



CONSTRUCTION
INDUSTRY COUNCIL
建造業議會

Communication System Mechanic Trade Test Mock Practical Test Paper

此文件關於電訊系統裝配工工藝測試考題。如有需要索取此文件的中文版本，
請致電 2100 9000 與香港建造業工藝測試中心聯絡。

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ECT (E324) Communication System Mechanic (Skilled Worker)

[Practical Test]

Trade: Communication System Mechanic (ECT)
Skills level: Skilled Worker
Test Duration: 4 Hours for Practical Test; 30 Minutes for Written Test

Assessment Criteria

The test consists of two sections: 'practical test' and 'multiple choice questions'.

The 'practical test' section is composed of four sub-sections while there is a separate section of 'multiple choice questions'. A candidate must obtain 50% or above in each sub-section and an overall 60% in each section in order to pass the test.

Marking Scheme

Question	Practical test	Full Mark	Passing mark
1	Colour Identification and Multi-core telecommunications cable terminal processing	12	6
2	Soldering Skill	10	5
3	Install "PABX" system	38	19
4	Install "IBCCD" system	40	20
	Practical test : Total	100	60

Under no circumstances shall time be given for non-completion within the prescribed period.

[Practical Test]

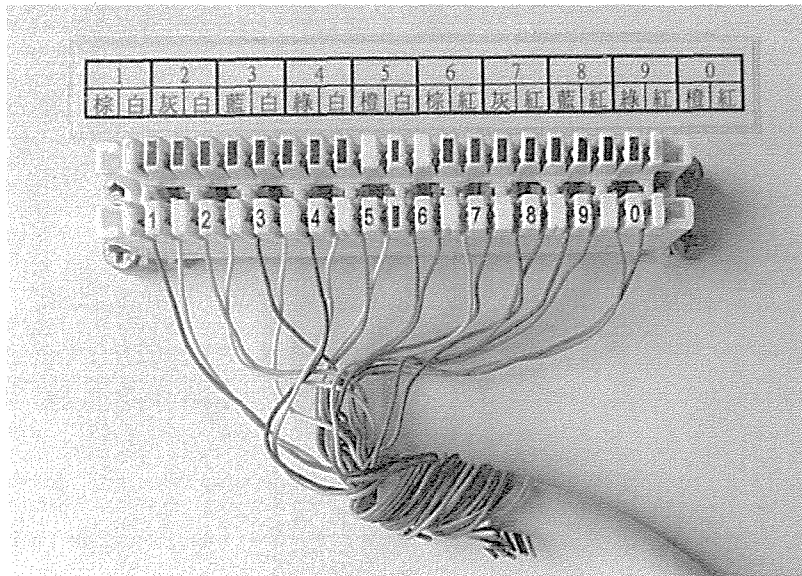
Test 1 : Colour Identification and Multi-core telecommunications cable terminal processing

Objective:

To assess candidates' colour identification competency and their practical skills in connecting multi-core cables.

Requirements:

Connect 20 colour wires of a 40-core telecommunications cable to the specific positions of the connector respectively. (As diagram below)



(Reference Diagram)

Materials:

1. Krone block
2. 40-core communications cable

Tools:

1. Wire Stripper
2. IDC (Insulation displacement connection) tool

Note:

1. Marks will be deducted for unstable work.
2. Position and colour must be respectively matched.

[Practical Test]

