TAIDEN®

New Generation Digital Infrared Language Distribution System

New Generation Digital Infrared Language Distribution System

- Compliant to IEC 61603-7 and IEC 60914
- Compatible with any other infrared system compliant to IEC 61603-7
- Capable of distributing a maximum of 4, 8, 16, 32 or 40 audio channels
- Adopts 1 to 8 MHz frequency, undisturbed by HF-driven lighting sources
- Flexible configuration of channels and channel quality modes
- LCD receiver display shows channel number and complete language name
- Automatic synchronization: number of available channels is the same as number of channels in use by the system
- 270° super wide reception angle
- Works without errors, even in bright sunlight
- Bypass mode, used for signal distribution to multiple rooms
- Delay compensation for cable transmission
- Audio frequency response: 20 Hz ~ 20 kHz (perfect mode), weighted S/N >85 dBA

TAIDEN TDIR04
Digital Infrared Processing Chip

BRICS Business Forum 2017

TAIDEN: Global Top-ranking Manufacturer of Conference Systems

TAIDEN company has introduced successfully the digital infrared processing chip, and launched the world's first HCS-5300 Digital Infrared Conference System, and the HCS-5100 Digital Infrared Language Distribution System which conforms to the international standard for digital infared. This system provids superb sound quality, features complete language name display, 270° super wide reception angle and transmitter combination mode, that makes TAIDEN to be the world's leading conference system manufacturer.

Now, TAIDEN developed successfully the new generation digital infrared processing chip and launched HCS-5100Plus New Generation Digital Infrared Language Distribution System. This system supports at most 40 distributing channels which is the most advanced infrared language distribution system.

Fully Certificated, Comprehensive Compatibility

HCS-5100Plus New Generation Digital Infrared Language Distribution System is compliant to IEC 61603-7 and IEC 60914, moreover, compatible with any other infrared system compliant to IEC 61603-7.

IEC 61603: Transmission of audio and/or video and related signals using infrared radiation

IEC 61603-Part 7: Digital audio signals for conference and similar applications

IEC 60914: Conference systems - electrical and audio requirements

Shanghai Cooperation Organization Summit 2018

G20 Hangzhou Summit 2016

2017 UNCCD COP 13

2014 APEC Summit

Perfect Simultaneous Interpretation System

Interpretations will always arrive in prefect condition, as the HCS-5100Plus New Generation Digital Infrared Language Distribution System integrates seamlessly TAIDEN HCS-4100/50 Fully Digital Congress System and simultaneous interpreter unit.

HCS-8385/70
New Generation Fully Digital Interpreter Unit

HCS-4890/50 Series
Fully Digital Congress System

- Freedom of movement within the range of infrared power radiator
- Conference hall privacy: the congress venue itself acts as a barrier to infrared signals escaping and being overheard, as infrared is unable to pass through opaque objects such as walls
- The infrared communication frees users from worries about eavesdropping and radio interference inherent to radio wave-based wireless communications
- Audio frequency response: 20 Hz ~ 20 kHz (perfect mode), weighted S/N >85 dBA

HCS-5100M/F Series
New Generation Digital Infrared Transmitter

HCS-5100T/B Series
Digital Infrared Radiator

HCS-5100R/F Series
New Generation Digital Infrared Receiver

Complete Language Name Display

Delegates may select their preferential language intuitively with language names displayed on the receiver screen.

Function

Type No.	Channel	Battery
HCS-5100R/04F	4（1+3）	Li-ion/Alkaline
HCS-5100R/08F	8（1+7）	Li-ion/Alkaline
HCS-5100R/16F	16（1+15）	Li-ion/Alkaline
HCS-5100R/32F	32（1+31）	Li-ion/Alkaline
HCS-5100R/40F	40（1+39）	Li-ion/Alkaline
HCS-5100RA/04F	4（1+3）	Alkaline
HCS-5100RA/08F	8（1+7）	Alkaline
HCS-5100RA/16F	16（1+15）	Alkaline
HCS-5100RA/32F	32（1+31）	Alkaline
HCS-5100RA/40F	40（1+39）	Alkaline

