

臺北捷運環狀線（第一階段）  
機電系統工程、軌道工程、自動收費系統工程  
**TAIPEI CIRCULAR LINE (PHASE 1)**  
**E&M SYSTEM, TRACK WORKS, AFC SYSTEM**  
**CF610/CF611/CF617**

附件 一  
通訊多功能操作台伺服器規格

**APPENDIX 1**  
**CMFT SERVER SPECIFICATIONS**



## Lenovo System x3650 M5 (E5-2600 v4) Product Guide

With the powerful, versatile 2U rack server design, the dual-socket Lenovo System x3650 M5 (E5-2600 v4) server (Machine Type 8871) can run even more workloads, 24 x 7, and gain faster business insights. Integrated with Intel Xeon processor E5-2600 v4 product family and industry-leading two-socket storage capacity, the System x3650 M5 delivers exceptional performance. Flexible and scalable internal storage configurations include up to 28x 2.5-inch or 14x 3.5-inch drives with a wide selection of drive sizes and types.

**Suggested uses:** Database, cloud computing and virtualization, enterprise applications, collaboration/email, business analytics and big data, virtual desktops, and Microsoft RemoteFX applications.

The following figure shows the System x3650 M5.

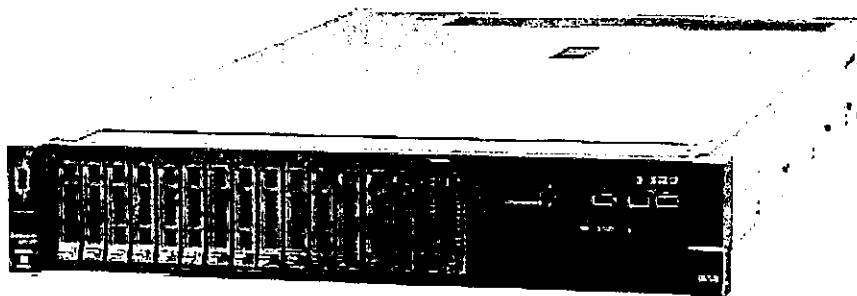


Figure 1. Lenovo System x3650 M5

### Did you know?

The System x3650 M5 incorporates energy-smart features for minimized costs and efficient performance. Dual fan zones support operation in up to 40°C environments. The 80 PLUS Titanium power supply units (PSUs) can deliver 96% efficiency at 50% load.

The System x3650 M5 has outstanding memory performance that is achieved by supporting two-RDIMMs-per-channel configurations at speeds up to 12% faster than the Intel specification, while still maintaining world-class reliability.

The System x3650 M5 integrates leadership security and reliability. System x Trusted Platform Assurance, an exclusive set of System x features and practices, establishes a solid security foundation for your workloads. Enterprise-class data protection is provided with optional self-encrypting drives, and advanced diagnostic tools facilitate reduced downtime and costs.

## Key features

The System x3650 M5 is a versatile 2U dual-socket business-critical server that offers improved performance and pay-as-you-grow flexibility along with new features that improve server management capability. This powerful system is designed for your most important business applications and cloud deployments.

Combining balanced performance and flexibility, the System x3650 M5 is a great choice for small and medium businesses up to the large enterprise. It can provide outstanding uptime to keep business-critical applications and cloud deployments running safely. Ease of use and comprehensive systems management tools help make deployment easier. Outstanding reliability, availability, and serviceability (RAS) and high-efficiency design improve your business environment and help save operational costs.

## Scalability and performance

The System x3650 M5 offers numerous features to boost performance, improve scalability, and reduce costs:

- Improves productivity by offering superior system performance with the Intel Xeon processor E5-2600 v4 product family with up to 22-core processors, up to 55 MB of L3 cache, and up to 9.6 GT/s QPI interconnect links.
  - Support for up to two processors, 44 cores, and 88 threads allows to maximize the concurrent execution of multithreaded applications.
  - Intelligent and adaptive system performance with energy efficient Intel Turbo Boost Technology allows CPU cores to run at maximum speeds during peak workloads by temporarily going beyond processor thermal design power (TDP).
  - Intel Hyper-Threading Technology boosts performance for multithreaded applications by enabling simultaneous multithreading within each processor core, up to two threads per core.
  - Intel Virtualization Technology integrates hardware-level virtualization hooks that allow operating system vendors to better utilize the hardware for virtualization workloads.
- Up to 2400 MHz memory speeds with two DIMMs per channel running at 2400 MHz to help maximize system performance.
- Up to 1.5 TB of memory capacity with 64 GB load-reduced DIMMs, or LRDIMMs
- The 12 Gbps SAS internal storage connectivity doubles the data transfer rate compared to 6 Gb SAS solutions to maximize performance of storage I/O-intensive applications.
- Flexible and scalable internal storage provides up to 140 TB for capacity-optimized storage configurations (using 10 TB 3.5-inch hard disk drives [HDDs]) or up to 28 drives for performance-optimized storage configurations in a 2U rack form factor.
- The use of solid-state drives (SSDs) instead of or along with traditional spinning HDDs can significantly improve I/O performance. An SSD can support a significantly higher number of I/O operations per second (IOPS) than a typical HDD.
- The server has four integrated Gigabit Ethernet ports and optional 10 Gb Ethernet ports with ML2 adapters.
- The server offers up to eight PCI Express (PCIe) 3.0 I/O expansion slots plus one dedicated PCIe 3.0 slot for an internal storage controller in a 2U rack form factor.
- With Intel Integrated I/O Technology, the PCI Express 3.0 controller is integrated into the Intel Xeon processor E5-2600 v4 product family. This helps to dramatically reduce I/O latency and increase overall system performance.

## Availability and serviceability

The System x3650 M5 provides many features to simplify serviceability and increase system uptime:

- Tool-less cover removal provides easy access to upgrades and serviceable parts, such as processors, memory DIMMs, and adapter cards.
- The server offers hot-swap drives supporting RAID redundancy for data protection and greater system uptime.

- The server offers redundant hot-swap power supplies and hot-swap redundant fans to provide availability for business-critical applications.
- The new Next Gen light path diagnostics LCD display panel simplifies servicing, speeds up problem resolution, and helps improve system availability.
- Proactive Platform Alerts (including PFA and SMART alerts): Processors, voltage regulators, memory, internal storage (SAS/SATA HDDs and SSDs, NVMe SSDs, M.2 storage, flash storage adapters), fans, power supplies, RAID controllers, and server ambient and sub-component temperatures. Alerts can be surfaced through the system IMM to managers such as Lenovo XClarity Administrator, VMware vCenter, and Microsoft System Center. These proactive alerts let you take appropriate actions in advance of possible failure, thereby increasing server uptime and application availability.
- SSDs offer significantly better reliability than traditional mechanical HDDs for greater uptime.
- Built-in Integrated Management Module II (IMM2.1) continuously monitors system parameters, triggers alerts, and performs recovery actions in case of failure, to minimize downtime.
- Built-in diagnostics using Dynamic Systems Analysis (DSA) Preboot speeds up troubleshooting tasks to reduce service time.

### Manageability and security

Powerful systems management features simplify local and remote management of the System x3650 M5 and deliver enterprise-class data protection:

- The server includes an Integrated Management Module II (IMM2.1) to monitor server availability and perform remote management.
- An integrated industry-standard Unified Extensible Firmware Interface (UEFI) enables improved setup, configuration, and updates, and simplifies error handling.
- Lenovo XClarity Administrator offers comprehensive hardware management tools that help to increase uptime, reduce costs and improve productivity through advanced server management capabilities.
- An integrated Trusted Platform Module (TPM) enables advanced cryptographic functionality such as digital signatures and remote attestation.
- System x Trusted Platform Assurance, an exclusive set of System x security features and practices, establishes a solid security foundation for workloads by delivering firmware that is securely built, tested, digitally signed and verified prior to execution.
- The server offers enterprise-class data protection with optional self-encrypting drives.

### Energy efficiency

The System x3650 M5 offers the following energy-efficiency features to save energy, reduce operational costs, increase energy availability, and contribute to the green environment:

- Energy-efficient planar components help lower operational costs.
- High-efficiency power supplies with 80 PLUS Platinum and Titanium certifications.
- Intel Intelligent Power Capability powers individual processor elements on and off as needed, to reduce power draw.
- Low-voltage Intel Xeon processors draw less energy to satisfy the demands of power and thermally constrained data centers and telecommunication environments.
- Low-voltage 1.2 V DDR4 memory DIMMs offer energy savings compared to 1.35 V and 1.5 V DDR3 DIMMs.
- The server uses hexagonal ventilation holes, a part of Calibrated Vektored Cooling™ technology. Hexagonal holes can be grouped more densely than round holes, providing more efficient airflow through the system.
- Lenovo XClarity Energy Manager provide advanced data center power notification, analysis, and policy-based management to help achieve lower heat output and reduced cooling needs.

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- The new Next Gen light path diagnostics LCD display panel simplifies servicing, speeds up problem resolution, and helps improve system availability.
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## Components and connectors

The following figure shows the front of the System x3650 M5 server with up to 16x 2.5-inch drive bays and the Front IO Cage Entry (default).

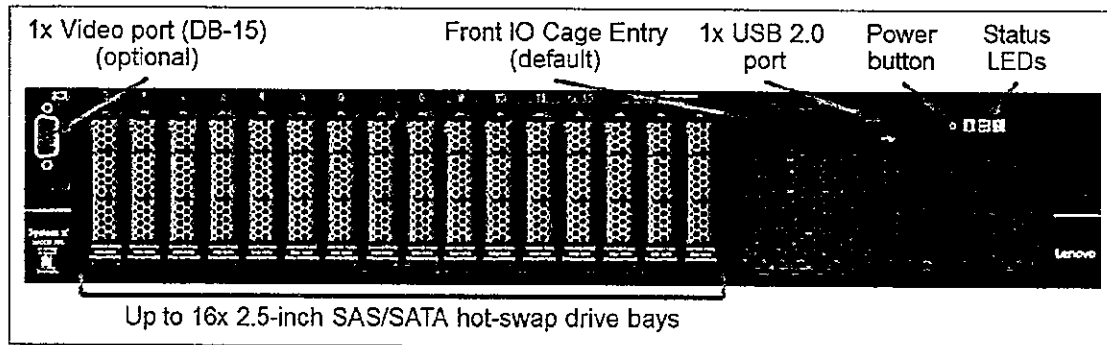


Figure 2. Front view of the System x3650 M5: 16x 2.5-inch drive bays; Front IO Cage Entry (default)

The following figure shows the front of the System x3650 M5 server with 8x 2.5-inch SAS/SATA drive bays, up to 8x 2.5-inch PCIe drive bays (optional), and the Front IO Cage Entry (default).

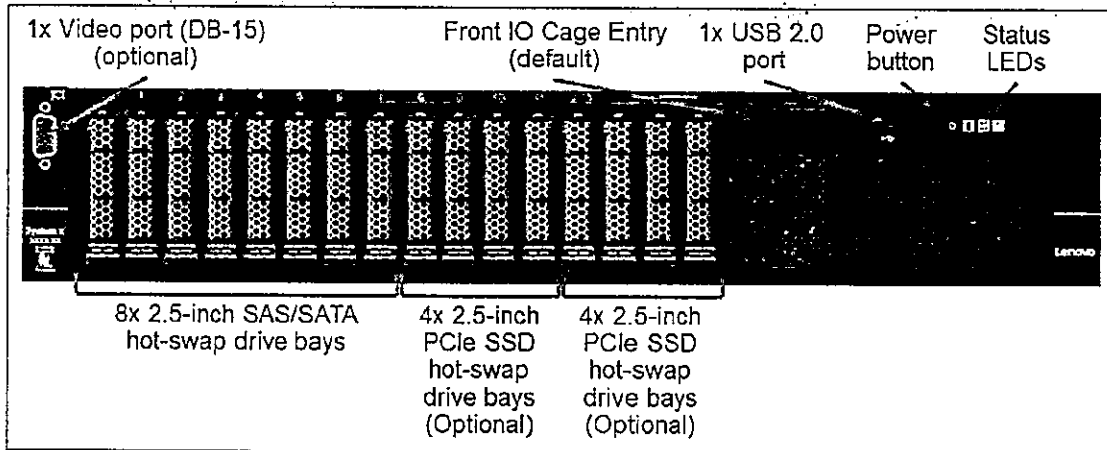


Figure 3. Front view of the System x3650 M5: 8x 2.5-inch SAS/SATA and 8x 2.5-inch PCIe drive bays

The following figure shows the front of the System x3650 M5 server with up to 16x 2.5-inch drive bays and the Front IO Cage Standard (optional).

