunk-line overload
- Two cinch-type line input connectors for one symmetrical or two asymmetrical inputs
- Two cinch-type line output connectors for one symmetrical or two asymmetrical outputs
- Cinch-type tape/cassette recorder input and output
- Euro-mains socket with built-in fuse and 1.7 m (66.92 in) of matching mains cable
- 5-pole circular diagnostics connector for testing purposes
- Two RS-232 serial data connectors for PC, camera control, remote control systems/devices or diagnostic equipment

It shall be suitable for use free-standing or mounted in a 19" rack. It shall be 100 mm (3.93 in) high, 440 mm (17.32 in) wide and 308 mm (12.12 in) deep. The width including 19" brackets shall be 483 mm (19.01 in). The depth including handles shall be 348 mm (13.70 in). It shall weigh 11.2 kg (24.7 lb). Mounting brackets for 19-inch rack mounting shall be included.

8.2 Power Supplies

System Extension Unit
The Extension Power Supply Unit shall provide power for 180 contribution units with a Power Consumption Factor of 1 in a DCN system. When connected to a Central Control Unit it shall switch on automatically when the Central Control Unit is switched on. It shall connect to the main trunk-line cabling using the loop-through cabling method. It shall be suitable for use free-standing or mounted in a 19" rack. It shall have a green 'Power On' LED indicator on the front panel.

It shall provide the following interconnection facilities:
- Three outlet trunk-line cable 6-pole circular connectors for connection of contribution, distribution, and interpretation units, and extension power supplies. Each socket shall be protected against short-circuit.
- Three red LED indicators for trunk-line overload
- Euro-mains socket with built-in fuse and 1.7 m (66.92 in) of matching mains cable
- 2 m (78.74 in) cable terminated with a moulded 6-pole circular connector

It shall be 100 mm (3.93 in) high, 220 mm (8.66 in) wide and 308 mm (12.12 in) deep. The depth including handles shall be 348 mm (13.70 in). It shall weigh 8.3 kg (18.26 lb). Mounting brackets for 19-inch rack mounting shall be included.

Audio Media Interface and Power Supply Unit
The Audio Media Interface and Power Supply Unit shall provide facilities for connecting external analogue equipment such as broadcast-, recording-, and wired or wireless sound distribution equipment to the DCN system. It shall have four digital-to-analogue converters and channel selection switches for floor and interpretation channels. It shall have a built-in power supply unit for supplying power to 90 contribution units with a Power Consumption Factor of 1 in a DCN system. When connected to a Central Control Unit it shall switch on automatically when the Central Control Unit is switched on. It shall connect to the main trunk-line cabling using the loop-through cabling method. It shall be suitable for use free-standing or mounted in a 19" rack. It shall have the following controls and indicators:
- 'Power On' green LED indicator
- Four 15-position rotary channel selector controls
- 5-position output selector to specify audio output for monitoring
- 6.3 mm (0.25 in) stereo jack headphone connector for audio monitoring

It shall provide the following interconnection facilities:
- Three outlet trunk-line cable 6-pole circular connectors for connection of contribution-, distribution- and interpretation units, and Extension Power Supplies, each socket shall be protected against short-circuit
- Three red LED indicators for trunk-line overload
- Euro-mains socket with built-in fuse and 1.7 m (66.92 in) of matching mains cable
- 2 m (78.74 in) cable terminated with a moulded 6-pole circular connector
- Four 3-pin XLR audio output sockets
- Four cinch audio output connectors

It shall be 100 mm (3.93 in) high, 220 mm (8.66 in) wide and 308 mm (12.12 in) deep. The depth including handles shall be 348 mm (13.70 in). It shall weigh 9.1 kg (20.02 lb). Mounting brackets for 19-inch rack mounting shall be included.

Power Supply for AutoDome System
The Power Supply shall supply 24 Va.c. to the Autodome system. It shall allow connection to 220 V - 240 V mains voltage at 50/60 Hz and have a power capacity of 20 VA.