HCS-5100R/F Series New Generation Digital Infrared Receiver

- Compliant to IEC 61603-7 and IEC 60914
- Compatible with any other infrared simultaneous interpretation system compliant to IEC 61603-7
- Independent intellectual property chipset for digital infrared processor, and DQPSK digital modulation/demodulation technology
- Transmitting in 1~8 MHz frequency band eliminates disturbance from HF lighting systems
- Channel selection via up/down button, at most 4, 8, 16, 32 or 40 channels available
- LCD display with channel number, language name, battery and signal status indication
- Number of available channels is always the same as the number of channels in use by the system, eliminating the need to scroll through unused channels
- Adjustable volume
- Unique 270° super wide reception angle, ensuring perfect sound quality even when casually placed
- Audio signal automatically muted when signal is too low, ensuring that the user receives only high quality audio
- Ergonomically compact and elegant design, can be hung over the neck via a nice strap or fit into the shirt pocket
- Lightweight and handy receiver in conjunction with single earphone or headphone for easy and comfortable use
- Freedom of movement within the range of infrared power radiator
- No limit to the receiver number within the infrared power radiation range
- Can be used with disposable batteries (2×AA alkaline batteries) or environmentally-friendly Li-ion rechargeable battery pack
- Works without errors, even in bright sunlight
- Built-in high precision rechargeable circuitry to prolong the battery life
- Supports mono and stereo earphones
- No power consumption when headphone is disconnected
- Measurement mode for easy checking of radiator coverage
- Can work with HCS-5300/80 New Generation Digital Infrared Wireless Conference System and achieve up to 1+7 channels infrared wireless simultaneous interpretation

HCS-5100T/B Series Digital Infrared Radiator
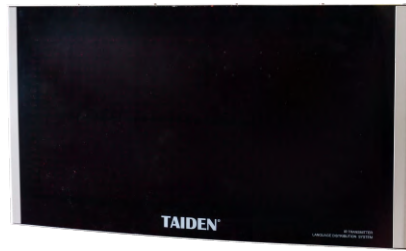
- Compliant to IEC 61603-7 and IEC 60914
- Compatible with any other infrared simultaneous interpretation system compliant to IEC 61603-7
- Different radiators (15 W/25 W/35 W) are available to suit venues of various sizes
- Standby indication, working indication, failure indication
- Installation: fixed up by bracket or tripod (various mountings available), 13 radiation angles
- Half-transmitting angle : ±22°
- Synchronization ON/OFF with transmitter
- Automatic gain control
- Temperature control: if temperature is too high, control switches to half-power with LED indication
- Manual half-power switch on the rear, convenience for small conferences
- HF input and output connectors (2×BNC) for connection to transmitter and loop-through to other radiators
- Delay compensation for differences in cable lengths between transmitter and radiators
- HF input/output impedance: 75 Ohm, used with RG-59 coaxial-cable
- Dimensions h×w×d (mm, excl. bracket): HCS-5100T/15B：212×448×110 mm
  - HCS-5100T/25B：212×448×110 mm
  - HCS-5100T/35B：272×498×110 mm
- Power consumption: HCS-5100T/15B：35 W
  - HCS-5100T/25B：62 W
  - HCS-5100T/35B：120 W

## Function

Type No.	Power
HCS-5100T/15B	15 W
HCS-5100T/25B	25 W
HCS-5100T/35B	35 W

The way to adjust the delay compensation

1) HCS-5100T/B delay time compensation window displays two digits from " 00" to "99" ("00" means without delay). 25 ns will be added per step, that means the delay time is from "25 ns" to "2475 ns (99×25)".

2) The signal delay rate of the connection cable is 5.0 ns per meter.

3) Set the delay time of the radiator which is the farthermost from the transmitter as reference, then adjust the delay time of the other radiators by "-", "+" button to make sure each delay time is the same as the reference time.

4) Calculation:

$$X = \frac{(L_{MAX} - L) \times 5.0}{25}$$

X: the value of the delay compensation to be adjusted in the window

L_{MAX}: the maximum length between the radiator and the transmitter

L: the length between the transmitter and the radiator to be adjusted

Delay compensation adjusting button
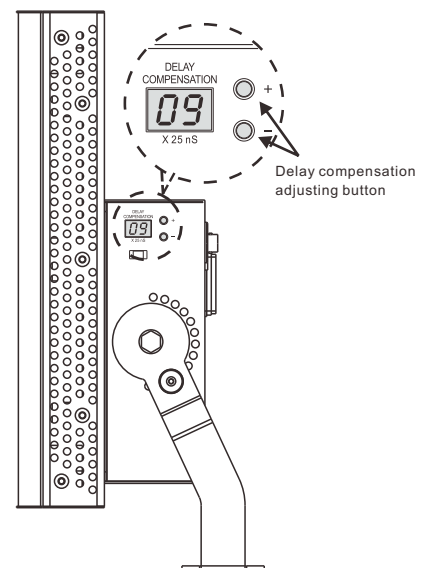
HCS-5100M/F Series
New Generation Digital Infrared Transmitter