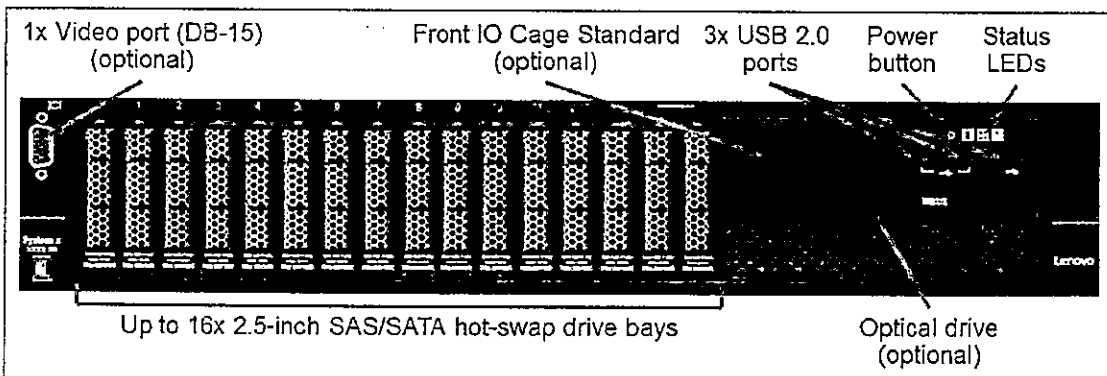


Figure 4. Front view of the System x3650 M5: 16x 2.5-inch drive bays; Front IO Cage Standard (optional)

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The following figure shows the front of the System x3650 M5 server with up to 16x 2.5-inch drive bays and the Front IO Cage Advanced (optional).

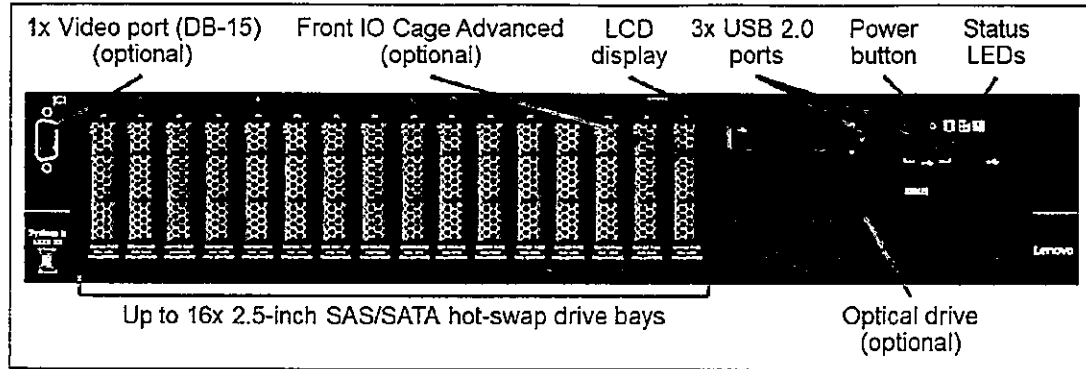


Figure 5. Front view of the System x3650 M5: 16x 2.5-inch drive bays; Front IO Cage Advanced (optional)

The following figure shows the front of the System x3650 M5 server with up to 24x 2.5-inch drive bays.

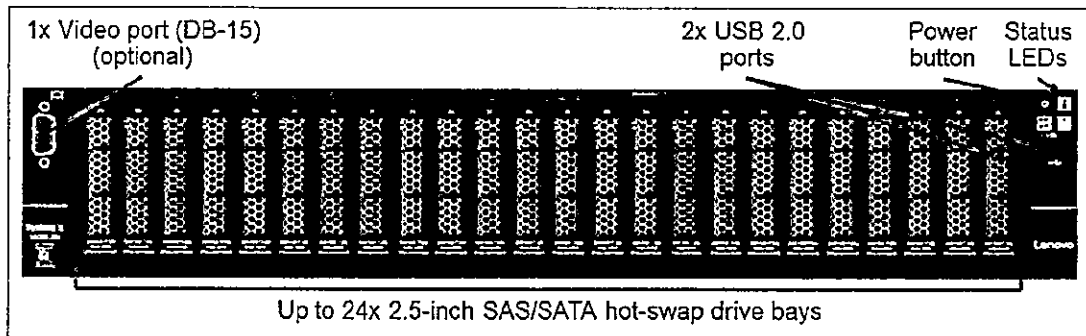


Figure 6. Front view of the System x3650 M5: 24x 2.5-inch drive bays

The following figure shows the front of the System x3650 M5 server with 16x 2.5-inch SAS/SATA and 4x 2.5-inch PCIe drive bays.

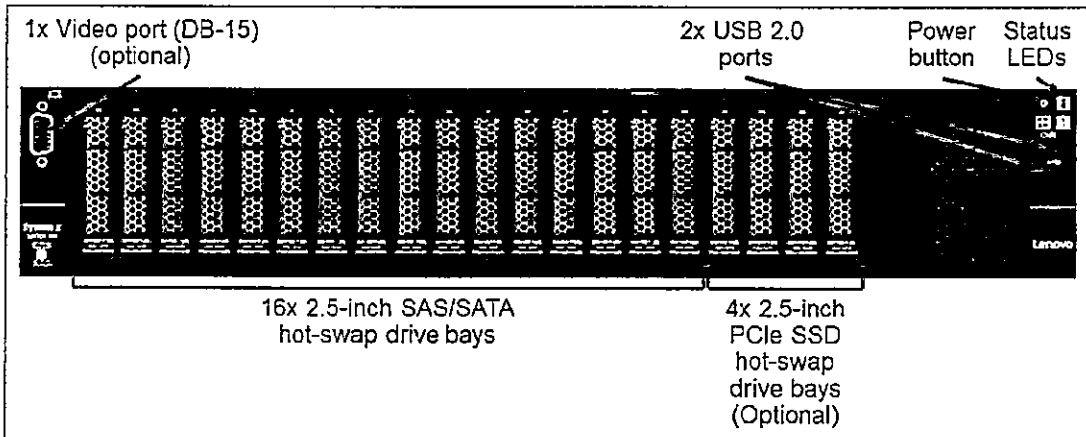


Figure 7. Front view of the System x3650 M5: 16x 2.5-inch SAS/SATA and 4x 2.5-inch PCIe drive bays

## System specifications

The following table lists the system specifications.

Table 1. System specifications

Components	Specification
Machine type	8871
Form factor	2U rack-mount
Processor	Up to two processors of the Intel Xeon processor E5-2600 v4 product family: <ul style="list-style-type: none"> <li>Up to 22 cores (2.2 GHz core speeds)</li> <li>Up to 3.5 GHz core speeds (4 cores)</li> <li>Two QPI links up to 9.6 GT/s each</li> <li>Up to 55 MB cache</li> <li>Up to 2400 MHz memory speed</li> </ul>
Chipset	Intel C612
Memory	Up to 24 DIMM sockets (12 DIMMs per processor; four memory channels per processor with three DIMMs per channel). Support for RDIMMs and LRDIMMs. Memory types cannot be intermixed. Memory speed up to 2400 MHz.
Memory maximums	<ul style="list-style-type: none"> <li>With RDIMMs: Up to 768 GB with 24x 32 GB RDIMMs and two processors</li> <li>With LRDIMMs: Up to 1.5 TB with 24x 64 GB LRDIMMs and two processors</li> </ul>
Memory protection	ECC, Chipkill (for x4-based memory DIMMs), memory mirroring, and memory rank sparing.
Drive bays	<p>Up to 28 SFF SAS/SATA hot-swap drive bays:</p> <ul style="list-style-type: none"> <li>8x 2.5" (front) + 8x 2.5" (front) + 8x 2.5" (front) + 2x 2.5" (rear) + 2x 2.5" (rear)</li> </ul> <p>Up to 16 LFF+SFF SAS/SATA hot-swap drive bays:</p> <ul style="list-style-type: none"> <li>12x 3.5" (front) + 2x 3.5" (rear) + 2x 2.5" (rear)</li> </ul> <p>Up to 10 LFF or LFF+SFF SAS/SATA hot-swap drive bays:</p> <ul style="list-style-type: none"> <li>8x 3.5" (front) + 2x 3.5" (rear)</li> <li>8x 3.5" (front) + 2x 2.5" (rear)</li> </ul> <p>Up to 8 SFF NVMe PCIe SSD hot-swap + SFF SAS/SATA hot-swap drive bays:</p> <ul style="list-style-type: none"> <li>8x 2.5" SAS/SATA (front) + 4x 2.5" NVMe PCIe (front) + 4x 2.5" NVMe PCIe (front)</li> <li>8x 2.5" SAS/SATA (front) + 8x 2.5" SAS/SATA (front) + 4x 2.5" NVMe PCIe (front)</li> </ul>
Storage capacity	<ul style="list-style-type: none"> <li>Up to 147.6 TB with 10 TB 3.5" NL SAS or NL SATA HDDs and 3.84 TB 2.5" SAS SSDs</li> <li>Up to 107.5 TB with 3.84 TB 2.5" SAS SSDs</li> <li>Up to 56 TB with 2 TB 2.5" NL SATA HDDs</li> <li>Up to 50.4 TB with 1.8 TB 2.5" SAS HDDs</li> <li>Up to 16 TB with 2 TB NVMe PCIe SSDs</li> </ul> <p>Intermix of SAS, SATA, and PCIe drives is supported.</p>
Storage controller	<ul style="list-style-type: none"> <li>12 Gb SAS/SATA RAID: RAID 0, 1, 10 with M1215 or M5210. Optional upgrade to RAID 5, 50 is available for M1215. Optional upgrade to RAID 5, 50 is available for M5210 (zero-cache; 1 GB non-backed cache; 1 GB, 2 GB or 4 GB flash-backed cache). Optional upgrade to RAID 6, 60 is available for M5210 (requires a cache upgrade). Optional SSD Caching and Performance Accelerator upgrades are available for M5210.</li> <li>12 Gb SAS/SATA non-RAID: N2215 HBA</li> </ul>
Optical drive bays	One for models with 8x 3.5" or up to 16x 2.5" drive bays (models with 24x 2.5" or 12x 3.5" drive bays do not support an internal optical drive). Support for DVD-ROM or Multiburner.
Tape drive bays	None.