8.3 Extension cards

PC Card for Multi-CCU systems
The PC Card for Multi-CCU systems shall provide the interface for communication between a PC and interconnected Multi-CCUs. A maximum of 16 Multi-CCUs shall be connected to the card in a closed loop configuration. Its dimensions shall enable it to be inserted in the ISA-bus expansion slot in the PC. It shall provide the following controls and indicators:
- DIP switches to define the card's digital input
- DIP switches to define the card's I/O address
- Red, Green and Yellow LEDs

It shall provide the following interconnection facilities:
- 16-bit ISA-bus connector
- Input connection for external power-fail signal
- Two BNC connectors for Multi-trunk in/out

It shall be 100 mm (3.93 in) high and 220 mm (8.66 in) wide.

Data Distribution Board
The Data Distribution Board shall be a printed circuit board that provides a data communication link between the DCN system and digital equipment such as hall displays. It shall enable transparent data transport between data communica-tion boards in the DCN system. The Data Distribution Board shall be isolated from the DCN system by opto-couplers.
It shall have an initialization button with LED indicator. It shall have an RS232 communication port and shall offer baud rates of 9600 or 1200 baud, selectable by an on-board dip switch. It shall have a 2 m (78.74 in) captive cable terminated with a moulded 6-pole circular connector. It shall have a multi-pole PCB connector for an external initialization button and LED, and an 18-bit parallel data input and output. It shall operate from an external supply voltage of between 7.5 and 35 Vd.c. It shall be 100 mm (3.93 in) high and 220 mm (8.66 in) wide.

8.4 Accessories

Suitcase for Central Control Unit
The suitcase shall accomodate a Central Control Unit or Audio Media Interface plus extension cables and mains plug. It shall be 495 x 685 x 225 mm (19.5 x 27.0 x 8.9 in) and weigh 4.95 kg (10.9 lb).

High-Quality Dynamic Headphones
The High-Quality Dynamic Headphones shall have a captive 1.2 m (47.24 in) cable terminated with a 3.5 mm (0.14 in) jack plug. They shall weigh 90 g (0.20 lb).

Replacement Earpads for Headphones
The Replacement Earpads shall be a set of 25 pairs of replacement earpads that are suitable for use with the LBB 3015/04 High-Quality Dynamic Headphones.

Set of 100 Chip-Cards
The Chip-Cards shall be standard credit-card format and shall provide a means for delegates to identify themselves to the DCN system. Each card shall contain a microchip, space for information insertion and user instructions.

Card Encoder
The Card Encoder shall be intended for use with the DCN ID-Card Encoder Software Module to encode Chip-Cards. It shall be 25 mm (1.0 in) high, 101 mm (4.0 in) wide and 132 mm (5.2 in) deep.

8.5 Manufacturer's type numbers

Page 38	
Basic Central Control Unit	LBB 3500/05 (D)
Extended Central Control Unit	LBB 3500/15 (D)
Page 40	
Multi Central Control Unit	LBB 3500/35 (D)
Page 41	
System Extension Unit	LBB 4106/00 (D)
Audio Media Interface and Power Supply Unit	LBB 3508/00 (D)
Page 42	
Power Supply for Autodome System	TC220 PSX-24
PC Card for Multi-CCU systems	LBB 3511/00
Data Distribution Board	LBB 3512/00
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Suitcase for Central Control Unit	LBB 3504/00
19" Rack Mounting Set	LBB 3501/00
High-Quality Dynamic Headphones	LBB 3015/04
Replacement Earpads for LBB 3015/04 Headphones	LBB 9095/50
Set of 100 Chip-Cards	LBB 4159/00
Card Encoder	LBB 4157/00

9. Application software

9.1 Application Software

Startup
The Startup software module shall be supplied on a CD-ROM and shall run in Windows version 2000 or XP Professional. It shall provide a pictorial menu from which other DCN software modules shall be selected and loaded. It shall provide a facility for automatically loading other DCN modules. It shall be used for opening, closing and deleting installation files and names files, and for setting system master volume, operator headphone volume and selecting a language channel for monitoring by the operator. It shall provide facilities for automatically showing, printing and clearing error messages generated by the DCN. Exiting Startup shall cause all active DCN software modules to terminate.

System Installation
The System Installation software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide a means of configuring contribution units connected to the DCN system. It shall provide facilities for assigning, deleting and changing seat numbers of these contribution units. It shall provide facilities for assigning functions to DCN audio channels. It shall be possible to print a list of installed seat numbers and/or channel assignments. It shall be possible to store data generated by this software module in files known as installation files. It shall provide facilities for creating, opening, saving and deleting installation files, and saving installation files under a new name. It shall be possible to download fonts to allow certain DCN contribution units to display complex European languages and icon-based scripts such as Chinese.