- Compliant to IEC 61603-7 and IEC 60914
- Compatible with any other infrared simultaneous interpretation system compliant to IEC 61603-7
- DQPSK digital modulation/demodulation technology
- Conference hall privacy; the congress venue itself acts as a barrier to infrared signals escaping and being overheard, as infrared is unable to pass through opaque objects such as walls
- Suitable for various kinds (small/medium/large international) of conference halls and outdoor venues
- Transmitting in 1~8 MHz frequency band eliminates disturbance from HF lighting systems
- Each audio channel can be assigned a language name for easy identification, language name can be defined
- Adjustable sensitivity for each input to enable fine tuning of audio levels, support levels indicating of audio input
- Automatic synchronization to the number of channels in use by the system
- Bypass mode for distribution of signals from another transmitter allows multiple rooms to be used
- With DANTE interface for connection to dante network to input audio signal (only HCS-5100MC/FD)
- USB interfaces to upgrade system and to save system parameters
- Emergency signal interface: when the public emergency system is active, alarm signal can be fed to all channels automatically
- 6P-DIN connector for connecting to HCS-8385/70 Interpreter Unit directly
- Optical fiber interface, 6P-DIN connector and DCS interface for connecting to HCS-8300/HCS-4100/50 Series Congress Main Unit
- 6 BNC output connectors for HF signals, to connect to radiators
- One BNC connector for receiving HF signal from another transmitter
- Ethernet and RS-232 ports for connection to computer
- RS-232 port also for connection to network central control system
- During adjournment, music mode can be used to feed music to all channels
- Flexible configuration of channels and channel quality modes:
  - Mono, standard quality, maximum 40 channels
  - Mono, perfect quality, maximum 20 channels
  - Stereo, standard quality, maximum 20 channels
  - Stereo, perfect quality, maximum 10 channels
- Independent test facility: diverse self-generated frequencies for system debugging
- Built-in infrared emitters in transmitter for audio monitoring in operating room
- Universal mains power facility allows use worldwide
- With web page control function, transmitter can be controlled through web page
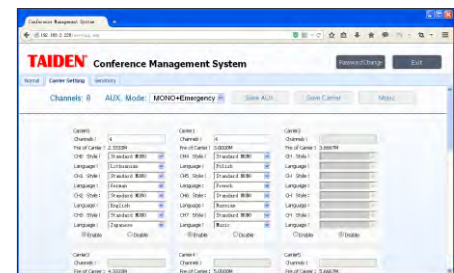
Web Control

Function

Type No.	Channel	Optical fiber interface (for HCS-4100M/50、HCS-8300M)	DCS interface	6P-DIN connector (for HCS-4100M/50、HCS-8300M、HCS-8385)	Dante interface
HCS-5100MA/FS/04F	4（1+3）	✔	✔	✔	
HCS-5100MA/FS/08F	8（1+7）	✔	✔	✔	
HCS-5100MA/FS/16F	16（1+15）	✔	✔	✔	
HCS-5100MA/04F	4（1+3）		✔	✔	
HCS-5100MA/08F	8（1+7）		✔	✔	
HCS-5100MA/16F	16（1+15）		✔	✔	
HCS-5100MC/04FD	4（1+3）				✔
HCS-5100MC/08FD	8（1+7）				✔
HCS-5100MC/16FD	16（1+15）				✔
HCS-5100MC/04F	4（1+3）				
HCS-5100MC/08F	8（1+7）				
HCS-5100MC/16F	16（1+15）				
HCS-5100MC/32F	32（1+31）				
HCS-5100MC/40F	40（1+39）				