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Components	Specification
Network interfaces	<ul style="list-style-type: none"> <li>4x integrated RJ-45 Gigabit Ethernet ports (BCM5719).</li> <li>Optional Mezzanine LOM (ML2) slot for dual-port 10 GbE cards with SFP+ or RJ-45 connectors or quad-port GbE cards with RJ-45 connectors.</li> <li>1x RJ-45 10/100/1000 Mb Ethernet systems management port.</li> </ul>
I/O expansion slots	<p>Up to nine slots. Slots 4, 5, and 9 are the fixed slots on the system planar, and the remaining slots depend on the riser cards installed. The slots are as follows:</p> <ul style="list-style-type: none"> <li>Slot 1: PCIe 3.0 x16 or PCIe 3.0 x8; full-height, full-length (PCIe x16 slot is double-wide)</li> <li>Slot 2: PCIe 3.0 x8; full-height, full-length (not present if the slot 1 is PCIe x16)</li> <li>Slot 3: PCIe 3.0 x8 or ML2; full-height, half-length</li> <li>Slot 4: PCIe 3.0 x8; low profile (vertical slot on system planar)</li> <li>Slot 5: PCIe 3.0 x8; low profile (vertical slot on system planar)</li> <li>Slot 6: PCIe 3.0 x16 or PCIe 3.0 x8; full-height, full-length (PCIe x16 slot is double-wide)</li> <li>Slot 7: PCIe 3.0 x8; full-height, full-length (not present if the slot 6 is PCIe x16)</li> <li>Slot 8: PCIe 3.0 x8; full-height, half-length</li> <li>Slot 9: PCIe 3.0 x8 (dedicated for an internal storage controller)</li> </ul> <p>Slots 5, 6, 7, and 8 require the second processor to be installed.</p>
Ports	<ul style="list-style-type: none"> <li>Front: <ul style="list-style-type: none"> <li>Models with 8x or 16x 2.5" drive bays: 1x USB 2.0 port (standard) or 3x USB 2.0 ports (optional).</li> <li>Models with 8x 3.5" drive bays: 3x USB 2.0 ports (standard).</li> <li>Models with 24x 2.5" or 12x 3.5" drive bays: 2x USB 2.0 ports (standard).</li> <li>1x DB-15 video port (optional for all models).</li> </ul> </li> <li>Rear: 2x USB 3.0 and 1x DB-15 video ports. Optional 1x DB-9 serial port.</li> <li>Internal: 1x USB 2.0 port (for embedded hypervisor), 1x SD Media Adapter slot (for embedded hypervisor).</li> </ul>
Cooling	Calibrated Vectored Cooling with up to six redundant hot-swap fans (four standard, additional two fans with the second processor); two fan zones with N+1 fan redundancy; each fan has one rotor.
Power supply	Up to two redundant hot-swap 550 W, 750 W, or 900 W (100-240V), or 1500 W (200-240V) High Efficiency Platinum AC power supplies, or 750 W or 1300 W (200-240V) High Efficiency Titanium AC power supplies, or 900 W High Efficiency -48 V DC power supplies.
Video	Matrox G200eR2 with 16 MB memory integrated into the IMM2.1. Maximum resolution is 1600x1200 at 75 Hz with 16 M colors.
Hot-swap parts	Hard drives, power supplies, and fans.
Systems management	UEFI, Integrated Management Module II (IMM2.1) based on Renesas SH7758, Predictive Failure Analysis, light path diagnostics, Automatic Server Restart, ToolsCenter, XClarity Administrator, XClarity Energy Manager. Optional IMM2.1 Advanced Upgrade software feature for remote presence (graphics, keyboard and mouse, virtual media).
Security features	Power-on password, administrator's password, Trusted Platform Module (TPM) 1.2 or 2.0 (configurable UEFI setting). Optional lockable front bezel.
Operating systems	Microsoft Windows Server 2008 R2, 2012, 2012 R2, and 2016; Red Hat Enterprise Linux 7; SUSE Linux Enterprise Server 11 and 12; VMware vSphere (ESXi) 5.5 and 6.0.
Warranty	Three-year customer-replaceable unit and onsite limited warranty with 9x5 next business day.
Service and support	Optional service upgrades are available through Lenovo Services: 4-hour or 2-hour response time, 6-hour fix time, 1-year or 2-year warranty extension, software support for System x hardware and some System x third-party applications.
Dimensions	Height: 87 mm (3.4 in), width: 434 mm (17.1 in), depth: 755 mm (29.7 in)
Weight	Minimum configuration: 19 kg (41.8 lb), maximum: 34 kg (74.8 lb)

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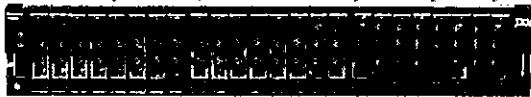
附件 二  
通訊多功能操作台儲存系統規格

**APPENDIX 2**  
**CMFT STORAGE SYSTEM SPECIFICATIONS**

# IBM® STORWIZE® V3700

Advanced Capabilities for SMB

Lenovo™



## ENTERPRISE-CLASS SOLUTION

Data has become the new currency of business, their most critical asset. But organizations often spend too much money and time managing where their data is stored. The average firm purchases 24 percent more storage every year<sup>1</sup>, but uses less than half of its capacity<sup>2</sup>.

The right infrastructure allows clients to shift spending and invest in projects that improve business results. The infrastructure must ensure the most value from data at the least cost with the least effort and the greatest flexibility.

Building an effective infrastructure starts with software-defined storage, which frees data from the physical storage and provides better access to applications. Software-defined storage helps make an infrastructure simple, easy to manage and more responsive to changing business needs. The IBM® Storwize® V3700 Storage System, the entry-level system in the Storwize family, is an efficient, easy-to-use system designed to complement virtual server environments while delivering flexibility and innovative storage functions.

To help address block storage requirements, Storwize V3700 is designed to provide small and midsize organizations with the ability to consolidate and share data at an affordable price, while leveraging advanced software capabilities usually found in more expensive systems. Providing up to 240 drives of capacity, Storwize V3700 delivers proven ease of management, functionality and interoperability.

## SIMPLIFIED MANAGEMENT

Storwize V3700 comes with an easy-to-use management interface based on the breakthrough Storwize family graphical user interface (GUI). With dynamic and customizable views, the interface is designed to give administrators intuitive control of the system, while interactive menus, tabs and charts can also help improve productivity.

An application provides monitoring capabilities to securely check the health and performance of the system remotely from a mobile device. The built-in performance dashboard provides at-a-glance access to key high-level real-time system performance information.

## OPTIMIZE EFFICIENCY

Using thin provisioning, applications consume only the space they are actually using, versus the total space that they have been allocated. Designed to keep business overhead low, thin provisioning optimizes efficiency by allocating disk storage space in a flexible manner among multiple users, based on the minimum space required by each user at any given time. This can help organizations save power, lower heat generation and reduce hardware space requirements.

## IMPROVE PERFORMANCE

Automated storage tiering with IBM Easy Tier, an optional function for Storwize V3700, is designed to help improve performance at lower cost through more efficient use of flash storage or multiple types of disk drives. Easy Tier automatically and dynamically moves the appropriate data across storage tiers to meet performance objectives at the most reasonable cost by identifying and moving less-frequently accessed data to the most economical drive tier without sacrificing performance. Similarly, frequently accessed data for busy workloads is automatically migrated to faster storage such as flash to ensure lower response times for those applications that need it. Using Easy Tier, you can improve performance up to three times with only five percent flash storage capacity<sup>3</sup>.

Storwize V3700 also includes storage pool balancing that operates automatically to distribute data across arrays in a pool to deliver balanced array performance and help eliminate the need for manual tuning. The function is sensitive to different drive types and takes their capabilities into account with no intervention required.

## PROTECT DATA

IBM® Storwize® V3700 includes IBM® FlashCopy® technology, which is designed to create an almost-instant copy of active data that can be used for backup purposes or for parallel processing activities.

In addition, the optional remote mirroring function enables organizations to create copies of data at remote locations for disaster recovery. Metro Mirror supports synchronous replication at distances up to 300 km, whereas Global Mirror supports asynchronous replication up to 8,000 km. Replication can occur between any Storwize family systems, and can include any supported virtualized storage. Remote mirroring works with Fibre Channel, Fibre Channel over Ethernet (FCoE) and IP (Ethernet) networking between sites. With IP networking, Storwize V3700 uses innovative Bridgeworks SANSlide technology to optimize use of network bandwidth. As a result, the networking infrastructure may require lower speeds (and thus, lower costs), or users may be able to improve the accuracy of remote data through shorter replication cycles.

## AVOID DISRUPTIONS

IBM® Storwize® V3700 includes IBM® FlashCopy® technology, which is designed to create an almost-instant copy of active data that can be used for backup purposes or for parallel processing activities.

## LEVERAGE PROVEN ISV SOLUTIONS

Lenovo is committed to the continuous improvement and seamless application integration of disk systems to optimize your business results and time to value. Our commitment is evident through our ongoing work and enduring partnerships with independent software vendors (ISVs) such as Microsoft, Oracle, SAP, Symantec and VMware.

## WHY LENOVO ENTERPRISE STORAGE

Lenovo is the leading provider of x86 systems for the data center. The portfolio includes rack, tower, blade, dense and converged systems, and supports enterprise class performance, reliability and security. Lenovo also offers a full range of networking, storage, software and solutions, and comprehensive services supporting business needs throughout the IT lifecycle.

## FEATURE

Graphical user interface (GUI)

IBM Systems Director

Distributed RAID

IBM FlashCopy

Thin provisioning

Data migration

IBM Easy Tier

Metro Mirror and Global Mirror

Turbo performance

DC-powered models

NEBS Level 3 and ETSI compliance

## BENEFITS

Enhance IT productivity with an easy-to-use GUI and point-and-click system management capabilities

Provide integrated management for physical and virtual server infrastructures, including monitoring and repairing for higher availability and operational efficiency

Improves data protection and availability with significantly smaller rebuild time

- Create a near-instant copy of active data that can be used for backup or for parallel processing activities; support backup for recovering corrupted data

- Make better use of space with incremental or space-efficient (thin-provisioned) snapshots

- Support business applications that need to grow dynamically, while consuming only the space actually used

- Use available storage across supported host platforms to improve storage utilization

Provide efficiency and business value in a non-disruptive migration function

Provide automatic migration of frequently accessed data elements among tiers of storage, including flash

- Allow synchronous or asynchronous data replication between any Storwize family system for maximum flexibility and backup efficiency

- Help optimize the use of network bandwidth with IP replication and Bridgeworks SANSlide technology

Increase system maximum input/output operations per second (IOPS) by 50 percent and maximum throughput by 100 percent†

Meet the telecommunication standard -48 V dc power source requirement

Improve resiliency in the most intense and harsh environments

## 附件二

### PRODUCT SPECIFICATIONS

Part number	6099L2C - Storwize V3700 3.5" Storage Controller Unit 6099LEU - Storwize V3700 3.5" Storage Expansion Unit 6099S2C - Storwize V3700 2.5" Storage Controller Unit 6099SEU - Storwize V3700 2.5" Storage Expansion Unit 6099T2C - Storwize V3700 2.5" DC Storage Controller Unit 6099TEU - Storwize V3700 2.5" DC Storage Expansion Unit
Host interface	1 Gbps iSCSI and 6 Gbps SAS (optional 8 Gbps Fibre Channel, 1 Gbps iSCSI, 6 Gbps SAS or 10 Gbps iSCSI/Fibre Channel over Ethernet)
Single/dual controller	Dual controller
RAID levels	RAID 0, 1, 5, 6 and 10 Supports Distributed RAID 5 and 6 (requires 8 GB/node cache)
Fans and power supplies	Fully redundant, hot-swappable
Rack support	Standard 19-inch rack-mount enclosure*
Advanced functions included with system	Internal virtualization, thin provisioning, one-way data migration and FlashCopy (up to 64 targets), IP Replication acceleration, Bridgeworks SANSlide technology
Warranty	3-year limited warranty with optional upgrades available
Optional licensed functions	FlashCopy upgrade (up to 2,040 targets), Easy Tier, Remote Mirror and turbo performance
Cache per controller	4 GB upgradable to 8 GB
Drive type	Dual-port, hot-swappable 6 Gb SAS disk drives
User interface	Storwize V3700 graphical user interface
Supported drives	<p>Small form-factor 2.5-inch SAS disk drives:</p> <ul style="list-style-type: none"> <li>• 300 GB, 600 GB at 15k rpm</li> <li>• 600 GB, 900 GB, 1.2 TB, and 1.8 TB at 10k rpm</li> <li>• 1 TB and 2 TB at 7.2k rpm Nearline SAS</li> </ul> <p>Large form-factor 3.5-inch SAS disk drives:</p> <ul style="list-style-type: none"> <li>• 2 TB, 3 TB, 4 TB, 6 TB, 8 TB at 7.2k rpm</li> <li>• 900 GB, 1.2 TB, 1.8 TB at 10k rpm</li> <li>• 300 GB, 600 GB at 15k rpm</li> </ul> <p>Solid-state drives (SSD) drives:</p> <ul style="list-style-type: none"> <li>• 200 GB, 400 GB, 800 GB, and 1.6 TB</li> </ul>
Maximum drives supported per enclosure	<ul style="list-style-type: none"> <li>• Small form-factor enclosure: 24 x 2.5-inch drives</li> <li>• Large form-factor enclosure: 12 x 3.5-inch drives</li> </ul>
Total number of drives supported	<ul style="list-style-type: none"> <li>• 240 drives per system</li> </ul>

臺北捷運環狀線（第一階段）  
機電系統工程、軌道工程、自動收費系統工程  
**TAIPEI CIRCULAR LINE (PHASE 1)**  
**E&M SYSTEM, TRACK WORKS, AFC SYSTEM**  
**CF610/CF611/CF617**

附件 三  
通訊多功能操作主控台規格

**APPENDIX 3**  
**CMFT CONSOLE SPECIFICATIONS**

## WS660T | 伺服器 &amp; 工作站 &amp; 網路存儲系統 | ASUS 台灣

國庫	銀行存款	設備用金	現金	現金
----	------	------	----	----

## WS660T

## 高電源效率的進階 I/O 功能

- [illegible]