Microphone Management
The Microphone Management software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide a means of controlling the status of microphones connected to the DCN system by user name or number. It shall provide facilities for inserting, replacing and removing delegates from the speakers list, request-to-speak list and notebook. It shall provide display options for delegate seat numbers, delegate names, remaining or elapsed speech time, notebook, action box and status window. It shall provide facilities for specifying the system microphone mode, microphone access requirements, speech time limit parameters, microphone activity output, and enabling or disabling an attention tone linked to the chairman unit priority key. It shall provide facilities for automatic microphone testing. It shall be possible to store data generated by this software module in files known as microphone management files. It shall provide facilities for creating, opening and saving microphone management files, saving microphone management files under a new name and printing a list of microphone activity.

Synoptic Microphone Control
The Synoptic Microphone Control software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide a means of controlling the status of microphones connected to the DCN system via a synoptic layout of microphones in the conference venue. It shall provide display options for delegate seat numbers, small or large icons, action box and status window. It shall provide facilities for rotating the layout image, enabling or disabling a grid, displaying the grid, lining up icons with the grid and automatically numbering icons. It shall provide facilities for specifying the system microphone mode, microphone access requirements, speech time limit parameters, microphone activity output, and enabling or disabling an attention tone linked to the chairman unit priority key. It shall provide facilities for automatic microphone testing. It shall be possible to store data generated by this software module in files known as layout files. It shall provide facilities for creating, opening and saving layout files, saving layout files under a new name and printing a list of microphone activity.

Simultaneous Interpretation
The Simultaneous Interpretation software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide a means of pre-setting and monitoring simultaneous interpretations and language distribution in a DCN system. It shall provide facilities for assigning interpretation languages to system audio channels and to interpreter desks. It shall provide facilities for specifying the microphone interlock mode between interpreter desks and between interpreter booths, and an auto relay function. It shall be possible to print desk-language and channel-language assignments. It shall provide facilities for automatic microphone testing. It shall be possible to store data generated by this software module in files known as interpreter configuration files. It shall provide facilities for creating, opening, saving and deleting interpreter configuration files, and saving interpreter configuration files under a new name.

Intercom
The Intercom software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide facilities for establishing and re-routing private telephone calls between conference delegates. It shall provide a list of all delegates known to the DCN system and a search facility for locating delegates by name or seat number. It shall be possible to store data generated by this software module in files known as intercom files. It shall provide facilities for creating, opening, saving and deleting intercom files, and saving intercom files under a new name.

Parliamentary Voting
The Parliamentary Voting software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide a means of preparing for and controlling electronic voting in a DCN system. It shall be possible to store data generated by this software module in files known as script files. It shall be possible to copy voting motions from one script file to another, and there shall be a search facility for locating voting motions within a script file. It shall provide participants with the option of registering 'present', 'no', 'abstain' or 'yes'. There shall be facilities for specifying the vote type and other voting-related parameters. It shall be possible to specify a quorum setting that specifies how many authorized delegates must be present before a voting can legitimately take place. It shall be possible to specify a majority function that determines what percentage of votes constitutes a majority voting. It shall provide a timer option that allows a time limit to be set on voting motions. It shall be possible to start, stop, suspend and re-start voting, either with or without a script file being open. The software module shall provide style options for displaying voting results. It shall be possible to print script files and/or voting results. It shall provide facilities for creating, opening, saving and deleting script file, and saving script files under a new name. It shall also be possible to import script files from outside the Parliamentary Voting application.