HCS-8385/70
New Generation Fully Digital Simultaneous Interpreter Unit

- User-centered design: incorporating most recent requirements from conference interpreters
  (at European Institutions, the United Nations, …)
- "Closed Loop - Daisy Chain" connection topology for a high operational system reliability: breakdown or replacement of
  a congress unit and connection failure of a cable will not influence other congress units in the system
- Accommodates up to 64 interpretation channels (incl. floor channel)
- Supporting 48 kHz audio sampling rate, all 64 channels with a frequency response of 30 Hz to 20 kHz
- Integrated high-pass filter (low-cut switch) to cut low frequency elements from the audio when needed
- Direct and relay interpretation available
- Auto relay interpretation facility
- Presets language name either by the main unit or the application software
- 7.2″ TFT LCD high quality display:
  - Unit configuration information
  - Incoming/outgoing channel number and language name
  - Channel number and language name of loudspeaker output
  - Incoming language quality indication
  - The audio stream status of the output channel: recording/monitoring by the infrared language distribution system
  - How many people are listening to the output channel
  - Short messages (administrator can send messages to all or part of participants, even a certain one)
  - Multilingual menus available
  - Integrated real-time clock display on the LCD of the interpreter unit to inform interpreter to stay on schedule
- 7 pre-select buttons (1/2/3/4/5/6/7) for relay languages with activation indication on the LCD
- Rotary step control for fast selection of language channels
- A/B/C channel key with indicator
- Uni-directional electret condenser microphone with illuminated ring, can be unplugged during adjournment, easy to maintain
- Gain and EQ of the activated microphone adjustable either by the main unit or the application software

1 Built-in loudspeaker with volume control

2 Controls for headphone volume, treble and bass

3 Function knob and Home key

4 Color LCD display for control and information

5 7 monitor channels selection

6 A/B/C output channels selection

7 Short-cut buttons
   (Video/Repeat/Message/Slow/Help)
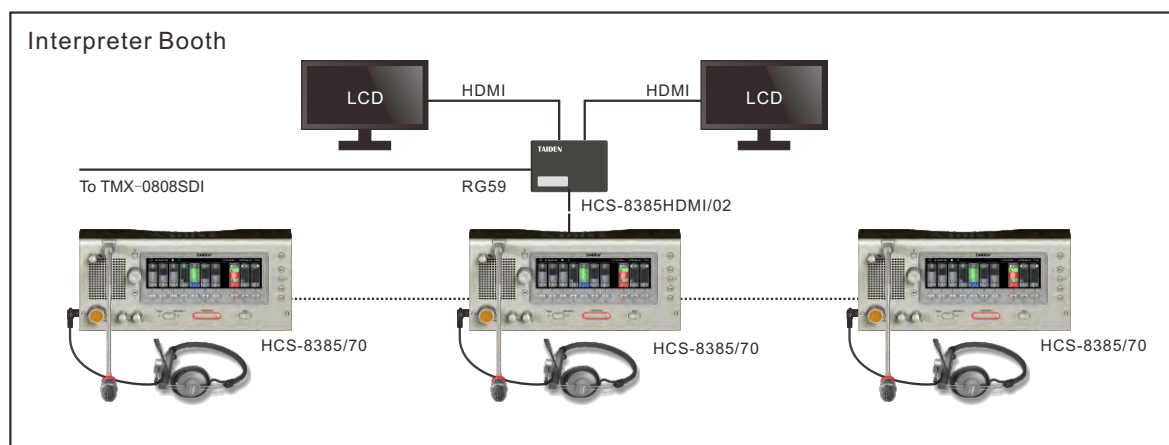
8 Braille indicators

9 Large microphone button

   Mic ready

   Mic in use

   Interlocked, mic disabled

- Built-in loudspeaker with volume control. If all microphones in the same booth are off, the loudspeaker will play floor language or interpretation channel
- Channel interlock function permits only one microphone on a channel to be activated at any time, ensuring the uniqueness of language channels
- Mute function prevents constrained voice being transmitted (MUTE key)
- Speak slowly function to alert the current speaker to slow down (SLOW key) (Can be disabled)
- Call funtion contact operator for help when connected to PC and controlled by application software (HELP key) (Can be disabled)
- Repeat function (REP. Key) (Can be disabled)
- Beeps function
- Video monitor integration: connection to third party HDMI monitors, video source selection can be made from the Interpreter Unit (VIDEO key) (Can be disabled)
- Mobile messaging integration: lead interpreter can send text messages from a mobile phone to all Interpreter Units via Bluetooth
- Password function available
    - System manager could set password for authorization of changing interpreter unit setting, so as to avoid random alteration
    - Interpreters could save and reload personal settings on any interpreter unit in the system with the password
- Interpreter unit's microphone can be turned off and A/B/C output channels can be changed by conference management software
- 3× φ3.5 mm TRRS jack for headset volume and bass/ treble adjustable
- Hearing protection:
    - When headphones are plugged in, impedance is automatically recognized and audio level is adjusted accordingly
    - When headphones level exceeds a preset value, a beep will be triggered to alert
- Connection cable is compatible with the trunk-line cable, thus interpreter units can be easily added to system in place
- A maximum of six interpreter units can be installed in each booth
- Length of stem mic.: 330 mm (default), 240 mm, 410 mm or 470 mm
- Installation: tabletop or flush-mounted
- Connection:
    - 1.5 m cable with 6P-DIN standard plug
    - 0.6 m cable with 6P-DIN standard socket