【附】二、三、四、五、六、七、八、九、十、十一、十二、十三、十四、十五、十六、十七、十八、十九、二十、二十一、二十二、二十三、二十四、二十五、二十六、二十七、二十八、二十九、三十、三十一、三十二、三十三、三十四、三十五、三十六、三十七、三十八、三十九、四十、四十一、四十二、四十三、四十四、四十五、四十六、四十七、四十八、四十九、五十、五十一、五十二、五十三、五十四、五十五、五十六、五十七、五十八、五十九、六十、六十一、六十二、六十三、六十四、六十五、六十六、六十七、六十八、六十九、七十、七十一、七十二、七十三、七十四、七十五、七十六、七十七、七十八、七十九、八十、八十一、八十二、八十三、八十四、八十五、八十六、八十七、八十八、八十九、九十、九十一、九十二、九十三、九十四、九十五、九十六、九十七、九十八、九十九、一百

4. 启动并安装 VMware Workstation 7.0.2 虚拟机，并安装 Windows XP 操作系统，安装 VMware Tools 虚拟机工具。

支持高达 10Gb/s USB 3.1，快速传输数据

MSRP: \$12.99 (10% off) \$11.69 (10% off) \$10.50 (10% off) \$9.50 (10% off) \$8.50 (10% off) \$7.50 (10% off) \$6.50 (10% off) \$5.50 (10% off) \$4.50 (10% off) \$3.50 (10% off) \$2.50 (10% off) \$1.50 (10% off) \$0.50 (10% off) \$0.00 (10% off)

透過4.2倍系統速度拍攝，可觀察到環景每秒22110

M21.70 PG Express 30<sup>TH</sup> @ \$2150Gbps / sec 100MB/sec REVERSIBLE 2772110 NGFF

自 2014 年 12 月 1 日起，本公司所有产品均符合 GB 18287-2012 标准。

WSN 的 2 个主要模型为 *MAC* 模型和 *路由* 模型。在 *MAC* 模型中, 节点通过竞争信道的方式, 在竞争中获得信道使用权, 从而在信道中发送数据。在 *路由* 模型中, 节点通过竞争的方式, 在竞争中获得路由权, 从而在路由中发送数据。在 *MAC* 模型中, 节点通过竞争的方式, 在竞争中获得信道使用权, 从而在信道中发送数据。在 *路由* 模型中, 节点通过竞争的方式, 在竞争中获得路由权, 从而在路由中发送数据。

四倍 PCI-E 3.0 x16 插槽方便显卡升级和加卡

WS880T 已内置 8 x16 吋 LCD 宽 x6 吋厚 支援 AMD/Quad GPU/CrossFireX™ 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1

## DISCUSSION

[illegible]

- [illegible]

具付前送當電取致

WAGGERS: 2011-02-10 10:00:00 (UTC) = 2011-02-10 10:00:00 (UTC) + 127.00000000000000

可達至 Intel i210 可達至 Gigabit LAN

[illegible]

## 附件三

### WS660T

#### Specifications

##### 作業系統 Windows 10 Home

Windows 10 Pro / ASUS 預裝 OS / Windows 10 Pro \*

Windows 7 Professional

Preloaded OS varies in different skus, please double check with the vendor before making a purchase

##### 中央處理器 1 x Socket LGA1151

Intel® Xeon® 處理器 E3-1200 v5 product family

Intel® Pentium® 處理器

Intel® Celeron® 處理器

Intel® Core™ i7-5930 處理器

\* 請至 CPU 支援網址: <http://www.asus.com>

##### 核心晶片組 Intel® C236 Chipset

##### 記憶體 Slot P1: 4 (2 DIMM)

記憶體: 最大至 64GB UDIMM

記憶體類型:

DDR4-2133

雙通道模式

16GB/8GB/4GB/2GB UDIMM

\* Please refer to ASUS server AVL for the latest update

##### 擴充槽 Slot: 4

PCIEX16\_1: PCI-E x16 slot x16/x8 Gen3 Link

PCIEX16\_2: PCI-E x16 slot x8 Gen3 Link, switched from PCIEX16\_1

PCIEX16\_3: PCI-E x16 slot x4 Gen3 Link, from PCH

PCIEX16\_4: PCI-E x16 slot x4 Gen3 Link, from PCH

##### 資料儲存應用 SATA 11.1 或 Intel® C236

6 x SATA3 6Gb/s (2x12G)

Intel® Rapid Storage Technology Enterprise(RSTe) (For Linux/Windows)  
(Support Software RAID 0, 1, 5, 10)

SATA 12.1 或:

Intel® C236

6 x SATA3 6Gb/s (2x12G)

2 x M.2 connector

Intel® Rapid Storage Technology Enterprise(RSTe) (For Linux/Windows)  
(Support Software RAID 0, 1, 5, 10)

##### 支援的磁碟機 1 x Internal 3.5" (9.14mm)

1 x Internal 2.5" (6.35mm)

##### 附屬儲存裝置 FDD/CD/DVD 1 x 5.25" x 12mm LQ

(Options: No ODD/DVD-RW)

##### 網路功能 2 x Intel® i210AT

##### 前面板輸出端子 2 x USB 3.0

2 x USB 2.0

1 x 15-pin 音訊

1 x 2-pin 電源插孔

##### Rear I/O Ports 1 x DV D-Sub 15 pin

1 x DisplayPort 1

1 x HDMI 1

1 x VGA 15 pin

2 x LAN (RJ45) port(s)

1 x USB 3.1 Type-A

1 x USB 3.1 Type-C



### 附件三

4 x USB 3.0  
1 x Optical S/PDIF out  
1 x 8 通道 SATA I/O

#### 作業系統支援

\* (僅支援 64 位元系統)

Windows® Server 2012 R2

Windows® Server 2008 R2

Windows® 10

Windows® 7 64 bit

#### Regulatory ComplianceBSMI, CCC, CE

產品尺寸423mm x 150mm x 435mm  
16.65" x 7.48" x 17.1"

#### 主機板尺寸Tower

重量(淨重): 12.65 KG  
總重: 14.51 KG

#### 電源規格500W 80PLUS Single Power Supply, Bronze

100-240V, 10-6A, 50/60Hz, Class I

700W 80PLUS Single Power Supply, Gold

100-240V, 10-5A, 50/60Hz, Class I

運作環境操作溫度: 10°C ~ 35°C / 儲存溫度: 40°C ~ 70°C  
相對濕度: 20% ~ 90% (非凝結)

#### Accessory Box1 x ES0500-G4 主機板

1 x Windows 10 Professional 32/64bit 正式 DVD (for OS bundled SKU)

1 x AC Power Cable

1 x COM port Cable

1 x VGA 連接電纜

#### 選購配件ES0500-G4 主機板

選購配件規格:

OS

DVD RW/DVD ROM

#### 備註\*1 支援顯示卡清單 x 1

支援顯示卡清單: DVI, D/HDMI/DisplayPort/VGA

- 支援 DVI 輸出最高解析度可達 1920 x 1200@60 Hz

- 支援 HDMI 輸出最高解析度可達 4096 x 2160@60/24 Hz

- 支援 DisplayPort 1.2 輸出最高解析度可達 4096 x 2304@60 Hz

- 支援 VGA 輸出最高解析度可達 1920 x 1200@60 Hz

- 支援 Intel® HD Graphics, InTru™ 3D, Quick Sync Video, Clear Video HD Technology, Insider™

- 最大記憶體容量 512MB

臺北捷運環狀線（第一階段）  
機電系統工程、軌道工程、自動收費系統工程  
**TAIPEI CIRCULAR LINE (PHASE 1)**  
**E&M SYSTEM, TRACK WORKS, AFC SYSTEM**  
**CF610/CF611/CF617**

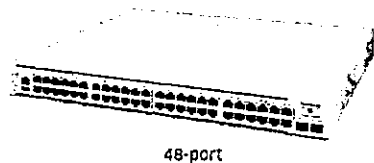
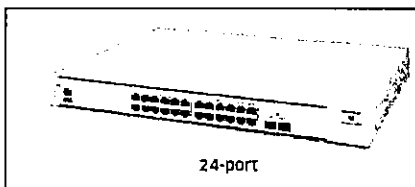
附件 四  
網路交換器詳細的設備規格

**APPENDIX 4**  
**NETWORK SWITCH SPECIFICATIONS**

# ALCATEL-LUCENT OMNISWITCH 6450 STACKABLE GIGABIT ETHERNET LAN SWITCH FAMILY

The Alcatel-Lucent OmniSwitch™ 6450 Stackable Gigabit Ethernet LAN value switch family offers versatile, 24/48 port fixed configuration gigabit switches with optional upgrade paths for 10 Gigabit Ethernet (GigE) stacking, 10 GigE uplinks and metro Ethernet services.

Offering a design optimized for flexibility and scalability as well as low power consumption, the OmniSwitch 6450 is an outstanding edge solution. It uses the field-proven Alcatel-Lucent Operating System (AOS) to deliver highly available, secure, self-protective, easily managed and eco-friendly networks.



The Alcatel-Lucent OmniSwitch 6450 family is embedded with the latest technology. AOS innovations and offers maximum investment protection.

Solutions benefiting from the OmniSwitch 6450 switch family are:

- Edge of small-to-mid-sized networks
- Branch office enterprise and campus workgroups
- Residential and commercially managed services applications

## FEATURES

- 24 ports and 48 ports. Power over Ethernet (PoE), non-PoE and 24-port fiber models with two fixed Small Form Factor Pluggable (SFP+) 10 Gb ready interfaces
- Scalability from 24 to 384 gigabit ports and 16 10GigE ports
- Optional SFP+ stacking module
- Optional 10GigE uplink license option
- Optional metro services feature license option for service provider deployments
- Support for IEEE 802.3af as well as IEEE 802.3at-compliant PoE
- Internal AC or DC redundant power supplies

## MANAGEMENT

- AOS field-proven software with management through web interface (WebView), command line interface (CLI), and Simple Network Management Protocol (SNMP)

- Ethernet operations, administration and management (OAM) support for service configuration and monitoring
- Support by Alcatel-Lucent OmniVista™ 2500 Network Management System (NMS)
- Alcatel-Lucent 5620 Service Aware Manager (SAM) applications for service providers

## SECURITY

- Flexible device and user authentication with Alcatel-Lucent Access Guardian (IEEE 802.1x/MAC/captive portal) with Host Integrity Check (HIC)
- Advanced quality of service (QoS) and Access Control Lists (ACLs) for traffic control, including an embedded denial of service (DoS) engine to filter out unwanted traffic attacks
- Extensive support of AOS user-oriented features such as learned port security (LPS), port mapping, Dynamic Host Configuration Protocol (DHCP) binding tables and User Network Profile (UNP)

## PERFORMANCE AND REDUNDANCY

- Advanced Layer 2+ features with basic Layer 3 routing for both IPv4 and IPv6
- Triple speed (10/100/1000) user interfaces and GigE fiber interfaces (SFPs) supporting 100Base-X or 1000Base-X optical transceivers
- 10 Gb uplinks with license installed
- Wire-rate switching and routing performance

## 附件四

- High availability with virtual chassis concept, redundant stacking links, primary/secondary unit failover, hot-swappable power options and configuration rollback

### CONVERGENCE

- Enhanced voice over IP (VoIP) and video performance with policy-based QoS
- Future-ready support for multimedia applications with wire-rate multicast
- IEEE 802.3at PoE+ support for IP phones, wireless LAN (WLAN) access points and video cameras)

### BENEFITS

- Meets any customer configuration need and offers excellent investment protection and flexibility, as well as ease of deployment, operation and maintenance
- Outstanding performance when supporting real-time voice, data and video applications for converged scalable networks
- Ensures efficient power management, reduces operating expenses (OPEX) and lowers total cost of ownership (TCO) through the low power consumption and dynamic PoE allocation, which delivers only the power needed by the attached device

- A field-upgradeable solution that makes the network highly available and reduces OPEX
- Fully secures the network at the edge at no additional cost
- Enterprise-wide cost reduction through hardware consolidation to achieve network segmentation and security without additional hardware installation
- Supports cost-effective installation and deployment with automated switch setup and configuration and end-to-end Virtual LAN (VLAN) provisioning
- Simplifies metro Ethernet network O&M for service providers

## ALCATEL-LUCENT OMNISWITCH 6450 24- AND 48-PORT MODELS

All models ship with two fixed SFP+ ports that operate at 10Gbps by default. 10Gbps operation requires the installation of the OS6450-SW-PERF license. These models also offer a two port expansion slot for additional gigabit uplinks or 10Gbps stacking modules. Both PoE and non-PoE models are full rack width, power optimized, fixed configuration chassis in a 1U form factor.