Multi Voting
The Multi Voting software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide a means of preparing for and controlling electronic voting in a DCN system. It shall be possible to store data generated by this software module in files known as script files. It shall be possible to copy voting motions from one script file to another, and there shall be a search facility for locating voting results within a script file. Six kinds of voting shall be supported: Parliamentary voting, For/Against voting, Audience Response voting, Rating, Multiple Choice voting and Opinion Poll. There shall be facilities for specifying the vote type and other voting-related parameters. It shall provide a timer option that allows a time limit to be set on voting results. It shall be possible to specify a quorum setting that specifies how many authorized delegates must be present before a voting can legitimately take place. It shall be possible to specify a majority function that determines what percentage of votes constitutes a majority voting. It shall be possible to start, stop, suspend and re-start voting, either with or without a script file being open. It shall be possible to specify answer text for Multiple Choice voting results and to indicate on hall displays if an answer or answers is correct. The software module shall provide style options for displaying voting results. It shall be possible to print script files and/or voting results and to print Multiple Choice Reports giving voting information and results for a Multiple Choice script file. It shall provide facilities for creating, opening, saving and deleting script file, and saving script files under a new name. It shall also be possible to import script files from outside the Multi Voting application, and to export Multiple Choice Reports.

Attendance Registration
The Attendance Registration software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide facilities for recording the presence of delegates at a conference by means of an identification card, PIN code or the present key on a contribution unit. It shall provide facilities for displaying a list of all present and absent delegates, and the total number of all present and absent delegates. There shall be facilities for viewing at which time delegates register and leave the conference. There shall be facilities for saving and printing registration data. There shall be facilities for specifying access requirements at the entrance/exit and delegate units using identification cards (with or without PIN codes).

Delegate Database
The Delegate Database software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide a means of creating and editing an electronic database on conference delegates. It shall be possible to store data generated by this software module in files known as names files. It shall provide facilities for creating, opening, saving and deleting script files, and saving names files under a new name. Each delegate in the names file shall have a dedicated screen card and there shall be facilities for editing and entering screen card data. It shall be possible to enter personal data, such as address, company, birthdate, telephone number and fax number, into dedicated fields. There shall be a facility for searching for delegates by a user-specified field. It shall be possible to edit the PIN size and the contents of the group list. It shall be possible to specify the fields for the multiple names and print options, and for chip-cards. There shall be facilities for chip-card encoding and label printing. There shall be facilities for configuring the screen line.

ID-Card Encoder
The ID-Card Encoder software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall be used in combination with the Delegate Database Software module as a software driver that facilitates the production of ID-cards. An encoding unit shall be required for the encoding of the ID-cards.

Message Distribution
The Message Distribution software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide facilities for generating messages for distribution to personal delegate displays or hall displays. There shall be facilities for specifying where the messages shall be displayed. There shall be a library for storing messages, and a facility for recalling messages for distribution. There shall be a facility for automatically removing messages after a specified time. The generated messages shall be suitable for distribution to appropriate display mediums via the Text/ Display Software module.

Text/Status Display
The Text/Status Display software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide facilities for distributing voting results, messages and microphone information to displays in the conference venue. There shall be facilities for editing voting results headers, selecting which information is distributed to conference venue displays, and specifying the number of lines dedicated to the speakers list and request-to-speak list when displaying microphone information. These facilities shall be available for two separate displays.

Video Display
The Video Display software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide a means of distributing alphanumeric and video information to video displays connected to the DCN, via a Video Display Client application using a DDE or net DDE link. The Video Display Client software shall provide the possibility of editing display parameters such as layout, color and typeface. It shall be able to accept data from other DCN software modules such as Microphone Management, Delegate Database and Parliamentary Voting.

Multi CCU Control
The Multi CCU Control software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in OS2 Warp. It shall provide the means to install and monitor systems which use more than one Multi-Central Control Unit (CCU). It shall allow up to 32 Multi-CCUs to be interconnected in a single system of which eight are operational for control of systems with up to 1500 delegates.

Open Interface
The DCN Open Interface software shall be supplied on a 3 $^1/_2$" floppy disk and shall run in DOS 6.0 or higher. It shall allow remote control of selected DCN functions via third party equipment and control software. Control data exchange between DCN and the remote control device or system shall be transmitted via an RS232 port on the CCU. Access to the CCU for remote control shall be possible with the Open Interface software via a PC connection to the serial port of the CCU. It shall be possible to remotely control DCN functions such as System Configuration, System Installation, Microphone Management, Parliamentary Voting and Attendance Registration

Camera Control
The DCN Automatic Camera Control software module shall be supplied on a 3 $^1/_2$" floppy disk and shall run in Windows version 2000 or XP Professional. It shall provide facilities for selecting fixed or pre-positioned cameras to display active delegates. When no microphones are active, an overview camera shall automatically be selected. It shall be possible to display the camera images and delegate names on hall displays or other monitors together with other information about the current speaker if required (such as delegate identification. It shall be possible to cover up to 1500 delegate positions using a maximum of 256 cameras. The DCN Automatic Camera Control software module shall be available in two versions. A Stand-alone version shall be used with systems with no PC control, and a Control PC version shall be used with systems with one or more CCUs and a control PC.