HD Video Solution for Interpreter Booth

- Connecting to TAIDEN High Definition Video Matrix Switcher through HCS-8385HDMI series video converter, up to 8 channels HD video signals can be transmitted to the monitors in the booths, and can easily switch between video sources via "VIDEO" button on the interpreter unit.

Accessories

HCS-5100PM
Headphone

- Used with the receiver or a conference unit
- Excellent sound quality
- 32 Ω ×2, Ø 3.5 mm stereo plug (TRS)
- Frequency response: 20 Hz to 20 kHz
- Sensitivity: ≥108 dBA/1 mW
- Weight: 45 g

HCS-5100PA
Headphone (stereo)

- Used with the receiver or a congress unit
- Hi-Fi sound quality
- 32 Ω ×2, Ø 3.5 mm stereo plug (TRS)
- Frequency response: 20 Hz to 20 kHz
- Sensitivity: ≥108 dBA/1 mW
- Weight: 70 g

EP-820AS
Single Earphone

- Used with the receiver or a congress unit
- Hi-Fi sound quality
- Ø 3.5 mm stereo plug (TRS)
- 32 Ω (Tip and Sleeve, Ring: NC)
- Frequency response: 50 Hz to 20 kHz
- Sensitivity: ≥102 dBA/1 mW
- Weight: 20 g

Ear pads are detachable and washable

EP-960AN Interpreter Headset

- Used with the interpreter unit
- Hi-Fi sound quality
- 150 Ω ×2, Ø 3.5 mm TRRS plug
- Frequency response of headphone: 20 Hz to 20 kHz
- Sensitivity: ≥108 dBA/1 mW
- Frequency of microphone: 50 Hz to 20 kHz
- Sensitivity of microphone: -48 dBV/Pa
- Weight: 95 g

Ear pads are detachable and washable

EP-960BH Interpreter Headphone

- Used with the interpreter unit
- Hi-Fi sound quality
- 150 Ω ×2, Ø 3.5 mm stereo plug
- Frequency response: 20 Hz to 20 kHz
- Sensitivity: ≥108 dBA/1 mW
- Weight: 90 g

Earshaell is detachable and washable

EP-829/ EP-829SW
Single Earphone

- Used with the receiver or a congress unit
- Hi-Fi sound quality
- Ø 3.5 mm stereo plug (TRS)
- 32 Ω (Tip and Sleeve, Ring: NC)
- Frequency response: 20 Hz to 20 kHz
- Sensitivity: ≥108 dBA/1 mW
- Built-in magnetic control switch (EP-829SW)
- Weight: 35 g

HCS-5100BAT-Li
Li-ion Rechargeable Battery Pack

- 1500 mAh，3.7 V
- Dimensions h×w×d (mm): 15×48×29
- Weight: 45 g

HCS-5100CHG/60
IR Receiver Charging Case

- Used for charging infrared receivers (HCS-5100R)
- High efficiency switch mode
- Input voltage: AC 100 V-240 V, 50 Hz/60 Hz
- Charges 60 pcs of infrared receivers per charging
- Dimensions h×w×d (mm): 260×610×405
- Weight: 14.5 kg (w/o infrared receiver)

HCS-5100KS
IR Receiver Storage Case

- Used for storing and transporting infrared receivers
- Every case can store up to 100 infrared receivers
- Dimensions h×w×d (mm): 205×669×307
- Net weight: 6 kg (w/o infrared receiver)
- Gross weight: 14 kg (w/100 pcs infrared receivers, w/o battery)