**Table 1. Available OmniSwitch 6450 models**  
24/48 port models

CHASSIS	10/100/1000 RJ45 PORTS	SFP+ GIGABIT UPLINK SFP+ 10 GIGABIT UPLINK**	10 GBPS SFP+ STACKING EXPANSION MODULE PORTS	PRIMARY POWER	BACKUP POWER
<b>Non-PoE models</b>					
OS6450-24	24	2	2	Internal AC	Internal AC/DC
OS6450-48	48	2	2	Internal AC	Internal AC/DC
<b>PoE models</b>					
OS6450-P24	24	2	2	Internal AC	External AC
OS6450-P48	48	2	2	Internal AC	External AC

\*\* Requires OS6450-SW-PERF license to enable 10 gigabit uplink capability.  
OmniSwitch 6450-P24 and OmniSwitch 6450-P48 models comply with both IEEE 802.3af/at standards.

CHASSIS	10/100/1000 SFP PORTS	10/100/1000 COMBO PORTS	SFP+ GIGABIT UPLINK SFP+ 10 GIGABIT UPLINK**	10 GBPS SFP+ STACKING EXPANSION MODULE PORTS	PRIMARY POWER	BACKUP POWER
<b>Fiber models</b>						
OS6450-U24	22	2	2	2	Internal AC	Internal AC/DC

\*\* Requires OS6450-SW-PERF license to enable 10 gigabit uplink capability.  
• Combo ports are ports individually configurable to be 10/100/1000Base-T or 100/1000Base-X, which support SFP transceivers for short, long and very long distances.  
• SFP ports support 100/1000 Base-X SFP transceivers

### Expansion port models

CHASSIS	GIGABIT RJ45 PORTS	GIGABIT SFP PORTS	10 GBPS SFP+ STACKING MODULE**
OS6450-XNI-U2	0	0	2
OS6450-GNI-U2	0	2	0
OS6450-GNI-C2	2	0	0

\*\* Only stacking mode supported

## 附件四

Technical specification - 24/48 port models

	OS6450-24	OS6450-P24	OS6450-48	OS6450-P48	OS6450-U24
<b>Port</b>					
RJ-45 10/100/1000 ports	24	24	48	48	0
RJ-45/SFP 10/100/1000 combo ports	0	0	0	0	2
SFP 100/1000 ports	0	0	0	0	22
SFP+ Gigabit/10 Gigabit uplink ports	2	2	2	2	2
Ports per expansion module	2	2	2	2	2
PoE ports	0	24	0	48	0
Max 24/48 port models in a stack	6	6	8	6	8
<b>Dimensions</b>					
Switch width	17.32 in. (44.0 cm)	17.32 in. (44.0 cm)	17.32 in. (44.0 cm)	17.32 in. (44.0 cm)	17.32 in. (44.0 cm)
Switch height	1.73 in. (4.4 cm)	1.73 in. (4.4 cm)	1.73 in. (4.4 cm)	1.73 in. (4.4 cm)	1.73 in. (4.4 cm)
Switch depth	12.3 in. (31.24 cm)	12.3 in. (31.24 cm)	15.4 in. (39.1 cm)	15.4 in. (39.1 cm)	12.3 in. (31.24 cm)
Switch weight	9 lb. (4.08 kg)	11 lb. (5.05 kg)	12 lb. (5.44 kg)	15 lb. (6.8 kg)	9 lb. (4.08 kg)
<b>Performance</b>					
Switch throughput with 2x10G ports	65.5 Mpps	65.5 Mpps	101.2 Mpps	101.2 Mpps	65.5 Mpps
Stacking capacity (full duplex/aggregated)	20 Gbps/ 40 Gbps	20 Gbps/ 40 Gbps	20 Gbps/ 40 Gbps	20 Gbps/ 40 Gbps	20 Gbps/ 40 Gbps
<b>Operating conditions</b>					
Operating temperature	0°C to +45°C 32°F to 113°F	0°C to +45°C 32°F to 113°F	0°C to +45°C 32°F to 113°F	0°C to +45°C 32°F to 113°F	0°C to +45°C 32°F to 113°F
Storage temperature	-40°C to +75°C -40°F to +167°F	-40°C to +75°C -40°F to +167°F	-40°C to +75°C -40°F to +167°F	-40°C to +75°C -40°F to +167°F	-40°C to +75°C -40°F to +167°F
Humidity (operating and storage)	5% - 95%	5% - 95%	5% - 95%	5% - 95%	5% - 95%
Fan (variable speed)*	Fan less	4 fan	3 fan	4 fan	3 fan
Acoustic (dB)	0 dB(A)	<40dB(A)	<40dB(A)	<40dB(A)	<40dB(A)
System power consumption (watts)**	<50W	<60W	<65W	<75W	<65W
Heat dissipation (BTU)	<170	<204	<221	<256	<221

\* Acoustic levels measured with a single power supply at room temperature

\*\* Power consumption measured under fully loaded traffic conditions

### OmniSwitch 6450 backup supplies and specifications

The OmniSwitch 6450 24/U24/48 port models offer a 1RU internal backup supply configuration where the redundant supply is installed in a power supply bay at the back of the unit.

The OmniSwitch 6450 P24/48 port models offer a 2RU external backup supply configuration where the redundant supply/tray combination mounts above the switch and uses a remote cable for the switch/supply connection. All parts and accessories are included with the backup supply kit.

SPECIFICATION	OS6450-BP	OS6450-BP-PH	OS6450-BP-PX	OS6450-BP-D
Style	Framed	Framed	Framed	Framed
Internal/external	Internal	External	External	Internal
Input voltage	90-220V AC	90-220V AC	90-220V AC	36-72V DC
Output voltage	12V DC	12V DC/54V DC	12V DC/54.5V DC	12V DC
Wattage	90W	530W	900W	90W
PoE power budget	N/A	390W	780W	N/A
Power supply efficiency	85%	85%	80%	85%
Weight	2.45 lbs (1.11 kg)	5.75 lbs (2.59 kg)	6.02 lbs (2.73 kg)	2.45 lbs (1.11 kg)
Total RU with BPS	1 RU	2 RU	2 RU	1 RU
Models supported	OS6450-24/48/U24	OS6450-P24	OS6450-P48	OS6450-24/48/U24

## 附件四

### INDICATORS

#### System LEDs

- System (OK) (chassis HW/SW status)
- PWR (primary power supply status)
- PRI (virtual chassis primary)
- BPS (backup power status)
- LED segment display indicates the stack ID of the unit in the stack: 1 to 8 (24/48 port models)

#### Per-port LEDs

- 10/100/1000: PoE, link/activity
- SFP: Link/activity
- Stacking: Link/activity

### Compliance and certifications

#### commercial

##### EMI/EMC

- FCC CRF Title 47 Subpart B (Class A limits. Note: Class A with UTP cables)
- VCCI (Class A limits. Note: Class A with UTP cables)
- AS/NZS 3548 (Class A limits. Note: Class A with UTP cables)
- CE marking for European countries (Class A Note: Class A with UTP cables)
- EN 55022: 2006 (Emission Standard)
- EN 61000-3-3: 1995
- EN 61000-3-2: 2006
- EN 55024: 1998 (Immunity standards)
  - EN 61000-4-2: 1995-A1: 1998
  - EN 61000-4-3: 1996-A1: 1998
  - EN 61000-4-4: 1995
  - EN 61000-4-5: 1995
  - EN 61000-4-6: 1996
  - EN 61000-4-8: 1994
  - EN 61000-4-11: 1994
- IEEES02.3: Hi-Pot Test (2250 V DC on all Ethernet ports)

#### Safety agency certifications

- US UL 60950
- IEC 60950-1:2001; all national deviations
- EN 60950-1: 2001; all deviations
- CAN/CSA-C22.2 No. 60950-1-03
- NOM-019 SCFI, Mexico
- AS/NZ TS-001 and 60950:2000, Australia
- UL-AR, Argentina
- UL-GS Mark, Germany
- EN 60825-1 Laser, EN 60825-2 Laser
- CDRH Laser

### DETAILED PRODUCT FEATURES

#### Simplified management

##### configuration management interfaces

- Intuitive Alcatel-Lucent CLI with familiar

interface reducing training costs

- Easy-to-use, point-and-click web based element manager (WebView) with built-in help for easy configuration
- Integration with Alcatel-Lucent OmniVista for network management
- Full configuration and reporting using SNMPv1/2/3 across all OmniSwitch families to facilitate third party NMS integration
- Remote Telnet management or Secure Shell access using SSH
- File upload using USB, TFTP, FTP, SFTP, or SCP for faster configuration
- Human-readable ASCII-based config files for off-line editing and bulk configuration
- Managed by Alcatel-Lucent 5620 Service Aware Manager

#### Monitoring and troubleshooting

- Local (on the flash) and remote server logging: Syslog and command log
- Port-based mirroring for troubleshooting and lawful interception, supports four sessions with multiple sources-to-one destination
- Policy-based mirroring - Allows selection of the type of traffic to mirror by using QoS policies
- Remote port mirroring that facilitates passing mirrored traffic through the network to a remotely connected device.
- Port monitoring feature that allows capture of Ethernet packets to a file, or for on-screen display to assist in troubleshooting
- sFlow v5 and RMON: For advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- IP tools: ping and trace route

#### Network configuration

- Auto remote configuration download feature
- Auto-negotiating 10/100/1000 ports automatically configure port speed and duplex setting
- Auto MDI/MDIX automatically configures transmit and receive signals to support straight through and crossover cabling
- BootP/DHCP client allows auto-config of switch IP information for simplified deployment
- DHCP relay to forward client requests to a DHCP server
- Alcatel-Lucent Mapping Adjacency Protocol (AMAP) for building topology maps
- IEEE 802.1AB Link Layer Discovery Protocol (LLDP) with MED extensions for automated device discovery
- GARP VLAN Registration Protocol (GVRP)

for 802.1Q-compliant VLAN pruning and dynamic VLAN creation

- Auto QoS for switch management traffic as well as traffic from Alcatel-Lucent IP phones
- Network Time Protocol (NTP) for network wide time synchronization
- Stackable to eight units

#### Resiliency and high availability

- Ring Rapid Spanning Tree (RRSTP) optimized for ring topology to provide less than 100ms convergence time
- IEEE 802.1s Multiple Spanning Tree Protocol: encompasses IEEE 802.1D STP and IEEE 802.1w Rapid Spanning Tree Protocol
- Per-VLAN spanning tree (PVST) and Alcatel-Lucent 1x1 STP mode
- IEEE 802.3ad Link Aggregation Control Protocol (LACP) and static LAG groups across modules is supported
- Dual-home link (DHL) support for sub second link protection without STP
- Virtual Router Redundancy Protocol (VRRP) to provide highly available routed environments
- Broadcast and multicast storm control to avoid degradation in overall system performance
- Uni-Directional Link Detection (UDLD): Detects and disables unidirectional links on fiber optic interfaces.
- Layer 2 port loopback detection for preventing customer loops on Ethernet access ports.
- Redundant and hot-swappable power supplies, transceivers modules offering uninterruptible service
- Dual image and dual configuration files storage provides backup

#### Advanced security

##### Access control

- AOS Access Guardian framework for comprehensive user policy based network access control (NAC)\*
- Autosensing 802.1X multi-client, multi-VLAN
- MAC-based authentication for non-802.1x hosts
- Web-based authentication (Captive Portal) - A customizable web portal residing on the switch that can be used for authenticating supplicants as well as non-supplicants.
- Group mobility rules and "guest" VLAN support
- The host integrity check (HIC) agent on each switch makes it an HIC enforcer and facilitates endpoint device control for company policy compliance; quarantine

## 附件四

and remediation are supported as required.