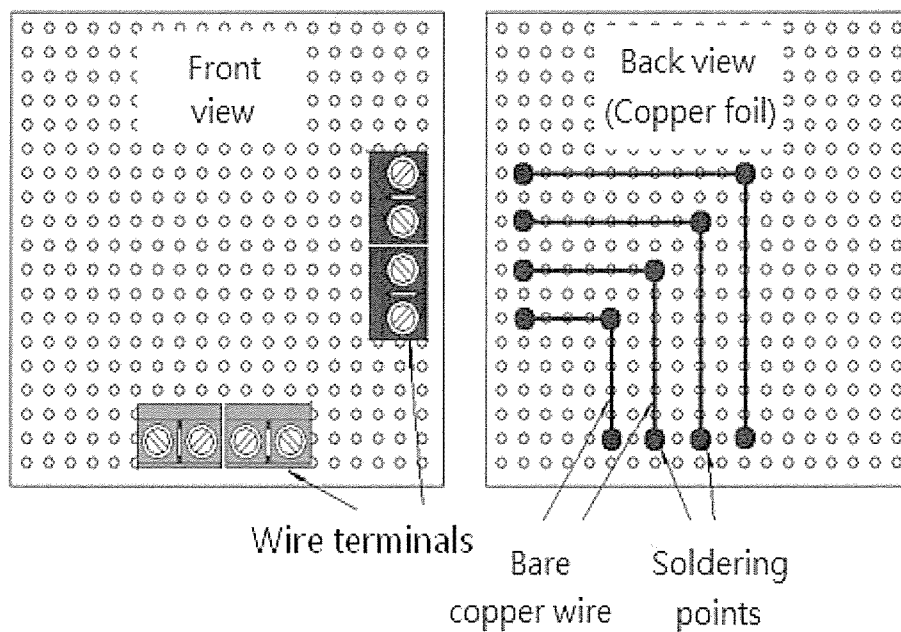
Test 2: Soldering Skill

Objective:

To assess candidates' practical skills in soldering printed circuit board.

Test requirements:

Place Wire terminals on a printed circuit board as shown in the front view. At the respective locations at the back (copper foil), use fusible alloy to connect bare copper wire, with 12 soldering points in total.



(Reference Diagram)

Materials:

- (1) Printed circuit board
- (2) Wire terminals (Double Pole)
- (3) Bare copper wire

Note:

Marks will be deducted for unstable work.

[Practical Test]

Test 3 : Installing of “Private Automatic Branch Exchange” (PABX) system

Objectives:

Assess candidates' ability and knowledge on Installation, Set-up, Trouble-shooting and Testing “Private Automatic Branch Exchange” (PABX) system.

Test requirements:

(i) System Setup

Install and connecting a PABX system according to the diagram as shown.

(ii) Trouble-shooting

One of the provided device by the test center is erroneous and malfunction. Candidates are required to locate and replace the malfunction device and complete the attached form for record.

Marks will be deducted for more than one replacement of the malfunction device.

(iii) System Setting and Testing

After installation and trouble-shooting, candidates are required to test and complete three system settings as described below.

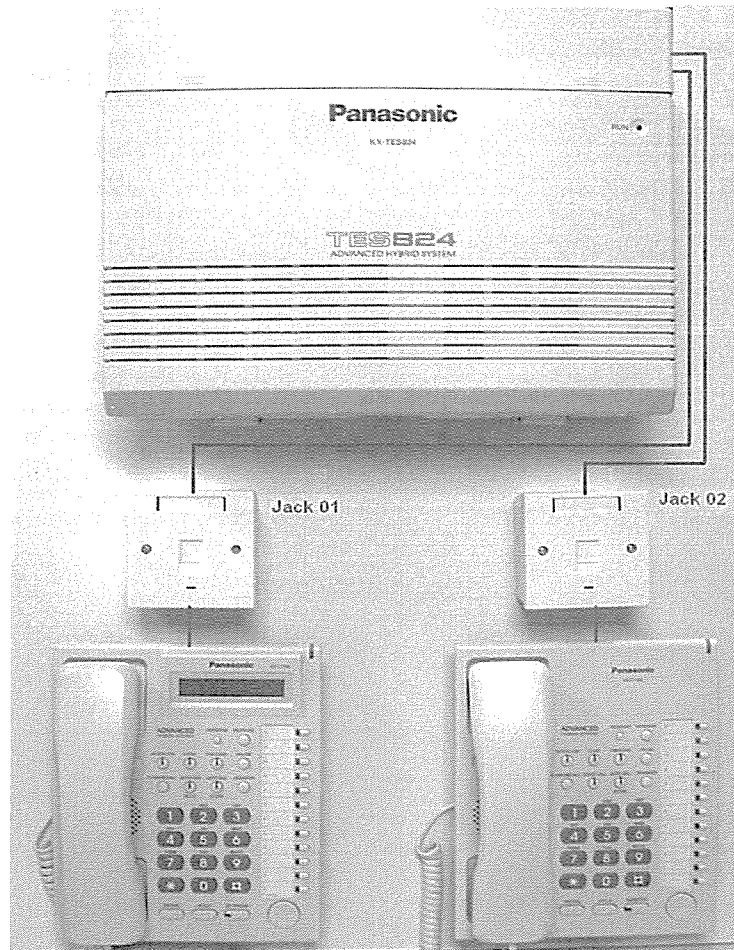
a) Set the system Date and Time to the date and time of exam.