HCS-851A/02 Interpreter Booth

HCS-851A/03 Interpreter Booth

HCS-851A/02 Interpreter Booth

- Compliant to ISO 4043
- Odorless, antistatic, fire-retardant material
- Optimum insulation and sound absorption
- Hinged door (with observation window 0.20 m × 0.20 m), opens outwards, operates silently
- Two front windows and two side windows (high: 0.87 m); lower edge of the window: 0.79 m from booth floor
- Booth to hall (and vice versa) - sound pressure level difference: >24 dB (1 kHz)
- Reverberation time inside the booth: between 0.3 and 0.5 s (octave bands from 125 Hz to 4000 Hz, booth unoccupied)
- Ventilation system (purging 8 times per hour at least) of interpretation booth uses low-noise exhaust fan
- Internal dimensions of the booth h×w×d (cm): 200×160×160, accommodates two interpreters
- Overall dimensions of the booth h×w×d (cm): 204×168×168
- Shipping needs HCS-851K Interpreter Booth Shipping Case
  - Dimensions of HCS-851K h×w×d (cm): 110×209×75
  - Weight (incl. the booth): 297 kg

HCS-851K Interpreter Booth Shipping Case

HCS-851KT Interpreter Booth Shipping Case

HCS-851A/03 Interpreter Booth

- Compliant to ISO 4043
- Odorless, antistatic, fire-retardant material
- Optimum insulation and sound absorption
- Hinged door (with observation window 0.20 m × 0.20 m), opens outwards, operates silently
- Three front windows and two side windows (high: 0.87 m); lower edge of the window: 0.79 m from booth floor
- Booth to hall (and vice versa) - sound pressure level difference: >24 dB (1 kHz)
- Reverberation time inside the booth: between 0.3 and 0.5 s (octave bands from 125 Hz to 4000 Hz, booth unoccupied)
- Ventilation system (purging 8 times per hour at least) of interpretation booth uses low-noise exhaust fan
- Internal dimensions h×w×d (cm): 200×250×160, accommodates three interpreters
- Overall dimensions h×w×d (cm): 204×252×172
- Shipping needs HCS-851K and HCS-851KT Interpreter Booth Shipping Case
  - Dimensions of HCS-851K h×w×d (cm): 110×209×75
  - Dimensions of HCS-851KT h×w×d (cm): 91×215×40
  - Weight (incl. the booth): 415 kg

Directional Sensitivity of the Receiver

Infrared is an invisible light with directivity. The sensitivity of a receiver is at its best when it is aimed directly towards a radiator. HCS-5100R/F Series New Generation Digital Infrared Receiver comes with unique 270° super wide reception angle, ensuring perfect sound quality even when casually placed (Figure 1).

Positioning the Radiators

Since infrared radiation can reach a receiver directly and/or via diffused reflections (Figure 2), it is important to take this into account when considering the positioning of the radiators. Though it is best if receivers pick up direct path infrared radiation, reflections improve the signal reception and should therefore not be minimised. Radiators should be positioned high enough (no less than 2.5 m) not to be blocked by people in the hall (Figure 3).