- User network profile (UNP) - Simplify NAC management and control by dynamically providing pre-defined policy configuration to authenticated clients-VLAN, ACL, BW, HIC
- SSH for secure CLI session with PKI support
- Centralized RADIUS and LDAP user authentication

### Containment, monitoring and quarantine

- Support for Alcatel-Lucent Quarantine Manager and Quarantine VLAN\*
- Learned Port Security (LPS) or MAC address lockdown - Secures network access on user or trunk ports based on a MAC address
- DHCP Snooping, DHCP IP spoof protection
- TACACS+ client allows for authentication authorization and accounting with a remote TACACS+ server
- Dynamic ARP protection and ARP poisoning detection
- Access control lists to filter out unwanted traffic including denial of service attacks; Flow-based filtering in hardware (L1-L4)
- BPDU blocking - Automatically shuts down user ports if an STP BPDU packet is seen to prevent topology loops
- STP Root Guard - Prevents edge devices from becoming Spanning Tree Protocol root node

### Converged networks

#### PoE

- The PoE models support Alcatel-Lucent IP phones and WLAN access points, as well as any IEEE 802.3af or IEEE 802.3at compliant end device.
- Configurable per port PoE priority and max power for power allocation
- Dynamic PoE allocation, delivers only the power needed by the Powered Devices (PD) up to the total power budget for most efficient power consumption.

#### QoS

- Priority queues: eight hardware-based queues per port for flexible QoS management
- Traffic prioritization: Flow-based QoS with internal and external (a.k.a., remarking) prioritization
- Bandwidth management: flow based bandwidth management, Ingress rate limiting, egress rate shaping per port
- Queue management: configurable scheduling algorithm: Strict Priority (SQP),

Weighted Round Robin (WRR) and Deficit Round Robin (DRR)

- Congestion avoidance: Support for End to End Head-Of-Line (E2E-HOL) Blocking Protection
- Auto QoS for switch management traffic as well as traffic from Alcatel-Lucent IP phones
- Three color marker - Single/Dual Rate - policing with Commit BW, Excess BW, Burst size

### Layer-2, Layer-3 Routing and Multicast

#### Layer-2 switching

- Up to 16,000 MACs
- Up to 4000 VLANs
- Up to 2k ACLs
- Latency: < 4 microseconds

#### IPv4 and IPv6

- Static routing for IPv4 and IPv6
- RIP v1 and v2 for IPv4, RIPv6 for IPv6
- Up to 256 IPv4/ 128 IPv6 static and RIP routes.
- Up to 128 IPv4 and 16 IPv6 interfaces

#### Multicast

- IGMPv1/v2/v3 snooping to optimize multicast traffic
- MLD snooping
- Up to 1000 multicast groups/stack
- IP Multicast VLAN (IPMVLAN) for optimized multicast replication at the edge saving network core resources

#### Network protocols

- DHCP relay (including generic UDP relay)
- ARP
- Dynamic Host Configuration Protocol (DHCP) relay
- DHCP relay to forward client requests to a DHCP server
- Generic User Datagram Protocol (UDP) relay per VLAN
- DHCP Option 82 - configurable relay agent information

### Metro Ethernet access (features available through Metro license upgrade)

- Ethernet services support per IEEE 802.1ad Provider Bridge
  - Transparent LAN Services with Service VLAN (SVLAN) and Customer VLAN (CVLAN) concept
  - Ethernet network-to-network interface (NNI) and user network interface (UNI) services

- Service Access Point (SAP) profile identification

- CVLAN to SVLAN translation and mapping

- IEEE 802.1ag Ethernet OAM: Connectivity Fault Management (L2 ping and link trace)
- Ethernet OAM compliant with IEEE 802.3ah
- ITU-T G.8032 Ethernet Ring Protection designed for loop protection and fast convergence times (sub 50 ms) in ring topologies.
- Private VLAN feature for user traffic segregation
- Service Assurance Agent (SAA) for proactively measuring network health, reliability and performance. Four SAA tests including L2-MAC, IP, ETH-LB and ETH-DMM depending on your network requirements.
- Customer provider edge (CPE) test head traffic generator and analyzer tool used in the metro Ethernet network to validate customer Service Level Agreements (SLA)
- IP Multicast VLAN (IPMVLAN) for optimized multicast replication at the edge saving network core resources
- Layer 2 Multicast VLAN Replication (MVR)
  - Allows users from different multicast VLANs to subscribe to a multicast group from an upstream trunk interface
- Three color marker - Single/dual rate
  - Policing with commit BW, excess BW, burst size
- TR-101 PPOE Intermediate Agent allowing for the PPOE network access method
- MAC-Forced forwarding support according to RFC 4562
- L2CP - Layer 2 Control Protocol for tunneling a customer's L2CP frames, via well known address, on a given UNI for the EPL and EVPL services
- Dying Gasp via SNMP and Ethernet OAM delivery
- MEF 9 and 14 certified
- Managed by Alcatel-Lucent 5620 Service Aware Manager

### Supported standards

#### IEEE standards

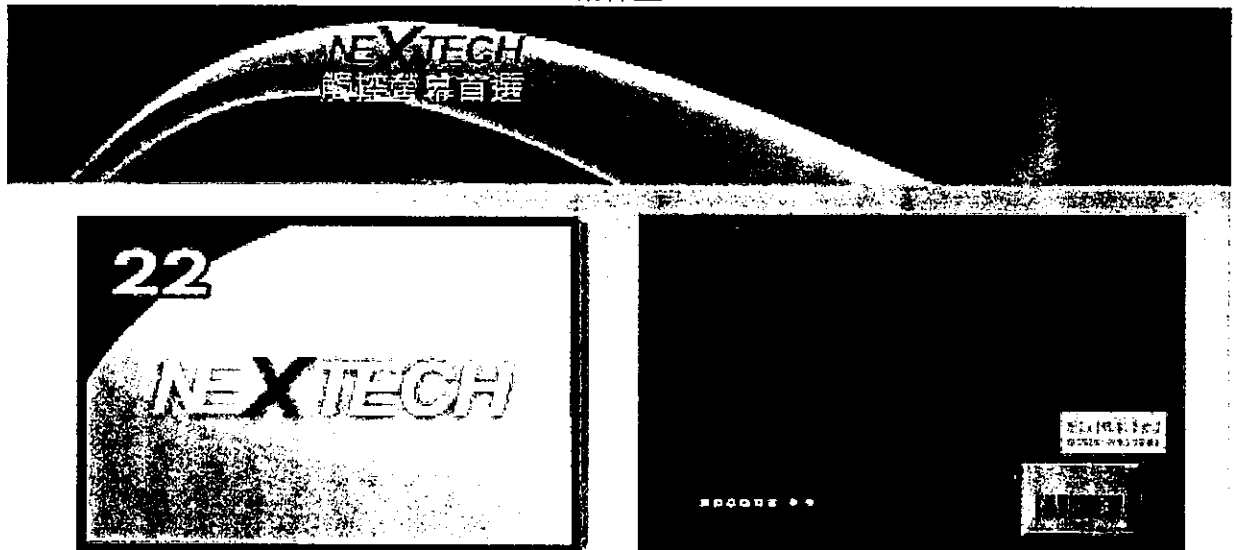
- IEEE 802.1D (STP)
- IEEE 802.1p (CoS)
- IEEE 802.1Q (VLANs)
- IEEE 802.1ad (Provider Bridge)
- Q-In-Q (VLAN stacking)
- IEEE 802.1ag (Connectivity Fault Management)
- IEEE 802.1s (MSTP)
- IEEE 802.1w (RSTP)

臺北捷運環狀線（第一階段）  
機電系統工程、軌道工程、自動收費系統工程  
**TAIPEI CIRCULAR LINE (PHASE 1)**  
**E&M SYSTEM, TRACK WORKS, AFC SYSTEM**  
**CF610/CF611/CF617**

附件 五  
通訊多功能操作主控台顯示器規格

**APPENDIX 5**  
**CMFT CONSOLE MONITOR SPECIFICATIONS**





## Nextech 22" wide Open-frame 電容式觸控寬螢幕

### 顯示規格

面板尺寸	21.5 吋
可視面積	477.64 (H) X 268.11 (V) 公釐
最大解析度	1920 X 1080 像素
可視角度	水平=170°; 垂直=160°
最大對比	1000:1
亮度	250cd/m2
反應時間	5 毫秒
顯示比例	16:9

### 觸控規格

觸控原理	表面電容式(Surface Capacitive)
精準度	±0.5%
靈敏度	±93%
硬度	≥9H
觸控壽命	超過1億次點擊
控制卡介面	USB(標準) / RS232 (選配) / PS2 (選配)

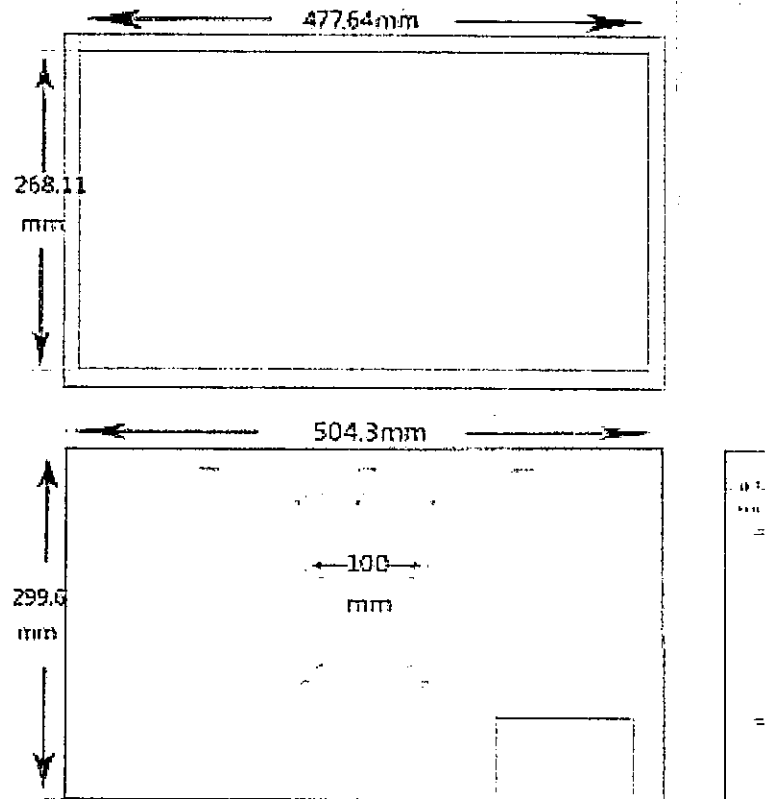


視訊端子	DVI / D-Sub(15 pin)
重量	7.5 公斤
本機尺寸	長504.3 x 寬209.6 x 厚度48.7 公釐
安裝孔距	VESA
喇叭	內建2W喇叭*2



# 附件五

面板亮度	300cd / m2 (標準) / 450cd / m2 (增亮)
觸控介面	USB (標準) / RS-232 (選配) / PS/2 (選配)
腳架	Z腳座 / 標準壁掛架
螢幕保護膜	抗眩光膜 (AR / AG film) / 防爆膜
喇叭	2W (標準)



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**E&M SYSTEM, TRACK WORKS, AFC SYSTEM**  
**CF610/CF611/CF617**

附件 六  
網路印表機規格

**APPENDIX 6**  
**NETWORK PRINTER SPECIFICATIONS**

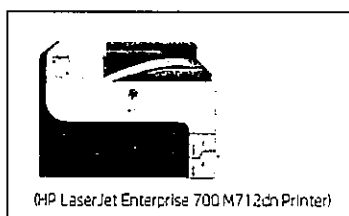
Data sheet

# HP LaserJet Enterprise 700 M712 Printer Series

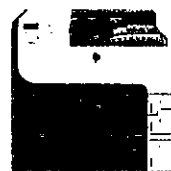


Get fast black-and-white printing up to A3—with energy-saving features and security controls.

Enable high-volume, black-and-white printing on paper sizes up to A3—and capacity up to 4,600 sheets.<sup>1</sup> Control costs with energy-saving features and two-sided printing. Protect sensitive business data and centrally manage printing policies.