b) Set the extension number of PABX system Jack01 as “**131**” and; Jack02 as “**138**”.

c) Name extension “131” as **CIC** and; “138” as **HKCIC**.

(Commands and procedures for system set up are referred to the simple

set up manual.)



(Reference Diagram)

Materials:

- (1) Private Automatic Branch Exchange (PABX) system
- (2) Proprietary telephone device
- (3) Telephone device
- (4) RJ11 Plug and Wall Plate
- (5) 4-core telephone cable

Note:

- (i) Candidates are required to test the stability of the connected wires
- (ii) Candidates must measure the system with appropriate meters, and make necessary modifications to the system in order to operate normally.
- (iii) Marks will be deducted for any inappropriate use or damage of items and unstable workmanship

[Practical Test]

Test 4 : Installing of "In-Building Coaxial Cable Distribution" (IBCCD) system

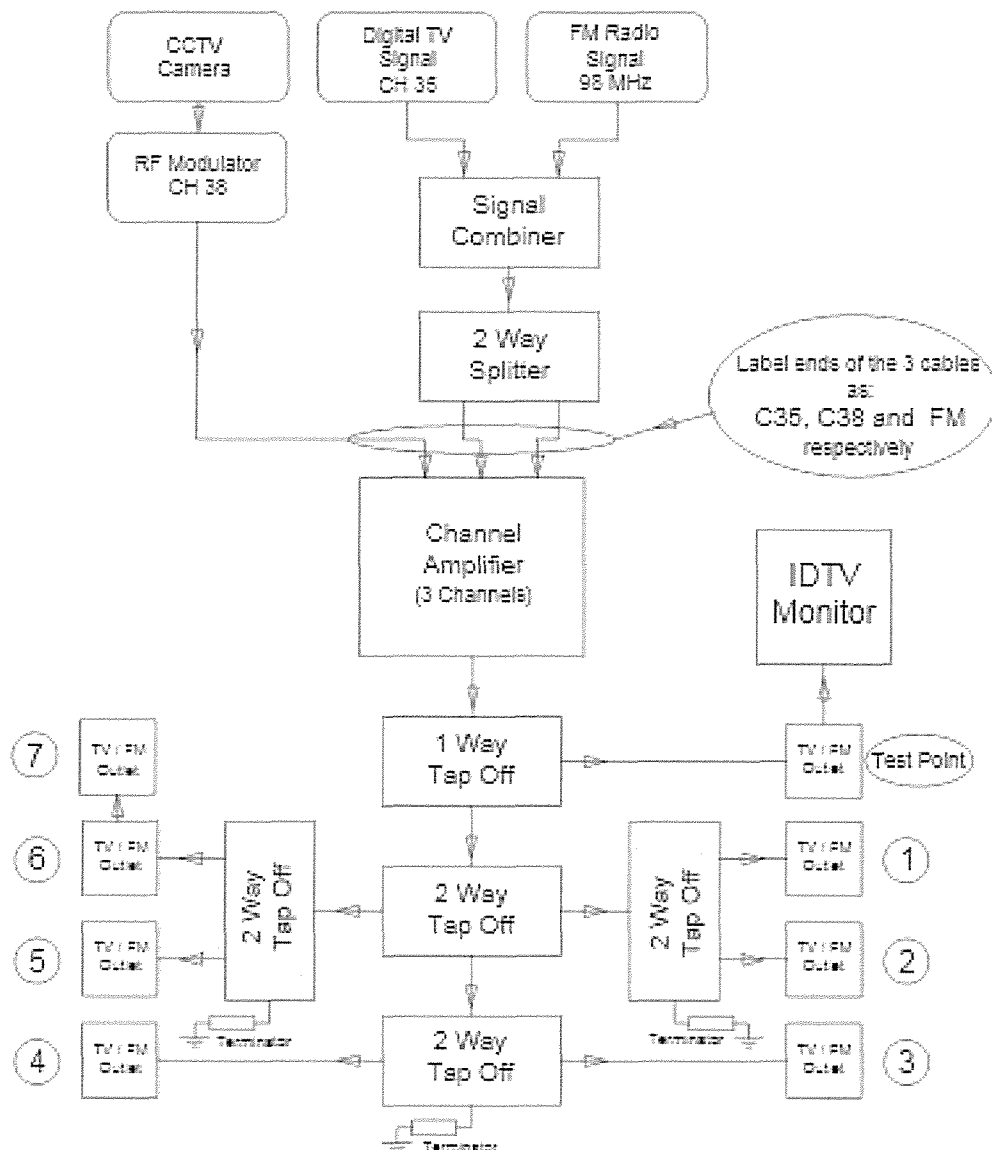
Objectives:

Assess candidates' ability and knowledge on Installation, Set-up and Testing of "In-Building Coaxial Cable Distribution" (IBCCD) system.

Test requirements:

(i) System Set-up

According to the diagram below, apply appropriate materials / devices to install the system. After installation, **signal cables of the 3 channel amplifiers must be labeled at the two ends.**



Reference Diagram

(ii) System Testing

After system installation and trouble-shooting, measure the output signal strength of the specific location. Measure results should be recorded to the attached "Test Record form".

Signal strength of every measuring points must be adjusted between 65dB to 75dB; and Digital TV signal strength should be lower than Analog Video signal by at least 5dB.

Materials:

- (1) Combiner
- (2) 2-way Splitter
- (3) Power supply unit
- (2) Channel amplifiers: Ch35, Ch38 and FM
- (3) 1-way and 2-way Tap-off as appropriate
- (4) TV/FM Outlet as appropriate
- (5) Terminal Resistor 75Ω as appropriate
- (6) Coaxial TV cable (RG-6) and label ties as appropriate
- (7) Different types of connectors as appropriate

Note:

- (i) Candidates are required to test the stability of the connected wires; Marks will be deducted for unstable work.
- (ii) Candidates must test whether the system operates normally, including using iDTV to monitor high definition to receive screen signals and measure the signal strength of all signal outlet with meters.
- (iii) Marks will be deducted for any inappropriate use or damage of items.

< END >

Notes to Candidates :

1. Candidates should read the test papers carefully and ask the invigilator for any queries.
2. Candidates should study the drawings and specifications attached to test papers, if any, before the test begins.
3. Candidates should carry out the test according to test papers, working drawings and specifications provided.
4. Candidates shall bring their own safety shoes, other safety equipment will be provided by trade testing centre. Candidates must take all necessary safety precautions to ensure work safety.
5. All tools and materials required by the test will be provided by trade testing centre, candidates should check and ensure their adequacy and quality. Candidates shall use the tools and materials properly based on trade practice. All the tools must be returned to trade testing centre after the test. The candidates may ask the invigilator for any problems.
6. Candidates are required to handle and move the tools and materials for use in the test, and to carry out associated works.
7. Invigilator will take record photos periodically during the test.
8. Candidates are not allowed to take any photo or video with cameras or mobile phones.
9. Candidates are not allowed to use their mobile phones during the trade tests, except for emergency situation.
10. The marking scheme is based on the following criteria :
 - a) Understanding of drawing and specification
 - b) Preparation works before commencement of test

- c) Working procedures
- d) Accuracy and quality of works
- e) Progress of works
- f) Proper handling and use of materials
- g) Proper use of tools and equipment
- h) Safety precautions
- i) Considerate of other trades
- h) Housekeeping after completion of test

11. All candidates must stop when time is up.
12. Candidates are required to return the test paper to invigilator after the test.
13. Offering bribe to invigilator is an offence in law and trade testing centre will report to the ICAC for any such case.

In the event that the candidate fails to take any necessary safety precautions and / or works in any dangerous situations, he / she will be assessed failed