9.2 Manufacturer's type numbers

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Startup	LBB 3590
System Installation	LBB 3585
Microphone Management	LBB 3570
Synoptic Microphone Control	LBB 3571
Simultaneous Interpretation	LBB 3572

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Intercom	LBB 3573
Parliamentary Voting	LBB 3575
Multi Voting	LBB 3576
Attendance Registration	LBB 3578

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Delegate Database	LBB 3580
ID-Card Encoder	LBB 3581
Message Distribution	LBB 3582
Text/Status Display	LBB 3583
Video Display	LBB 3584
Multi-CCU Control	LBB 3586
Open Interface	LBB 3587

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Camera Control (for PC control)	LBB 3588
Camera Control (for stand-alone)	LBB 3562

10. Information displays

10.1 Hall Displays

Numeric Hall Display
The Numeric Hall Display shall be a dot matrix display with a built-in power supply and shall be suitable for displaying voting results and elapsed/remaining voting time. It shall be supplied ready for use with an installed Data Distribution Board. The following voting information shall be displayed:
- Elapsed/remaining time
- Present
- Yes
- No
- Abstain
- Not Voted

Alphanumeric Hall Display
The Alphanumeric Hall Display shall be a dot matrix display with a built-in power supply and shall be suitable for dis-playing microphone information, voting results and motion information, and messages. This information shall be generated in the relevant DCN software modules and sent to the alphanumeric hall display via the Text/Status Display software module. The maximum number of display lines shall be 10 and the maximum number of characters per line shall be 33. The Alphanumeric Hall Display shall be supplied ready-for-use with an installed Data Distribution Board.

Geographic Hall Display
The Geographic Hall Display shall be an LED display with a built-in power supply and shall be suitable for displaying voting results according to the geographical location of the voters or by a list showing delegate names and countries. Each connected contribution unit in the conference venue shall be represented by three different colored LEDs which show how each delegate has voted ('YES', 'NO', ABSTAIN'). The Geographic Hall Display shall be supplied ready-for-use with an installed Data Distribution Board.

11. Cameras and accessories

11.1 Cameras and accessories

Video/Control Switcher
The Video/Control switcher shall allow automatic display of active speakers. It shall be controlled and configured by means of the DCN Automatic Camera Control application and up to four Keyboards. It shall provide the following:
- Control of cameras with up to 99 prepositions, and/or fixed position cameras
- Automatic control by means of up to four keyboards
- Up to 16 camera inputs and five video outputs
- On-screen display with two lines of 16 characters for delegate names and camera identification
- A congress hall overview picture shall be displayed when no microphones are active. A camera movement time (0.5 t 60 seconds) shall determine the duration of this overview picture when a camera has to move to a new camera preposition.
- A camera override option shall allow the choice of either automatically displaying the picture from the last activated microphone or of continuing to display the current speaker until that speaker's microphone is switched off.

The Video/Control Switcher shall have the following interconnection facilities:
- 16 BNC video inputs
- 5 BNC video outputs
- 16 looping video connections

The Video/Control Switcher shall have the following external accessory interfaces:
- Console - RS232 port for external PC or control interface: 9-pin D-type connector
- Biphase out - 12 ports for camera control: removable screw terminal connection blocks
- Keyboards - 4 ports for keyboard connection: 6-pin RS485 ports for Keyboards

It shall be suitable for use free-standing. It shall be 40 mm (1.7 in) high, 440 mm (17.3 in) wide and 305 mm (12 in) deep. It shall weigh 4 kg (8.8 lb).m

Other Video/Control Switcher types with the same characteristics and with up to 256 video inputs shall also be available.

Switcher Keyboard
The Keyboard shall be used to control and configure the Video/Control Switcher. It shall be used in conjunction with the DCN Automatic Camera Control application. It shall provide the following:
- A variable speed pan and tilt joystick control
- A full-function ergonomically-designed keyboard
- A 48-character on-screen display

It shall be suitable for use free-standing. It shall be 158 mm (6.1 in) high, 220 mm (8.7 in) wide and 51 mm (2 in) deep. It shall weigh 0.55 kg (1.2 lb).