(HP LaserJet Enterprise 700 M712dn Printer)



(HP LaserJet Enterprise 700 M712xh Printer)

## Upsize and accelerate—fast A3 printing

- Save time and keep business moving with blazing-fast printing from this black-and-white A3 workgroup printer.
- Expand black-and-white printing options on paper sizes up to A3 and near edge-to-edge printing.
- Boost productivity—reload paper less often with up to 4,600-sheet capacity for high-volume printing.<sup>1</sup>
- Replace toner cartridges easily. Choose high-capacity Original HP toner cartridges for frequent printing.<sup>2</sup>

## Conserve resources and help control costs

- Save energy—Auto On/Auto Off turns your printer On when you need it, and Off when you don't.<sup>3</sup>
- Reduce paper use up to 50% with automatic two-sided printing on this ENERGY STAR® qualified printer.
- Original HP toner cartridges are easily recycled—for free—through HP Planet Partners.<sup>4</sup>

## Simplify IT management and safeguard data

- Boost printing and imaging safeguards and help protect business data with fleet-level security solutions.
- Safeguard confidential data stored on the printer, with the installed HP High-Performance Secure Hard Disk.<sup>4</sup>
- Centralize printer management—HP Web Jetadmin helps you monitor equipment and increase uptime.<sup>5</sup>
- Add security solutions—such as card and badge readers—through the hardware integration pocket.<sup>6</sup>

## Invest in a forward-thinking, easy-to-use solution

- Extend the value of your investment—easily update and expand device capabilities with HP FutureSmart Firmware.
- HP ePrint—print from your smartphone or tablet from virtually anywhere.<sup>7</sup>
- Manage jobs at the colour control panel. The easy-access USB port lets you print from a flash drive.

<sup>1</sup> The base paper capacity of the HP LaserJet Enterprise 700 printer M712dn is 600 sheets (2 x 250-sheet trays and one 100-sheet multipurpose tray). The base paper capacity of the HP LaserJet Enterprise 700 printer M712xh is 1,100 sheets (2 x 250-sheet trays, 1 x 100-sheet multipurpose tray, and 1 x 500-sheet tray). With optional accessories, the maximum capacity is 4,600 sheets.

<sup>2</sup> The HP LaserJet CF214X black toner cartridge is not included. Please purchase separately.

<sup>3</sup> Program availability varies. Original HP cartridge return and recycling is currently available in more than 50 countries, territories, and regions in Asia, Europe, and North and South America through the HP Planet Partners program. For more information, visit: [hp.com/lecycle](http://hp.com/lecycle).

<sup>4</sup> The HP High-Performance Secure Hard Disk is only available on the HP LaserJet Enterprise 700 M712xh Printer.

<sup>5</sup> Requires an Internet connection to HP web-enabled printer and HP ePrint account registration (for a list of eligible printers, supported documents and image types and other HP ePrint details, see [hp.com/go/eprintcenter](http://hp.com/go/eprintcenter)). Mobile devices require Internet connection and email capability. May require wireless access point. Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary. Some HP LaserJet printers may require firmware upgrades.

<sup>6</sup> Solutions deployed through the hardware integration pocket may require additional purchase.

<sup>7</sup> HP Auto-On and Auto-Off capabilities subject to printer and settings.

<sup>8</sup> Compared with products that use traditional fusing.

<sup>9</sup> HP Web Jetadmin is free and can be downloaded at [hp.com/go/webjetadmin](http://hp.com/go/webjetadmin).

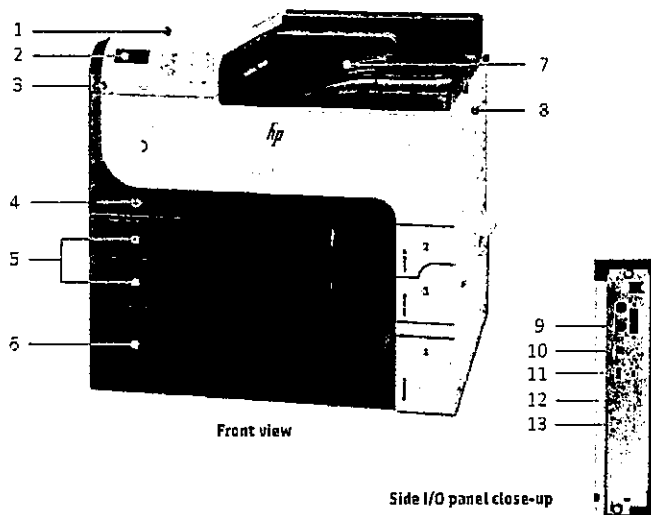
## 附件六

Data sheet | HP LaserJet Enterprise 700 M712 Printer Series



### Product walkaround

HP LaserJet Enterprise 700 M712xh printer shown

1. Hardware Integration pocket for solution integration
2. Intuitive 4-line color display with 10-button keypad
3. Easy-access USB port to save and print files directly
4. Built-in automatic two-sided printing
5. Two 250-sheet input trays for letter and legal size media
6. 500-sheet input tray for a 1,100 total input capacity
7. 250-sheet output bin
8. 100-sheet multipurpose tray 1 handles heavy custom media up to 53 lb bond
9. HP Jetdirect Gigabit Ethernet print server
10. Hi-Speed USB 2.0 printing port
11. Hi-Speed USB 2.0 port (for connecting third party devices)
12. 800 MHz processor, 512 MB standard memory
13. HP High-Performance Secure Hard Disk



### Series at a glance

		
Model	M712dn	M712xh <sup>1</sup>
Part number	CF236A	CF238A
Print speeds	Up to 41 ppm A4 (Up to 40 ppm letter)	Up to 41 ppm A4 (Up to 40 ppm letter)
Control panel	4-line color display, 10 keypad	4-line color display, 10 keypad
Hardware integration pocket	✓	✓
100-sheet multipurpose tray 1	✓	✓
250-sheet tray 2	✓	✓
250-sheet tray 3	✓	✓
500-sheet tray 4	Optional	✓
Automatic two-sided printing	✓	✓
Toner cartridges supported	Regular and high-capacity	Regular and high-capacity
HP High-Performance Secure Hard Disk	Not available	✓
ENERGY STAR® qualified	✓	✓

<sup>1</sup> HP LaserJet Enterprise 700 M712xh is not available in Japan.

Data sheet | HP LaserJet Enterprise 700 M712 Printer Series

## HP Services

Downtime can have serious consequences, so HP provides support beyond the standard warranty. You benefit from reduced risk, maximized uptime, predictable service delivery and no unbudgeted repair costs. Choose from:

**Optimized Care (optimum performance and stability):** 4 hour Onsite Support, Maintenance Kit Replacement Service, Installation with Network Configuration Service

**Standard Care (high level of uptime):** Next Business Day Onsite Support, Maintenance Kit Replacement Service, Installation with Network Configuration Service

**Basic Care (minimum recommended support):** Next Business Day Onsite Support

**4 hr Onsite Support:** Onsite support within four hours after a service call received within the coverage window

**Next Business Day Onsite Support:** Onsite service the next business day after the service call is received

**Maintenance Kit Replacement Service:** Onsite replacement of your printer's maintenance kit including parts, materials, and labor

**Installation with Network Configuration Service:** Assembly, network configuration, and basic administrator familiarization

For more information about HP Care Pack, HP Contractual, or HP Managed Print Services, visit [hp.com/go/printservices](http://hp.com/go/printservices)

## Top Features

Boost your productivity and potential with fast, black-and-white A3 printing and paper handling up to 4,600 sheets.<sup>1</sup> Expand your workteam's options with two-sided printing nearly to the edge of the page.

Save energy and help keep printing costs in check. Auto On/Auto Off and Instant-on Technology help conserve energy,<sup>4,5</sup> and automatic two-sided printing reduces paper use.<sup>3</sup> Management tools help optimize printing habits across your workteam.

Robust security features safeguard sensitive data. Award-winning management tools such as HP Web Jetadmin help optimize company-wide printing policies and trim operating costs.<sup>6</sup> Centrally manage security policies, and update solutions.

Deploy new solutions and update device features with ease. Print from virtually anywhere with HP ePrint.<sup>2</sup> Robust management tools help optimize fleet-wide printing policies and trim operating costs.

### Supplies

CF214A	HP 14A Black LaserJet Toner Cartridge (~10,000 yield)
CF214X	HP 14X Black LaserJet Toner Cartridge (~17,500 yield)

### Accessories

CF239A	HP LaserJet 500-sheet Feeder and Tray
CF243A	HP LaserJet 1x500-sheet Paper Feeder with Cabinet and Stand
CF242A	HP LaserJet 3x500-sheet Feeder and Stand
CF245A	HP LaserJet 3,500-sheet HPI Feeder and Stand
CF240A	HP LaserJet Duplex Printing Assembly
CF249A	HP LaserJet 110V Maintenance/Fuser Kit
CF254A	HP LaserJet 220V Maintenance/Fuser Kit
CE483A	HP S12 M3 144-pin x32 DDR2 DIMM

### HP Care Packs

U6Z05E	HP 3-year Next business day + Defective Media Retention LaserJet M712 Hardware Support
U6Z06E	HP 4-year Next business day + Defective Media Retention LaserJet M712 Hardware Support
U6Z07E	HP 5-year Next business day + Defective Media Retention LaserJet M712 Hardware Support
U6Y99E	HP 3-year 4 hour 9x5 LaserJet M712 Hardware Support
U6Z01E	HP 4-year 4 hour 9x5 LaserJet M712 Hardware Support
U6Z03E	HP 5-year 4 hour 9x5 LaserJet M712 Hardware Support

### Paper

Contact HP via phone: Asia: 65 6253 8500

### Software

Print drivers and installation software on CD: Windows print driver (HP PCL 6 discrete), SNP alerts, Mac print driver

### Solutions

For more solutions information, please visit [hp.com/go/gsc](http://hp.com/go/gsc)

<sup>1</sup> The base paper capacity of the HP LaserJet Enterprise 700 printer M712dn is 600 sheets (3 x 250-sheet trays and one 100-sheet multipurpose tray). The base paper capacity of the HP LaserJet Enterprise 700 printer M712dx is 1,100 sheets (2 x 250-sheet trays, 1 x 100-sheet multipurpose tray, and 1 x 500-sheet tray). With optional accessories, the maximum capacity is 4,600 sheets.

<sup>2</sup> Requires an Internet connection to HP web-enabled printer and HP ePrint account registration (for a list of eligible printers, supported documents and image types and other HP ePrint details, see [hp.com/go/epprintcenter](http://hp.com/go/epprintcenter)). Mobile devices require Internet connection and email capability. May require wireless access point. Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary. Some HP LaserJet printers may require firmware upgrades.

<sup>3</sup> Automatic two-sided printing on the M712n requires purchase of optional duplex accessory.

<sup>4</sup> HP Auto-On and Auto-Off capabilities subject to printer and settings.

<sup>5</sup> Combined with products that use trade thermal fusing.

<sup>6</sup> HP Web Jetadmin is free and can be downloaded at [hp.com/go/webjetadmin](http://hp.com/go/webjetadmin).