Figure 1

Figure 2

Figure 3
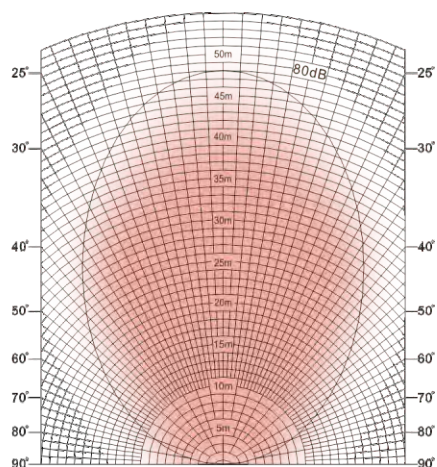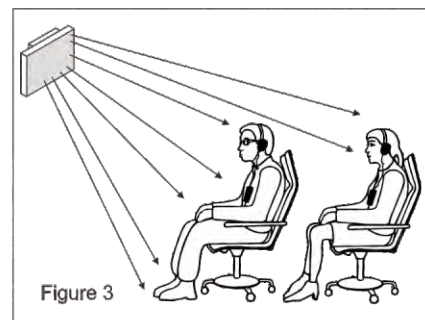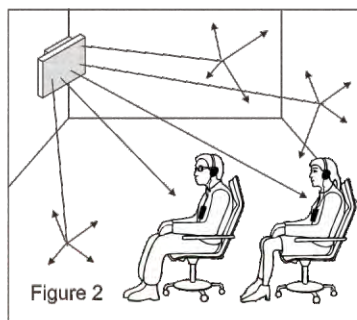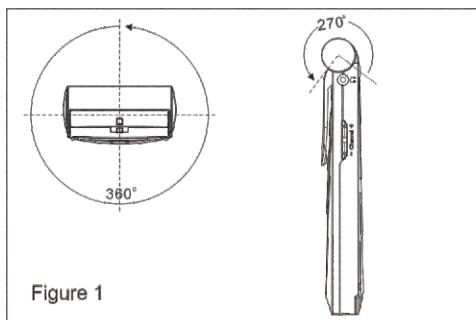
Distribution Pattern
Model: HCS-5100T/25B
Channels: 8 CHs
Direction: Horizontal
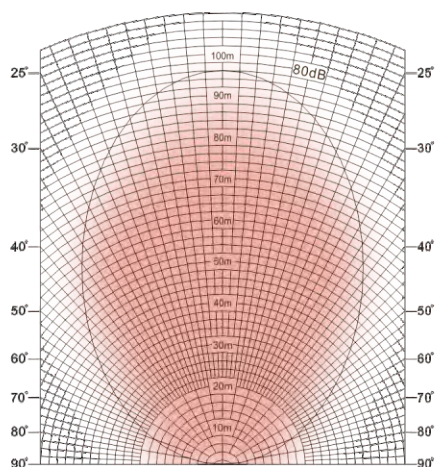
Distribution Pattern
Model: HCS-5100T/35B
Channels: 8 CHs
Direction: Horizontal

System Performance

Conforms to IEC 60914, the international standard for conference systems
Conforms to IEC 61603-7, the international standard for digital infrared transmission of audio signals for conference and similar applications

Transmission Characteristics

IR transmission wavelength .... 870 nm
Protocol and modulation .... DQPSK, according to IEC 61603-7
Modulation frequency .... 1 to 8 MHz, carriers 0 to 5 (2 - 6 MHz) according to IEC 61603-7
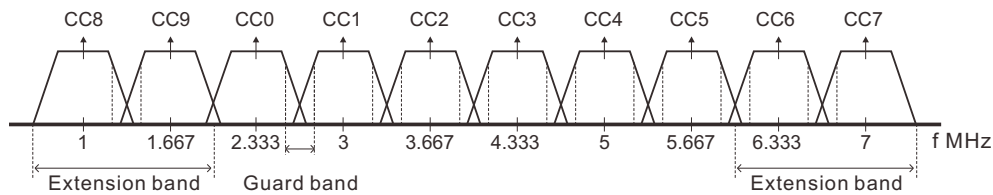Band allocation:

System Audio Performance

(System audio performance is measured from the audio input of an HCS-5100M/F transmitter to the headphone output of an HCS-5100R/F receiver)

Audio frequency response .... 20 Hz to 10 kHz (-3 dB)
at Standard Quality
.... 20 Hz to 20 kHz (-3 dB)
at Perfect Quality

Total harmonic distortion at 1 kHz .... < 0.1 %
Isolation .... > 80 dB
Dynamic range .... > 90 dB
Weighted signal-to-noise ratio .... > 85 dBA
Input range .... -12 dBV ~ +12 dBV (adjustable)
Operating duration of battery .... 42 h (Li-ion rechargeable battery pack)
.... 70 h (2×AA alkaline cells)

System Environmental Conditions

Transport temperature .... -40 ^{o}C ~ +70 ^{o}C
Operational temperature .... 0 ^{o}C ~ +45 ^{o}C
Max. relative humidity .... <95% (no condensation)
Safety .... Compliant to EN60065
EMC emission .... Compliant to EN55022
EMC immunity .... Compliant to EN55024
EMC approvals .... CE, FCC
Power harmonics .... Compliant to EN61000-3-2
Voltage fluctuations and flicker .... Compliant to EN61000-3-3

www.taiden.com

HCS-8300MAD/FS/20 (Congress main unit)

HCS-5100MA/FS/08F (Digital Infrared Transmitter)