Virtual keyboard software
A virtual keyboard is used to set the pre-positions of a single Dome System in DCN systems with Direct Camera Control (DCC). The Direct Camera Control mode shall allow automatic camera control using one Dome System without a video/control switcher and switcher keyboard. DCC shall be possible with DCN PC-controlled systems and DCN stand-alone systems without control PC. The operational system configuration shall be with direct control of one Dome System from a central control unit both for stand-alone and PC-controlled systems. The video output of the Dome System shall be directly connected to a TV-monitor or other video display device. Setting of the prepositions of the Dome system shall be done with virtual keyboard software on a PC. This PC shall be the DCN control PC or a temporary installation PC for stand-alone systems without PC. These PC's shall also be used for installation of the DCN automatic camera control software applicable for the type of system.

Dome System
The Dome System shall be suitable for use with camera control and switching equipment to provide visual monitoring of conferences. It shall be possible to mount the cameras in either suspended or hard ceilings. The system shall be comprised of a camera/lens module, a backbox/power supply module and a dome module. It shall be available in two versions, one conforming to the PAL B standard, and the other conforming to the NTSC standard. It shall provide the following:
- A high-speed pan-tilt color camera, with a 18:1 auto-iris, auto focus zoom lens
- A variable speed operation function
- A 360° angle of operation and 1/4" image format
- A facility to program the system with up to 99 prepositions

The Dome System shall require the following power:
- 21 to 28 Va.c.,

Four Dome modules shall be available. A choice of clear or tinted bubbles shall be provided. An indoor pendant mount shall be available.

Digital Color Cameras
The Digital Color Cameras shall be suitable for use as the fixed-position overview camera in conference applications. They shall be available in two versions, one conforming to the PAL B standard, and the other conforming to the NTSC standard. They shall provide the following:
- High-sensitivity, high-resolution color images
- Enhanced picture quality
- Automatic white balance and back-light compensation

The following accessories shall be available:
- Varifocal 2.8 to 12 mm manual lenses
- Varifocal 2.8 to 12 mm DC-iris lenses

17-inch Color Monitor
The 17-inch Color Monitor shall be suitable for use as an operator display with the DCN Automatic Camera Control application and the Video/Control Switcher in conference applications. The controls for volume, contrast, brightness, color and standard tint, shall be located on the front of the monitor. It shall also be possible to make monitor adjust-ments by means of on-screen menus. The monitor shall be housed in a compact metal cabinet.

It shall be available with 700-line PAL, NTSC or S-Video standard at 50 Hz. The tube shall have a 17" diagonal, 90° deflection, in-line guns and a vertical stripe phosphor with 0.42 mm (0.02 in) pitch. The screen size shall be 16 inches measured diagonally. Resolution shall be 700 TV lines or more. The video input shall be of the BNC (CVBS) and 4 pin Y/C connector type. It shall operate from an external supply voltage of between 120 and 230 Va.c. at 50/60 Hz. The power consumption shall be 80 VA. It shall be 363 mm (14.3 in) high, 400 mm (15.75 in) wide and 406 mm (16 in) deep. It shall weigh 19 kg (41.8 lb).

14-inch Color Monitor
The 14-inch Color Monitor shall be suitable for use as an operator display with the DCN Automatic Camera Control application and the Video/Control Switcher in conference applications. The on/off switch and a range of controls for color picture optimization shall be located on the front of the monitor. The monitor shall be housed in an attractive case and shall be suitable for use either as a desktop unit or rack-mounted. It shall be available in two version, one conforming to the PAL standard, and the other conforming to the NTSC standard.

It shall be available with a resolution of 350-lines at 50 Hz. The tube shall have a 14" diagonal, 90° deflection, in-line guns and a vertical stripe phosphor with 0.63 mm (0.02 in) pitch. The screen size shall be 14 inches measured diagonally. Resolution shall be 350 TV lines (CVBS) or 400 TV lines (Y/C). It shall operate from an external supply voltage of 120 Va.c. (PAL version) or 230 Va.c. (NTSC version) at 50/60 Hz. The power consumption shall be 65 W. It shall be 330 mm (13 in) high, 353 mm (13.9 in) wide and 390 mm (15.3 in) deep. It shall weigh 14 kg (30.8 lb).

11.2 Manufacturer's type numbers

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Video/Control Switcher	LTC 8200
Switcher Keyboard	LTC 8555/00
Virtual Keyboard Software	LTC 5138/00

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Dome System	G3A series
17-inch Color Monitor	LTC 2917/91
14-inch Color Monitor	LTC 2814

12. Installation equipment

12.1 Installation Equipment

Trunk-Cable Splitter
The Trunk-Cable Splitter shall be suitable for dividing the trunk-line cabling and alter the cabling direction. It shall be supplied with cable restraining clamps. It shall have 2 m (78.74 in) captive cable terminated with a moulded 6-pole circular connector, a 6-pole circular connector socket for loop-through connections, and two 6-pole circular connectors for tap-off purposes. It shall be 35 mm (1.37 in) high, 49 mm (1.91 in) wide and 140 mm (5.51 in) deep. It shall weigh approximately 0.3 kg (0.66 lb).

Tap-Off Unit
The Tap-Off Unit shall be suitable for creating short-circuit-proof tap-off points on the DCN trunk-line cabling. Each tap-off point shall enable connection of up to four Electronic Channel Selector Panels or up to two table-top contribu-tion units such as delegate-, chairman- or interpreter desks. Each Tap-Off Units shall consist of two tap-off points. It shall be supplied with cable restraining clamps and shall include mounting holes for fixing purposes. It shall have 2 m captive cable terminated with a moulded 6-pole circular connector, a 6-pole circular connector socket for loop-through connections, and two 6-pole circular connectors for tap-off purposes. Each tap-off shall be equipped with an electronic short-circuit protection facility on the power supply lines. It shall be 35 mm (1.37 in) high, 49 mm (1.91 in) wide and 140 mm (5.51 in) deep. It shall weigh approximately 0.3 kg (0.66 lb).

Extension Cable Assembly
The Extension Cable Assembly shall consist of 2 m (78.74 in), 5 m (196.85 in), 10 m (393.70 in), 15 m (590.55 in), 20 m (787.40 in) or 25 m (984.25 in) of 6 mm (0.24 in) diameter cable terminated at one end with a moulded 6-pole male circular connector and at the other end with 6-pole female circular connector.

100 m Installation Cable
This shall consist of 100 m (328 ft) of 6 mm (0.24 in) diameter cable. It shall be identical to the Extension Cable Assemblies but without connectors.

Termination Plug for DCN Cable
This Termination Plug shall be specially designed for use with open-ended DCN cabling. It shall be connected to the output cable of the last Channel Selector Panel with two captive cables.

Set of 25 Cable Locking Clamps
A set of Cable Locking Clamps shall match male and female cable connectors such as those on Extension Cable Assemblies. Each male/female connector shall require one clamp.

12.2 Manufacturer's type numbers

Trunk-Cable Splitter	LBB 4114/00
Tap-Off Unit	LBB 4115/00
Extension Cable Assembly	LBB 4116/02, /05, /10, /15, /20, /25
100 m Installation Cable	LBB 4116/00
Set of 25 Cable Locking Clamps	LBB 4117/00
Termination Plug for DCN Cable	LBB 4118/00

13. Technical data and index

Conforming to the international standard IEC60914;
Conference systems - electrical and audio requirements.

13.1 Microphones

Frequency response	100 to 16.000 Hz
Transducer type	condenser
Directional pattern	cardioid
Max. SPL for THD <3%	110 dB
Equivalent input noise level	24 dB (A)

13.2 Headphones

Lightweight Headphones LBB 3443/00	
Impedance	32 Ω
Frequency response	50 Hz to 20 kHz
Max. power	50 mW
Sensitivity	98 dB
Under The Chin Headphones LBB 3441/00	
Impedance	150 Ω
Frequency response	50 Hz to 5 kHz
Max. power	60 mW
Sensitivity	107 dB
Dynamic Headphones LBB 3015/04 and LBB 9095/30	
Impedance	720 Ω
Frequency response	250 Hz to 13 kHz
Max. power	200 mW
Sensitivity	97 dB