Connect to
DANTE network

CBL6PS   CBL6PS

Cat.5

RG-59   RG-59

HCS-4886CW/52

HCS-4886DW/52

HCS-5100T/B   HCS-5100T/B

Interpreter Booth 1   HCS-8385/70

Interpreter Booth 1   HCS-8385/70

HCS-5100R/F
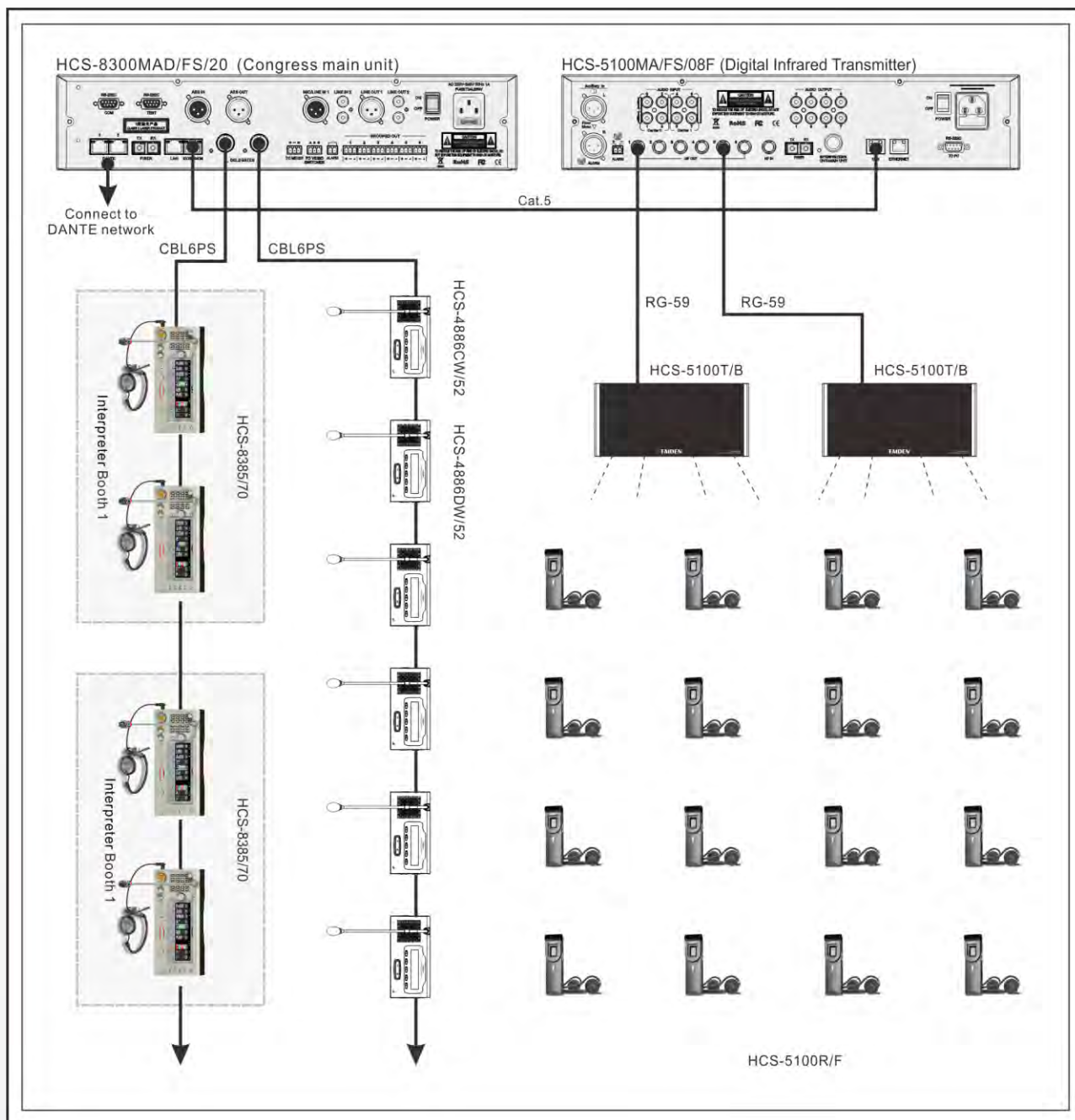
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Certificated by ANAB

CE certificated
(including EMC and Safety)

FCC certificated

RoHS Compliance with Directive
2011/65/EU of the
European Parliament

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