13.3 Transmission links

- from delegate microphone to interpreter headphone
- from delegate microphone to delegate headphone
- from interpreter microphone to delegate headphone
- from interpreter microphone to interpreter headphone
- from auxiliary input to delegate headphone
- from auxiliary input to interpreter headphone
- from delegate microphone to auxiliary output
- from interpreter microphone to auxiliary output

Frequency response	125 to 14.000 Hz *
Harmonic distortion	<0.5%
Harmonic distortion at overload	<1%
Crosstalk attenuation at 4 kHz	>80 dB
Dynamic range	>90 dB
* intercom links	125 to 3.500 Hz

13.4 Combined units

- Delegate microphone with transmission link to interpreter headphone
- Delegate microphone with transmission link to delegate headphone
- Delegate microphone with transmission link to auxiliary output
- Interpreter microphone with transmission link to interpreter headphone
- Interpreter microphone with transmission link to delegate headphone
- Interpreter microphone with transmission link to auxiliary output

Frequency response	125 (-6 dB) to 14.000 Hz (-3 dB)
Front-to-random sensitivity index	>4.6 dB
Rated equivalent sound pressure level due to inherent noise	<25 dB SPL (A)
Total harmonic distortion at overload	<1%
Crosstalk attenuation	>80 dB

13.5 System electrical and electro-acoustic characteristics

Nominal input level	85 dB SPL
Overload input level	110 dB SPL
Automatic gain reduction at overload input level (not for PA-floor output)	30 dB (interpretation channels) 18 dB (delegate loudspeaker channel)
Automatic gain reduction with	
- two microphones on	3 dBm
- four or more microphones on	6 dBm
Operator master gain control	15 x 1 dB and OFF (Mute)
Loudspeaker gain control	14 x 1 dB and OFF

13.6 System environmental conditions

Working conditions	fixed/stationary/transportable
Temperature range	
- transport	-20 to +55 °C
- operating	+5 to +45 °C (+40°C for LBB 4106 and contribution units with LCDs)
Relative humidity	95% max
Safety	according to EC safety standard EN 60065, CAN/CSA-E65-94 (Canada and US) and UL 6500-96 (LBB 3500/xx (D), LBB 4106/00 (D) and LBB 3508/00 (D))
EMC emission	EN 55013 and FCC rules (part 15) for a class A device
EMC immunity	according to harmonized standard EN 55020 (1987)
EMC approvals	affixed with the CE mark EC directive 89/336 EEC
	ESD according to IEC 801-2; contact 4 kV, air 8 kV, fast transients to the mains and data lines according to IEC 801-4
Additional immunity tests	according to IEC 801-3. Field strength 3 V/m in the frequency range 80 - 1000 MHz, severity level 3: not affecting normal operation
Mains harmonics	prepared to EN 60555-2 Class A.

Other legal requirements	no cadmium used other than in the
Nickel-Cadmium battery	housed in the central unit
Shock resistance	according to IEC 86.2.29 Eb
Vibration resistance	according to IEC 68.2.6 Fc, procedure A

13.7 Interface data

LBB 3500/xx (D) Central Control Unit	
Line in/outputs	-18 dBV/ +12 dBV* (nominal/maximum)
Recorder in/output	-33 dBV/ -3 dBV
Mains voltage	105, 115, 125, 220, 230, 240 Va.c., 50/60 Hz
LBB 4106/00 (D) Extension Power Supply Unit	
Mains voltage	105, 115, 125, 220, 230, 240 Va.c., 50/60 Hz
LBB 3508/00 (D) Audio Media Interface Unit	
Symmetrical line outputs (XLR)	
- channels 0-11 (interpretation)	1 dBV/1 dBV (nominal/maximum)
- channels 12 and 15 (PA)	-8 dBV/+22 dBV
- channel 13 (loudspeaker)	1 dBV/ +13 dBV
Asymmetrical line outputs (Cinch)	
- channels 0-11 (interpretation)	-10 dBV/-10 dBV (nominal/maximum)
- channels 12 and 15 (PA)	-19 dBV/+11 dBV
- channel 13 (loudspeaker)	-10 dBV/ +2 dBV
Mains voltage	105, 115, 125, 220, 230, 240 Va.c., 50/60 Hz

* -12 dBV/+18 dBV when used as symmetrical output

13.8 Index of DCN equipment by part number

Notes

Notes