## 附件六

Data sheet HP LaserJet Enterprise 700 M712 Printer Series

## HP LaserJet Enterprise 700 M712 Printer Series

Technical specifications	HP LaserJet Enterprise 700 M712dn Printer (CFZ38A)	HP LaserJet Enterprise 700 M712dx Printer (CFZ38B)
Functions	<b>Print only</b>	
Print	Automatic (standard)	
Ducties print options	Normal, A4; US to 41 cm black Normal; Letters up to 40 ppm black Normal; A3: Up to 20 ppm black	
Print speed <sup>1</sup>	Black (best): Up to 1200 x 1200 dpi Black (normal): HP FastRes 1200 (1200 dpi effective queue), 600 dpp with HP Resolution Enhancement technology	
First page out	Black (ready): As fast as 9.5 sec	
Print resolution	Laser	
Print tech color	HP PrintRes 1200, HP FastRes 1200, HP RES, 600 dpp	
Print resolution technologies	1 Black	
Print cartridges number	HP ePrint, Apple AirPrint™, HP Auto On/Auto Off technology, FutureSmart Firmware, Hardware Integration Pocket, Easy Access USB	
Printer smart software features	HP ePrint, Apple AirPrint™, HP Auto On/Auto Off technology, FutureSmart Firmware, Hardware Integration Pocket, Easy Access USB	
Mobile printing capability	HP ePrint, Apple AirPrint™	
Standard print languages	HP PCL 6, HP PCL 5e, Postscript 3 emulation, native PDF printing (v.1-4)	
Printer management	HP Web JetAdmin, HP LinkBox (Mac)	
Connectivity	2 Hi-Speed USB 2.0, 1 Hi-Speed USB 2.0 Device, 1 Gigabit Ethernet 10/100/1000 Base-T, 1 Hi-Speed USB 2.0 Easy Access Walkout Port, 1 Hardware Integration Pocket (HPI)	
Standard connectivity	Standard (built-in) Gigabit Ethernet	
Network ready	Via HP Integrated Ethernet embedded print server (standard supports 1GBase-T, 10GBase-T, 1000Base-T, 802.3at IEEE) support on Fast Ethernet and Gigabit Ethernet, IPsec (optional), 300 Tlb/gm wireless networking (optional)	
Wireless capability	Optional, enabled with purchase of a hardware accessory	
Memory	512 MB	
Processor speed	800 MHz	
Duty cycle (monthly) <sup>2</sup>	Up to 160,000 pages; Recommended monthly page volume: <sup>3</sup> 5,000 to 20,000 pages	
Paper handling	Input: 100-sheet multipurpose tray, 3 x 250-sheet input trays Output: 250-sheet output bin	
Media type	Paper (color, letterhead, light, plain, preprinted, punched, recycled, rough, tough paper), bond, cardstock, envelope, labels, transparency, vellum	
Media weight	Tray 1: 60 to 189 g/m², Tray 2, 3: 50 to 120 g/m² Tray 1: 60 to 189 g/m², Tray 2, 3: 40 to 120 g/m²	
Media sizes custom	Tray 1: 76 x 127 to 312 x 469 mm, Tray 2: 148 x 210 to 237 to 393 mm, Tray 3: 148 x 210 to 237 to 431 mm Tray 1: 76 x 127 to 312 x 469 mm, Tray 2, 3: 148 x 210 to 237 to 393 mm, Tray 3: 148 x 210 to 237 to 431 mm	
Dimensions (WxDxH)	568 x 596 x 392 mm (22.4 x 23.4 x 15.4 in.), Max: 556 x 589 x 392 mm (22.3 x 23.2 x 15.4 in.) 568 x 596 x 517 mm (22.4 x 23.4 x 20.4 in.), Max: 556 x 589 x 517 mm (22.3 x 23.2 x 20.4 in.)	
Weight	35.5 kg 49.8 kg	
What's in the box	HP LaserJet Enterprise 700 M712dn Printer (includes built-in automatic two-sided printing and HP SecurePrint Embedded print server), HP Black LaserJet Toner Cartridge (10,000 pages), Getting Started Guide, CD containing drivers and electronic documentation, power cord	HP LaserJet Enterprise 700 M712dx Printer (includes built-in automatic two-sided printing and HP SecurePrint Embedded print server and High-Performance Secure 250 GB Hard Disk), HP Black LaserJet Toner Cartridge (10,000 pages), Getting Started Guide, CD containing drivers and electronic documentation, power cord, 500-sheet input tray
Warranty features	One-year on-site warranty	
Systems	Compatible operating systems Microsoft® Windows® 8, Windows® 7, Windows Vista®, Windows XP® (SP2-1), Windows® Server 2003 (SP1-1), Windows® Server 2008 R2 (64-bit), Windows® Server 2008 R2 (64-bit), Mac OS X v.10.5, 10.7 For the latest operating system support see Go to Windows Terminal Services (not supported), Linux (Fedora, Red Hat, Ubuntu) or compatible distributions, no compatibility restrictions, software), SAP device types (no compatibility), HP ePrint Mobile Driver (no compatibility), HP ePrint Mobile Driver (no compatibility)	
Minimum system requirements	PC: Microsoft® Windows® 8, Windows® 7, Windows Vista®, Windows XP® (SP2-1), Windows® Server 2003 (SP1-1), Windows® Server 2008 R2 (64-bit), Windows® Server 2008 R2 (64-bit), 200 MB available hard disk space, operating system compatible hardware system requirements, see microsoft.com, Mac: Mac OS X v.10.5, 10.7, 200 MB available hard disk space, operating system compatible hardware system requirements, see apple.com	
Control panel	2-in, 4-line LCD (color text and graphics), job control buttons, LED status indicators, 10-button keypad, Hardware Integration Pocket, easy access USB	
Power	Power supply type: Built-in power supply, Power supply required: 110-volt input voltage 110 to 127 VAC (-/- 10%), 50/60 Hz (-/- 2 Hz); 230-volt input voltage 230 to 240 VAC (-/- 10%), 50/60 Hz (-/- 2 Hz) (hot dual voltage, power supplied varies by unit number with a Option code (switch)). Power consumption: 786 watts (Printing), 22.1 watts (Ready), 5.1 watts (Sleep), 0.21 watts (Off)	
Software included	Windows installation, HP PCL 6 driver, Mac installer, HP PostScript emulation driver	
Acoustic	Acoustic power emissions (ready): Inaudible, Acoustic pressure emissions bystander (active, printing): < 58 dB(A), Acoustic pressure emissions bystander (ready): Inaudible	
Environmental ranges	Operating temperature range: 10 to 32.5°C (50 to 91°F), Recommended operating temperature: 10 to 32.5°C (50 to 91°F), Non-operating humidity range: 10 to 90% RH, Operating humidity range: 20 to 80% RH, Recommended operating humidity range: 20 to 70% RH	
Security management	Management security: SNMPv3, SSL/TLS, WPA2-Enterprise, 802.1X authentication (EAP-EAP-TLS), IPsec over TLS, IPsec/Firewall with Certificate, Pro-Secure Key Authentication, and Network Authentication Support for Wi-Fi Direct Configuration using Fleet Plug-In	
Safety approvals and requirements	IEC 60335-1:2005+A1, EN60335-1:2005+A11:2009+A12:2010+A12:2011, IEC 60335-2-1:2007 Class I Laser/Led Product, EN 50525-1:2007 Class I Laser/Led Product, UL/cUL Listed (USA/Canada), GS Certified (Germany, Europe), IEC 62479:2010, EN 62479:2010 Low Voltage Directive 2006/95/EC with CE marking (Europe), other safety approvals as required by individual countries	
Supported network protocols	IPv4/vIPv6, Apple Bonjour Compatible Mac OS v.10.5.2.4 or higher, SMB/CIFS/V2/V2.2, HTTP/HTTPS, FTP, FIP, File Protocols, LPD, WS Discovery, IPP, Secure IPP, IPSec/Firewall, IPv6 DHCPv6, MLN, ICMPv6, Jv4 Avia+ SLR Telnet, IGMPv2, BOOTP/DHCP, DNS, UPnP Quiet Mode, WinPrint	

1. Measured using ISO/IEC 24734, excludes first set of test documents. For more information see [hp.com/go/printerclaim](http://hp.com/go/printerclaim). Exact speed varies depending on the system configuration, software application, driver, and document complexity.

2. Duty Cycle is defined as the maximum number of pages per month of imaged output. This value provides a comparison of product robustness in relation to other HP LaserJet or HP Color LaserJet devices, and enables appropriate deployment of printers and MFPs to satisfy the demands of connected individuals or groups.

3. HP recommends that the number of printed pages per month be within the stated range for optimum device performance, based on factors including supplies replacement intervals and device life over an extended warranty period.

4. Power requirements are based on the country/region where the printer is sold. Do not convert operating voltages; this will damage the printer and void the product warranty. Values subject to change, see [hp.com/go/usa](http://hp.com/go/usa) for current information.

5. Actual device speeds are subject to change. For current information see [hp.com/go/usa](http://hp.com/go/usa) report Configuration tested: M712dn model, simplex printing, A4 paper at an average of 41 ppm.

To learn more, visit [hp.com](http://hp.com)

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4445-5116 SEP September 2012



臺北捷運環狀線（第一階段）  
機電系統工程、軌道工程、自動收費系統工程  
**TAIPEI CIRCULAR LINE (PHASE 1)**  
**E&M SYSTEM, TRACK WORKS, AFC SYSTEM**  
**CF610/CF611/CF617**

附件 七  
終端伺服器規格

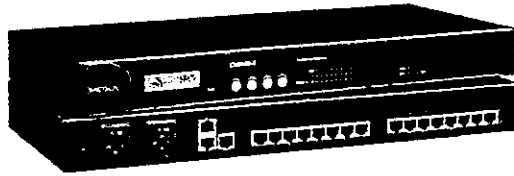
**APPENDIX 7**  
**TERMINAL SERVER SPECIFICATIONS**



## 附件七

### CN2610/CN2650 Series

8 and 16-port RS-232/422/485 terminal servers with dual-LAN redundant /

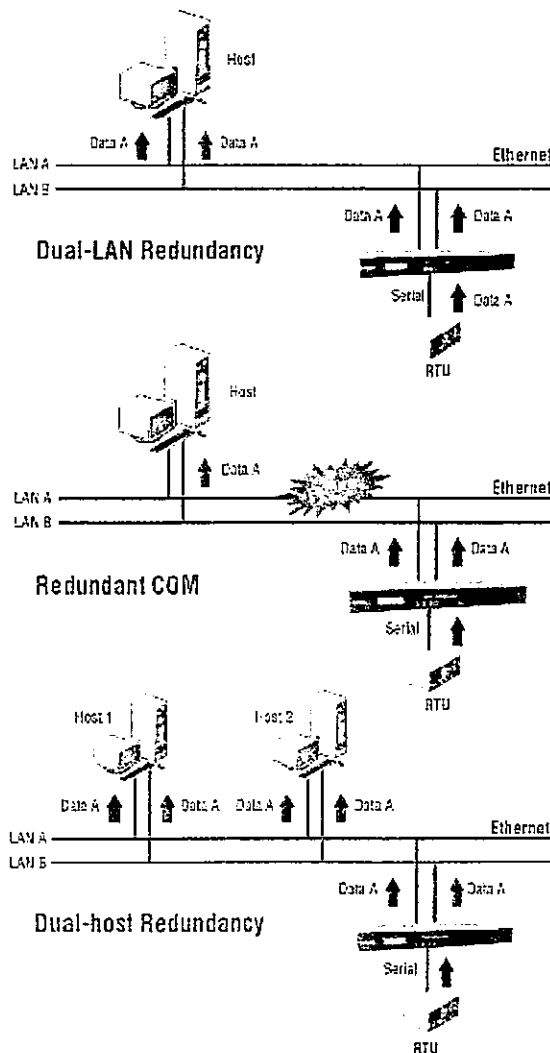


#### Overview

Redundancy is an important issue for industry, and several different solutions have been developed to prevent damage caused by equipment or software failures. "Watchdog" hardware is required to utilize redundant hardware, and a "Token" switching mechanism is required for software. The CN2600 terminal server uses its built-in dual-LAN ports to implement a "redundant COM" mode that keep your applications running smoothly.

#### Features and Benefits

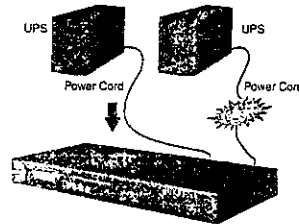
- LCD panel for easy IP address configuration
- Dual-LAN cards with two independent MAC addresses and IP addresses
- Redundant COM function available when both LANs are active
- Dual-host redundancy can be used to add a backup PC to your system
- Dual AC power inputs
- Real COM/TTY drivers for Windows and Linux



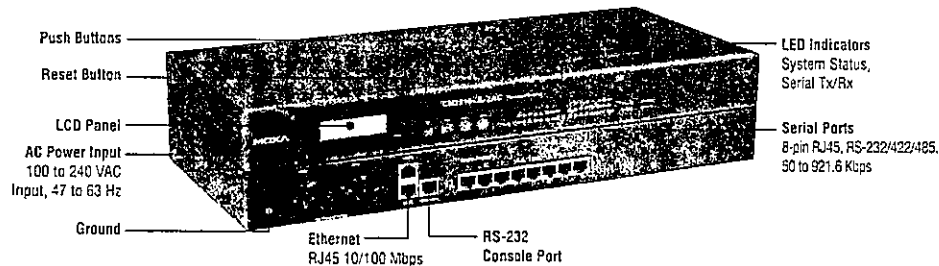
## Terminal Servers

### Dual-AC Model Supported

Dual-power redundancy uses two power inputs and redundant internal power supplies to ensure that all of the CN2600's functions will be available, even in the event of power circuit failures.



### Appearance



Note: Wide temp. models do not include LCD panel and push buttons.

### Specifications

#### Ethernet Interface

Number of Ports: 2 (2 IPs)  
Speed: 10/100 Mbps, auto MDI/MDIX  
Connector: 8-pin RJ45  
Magnetic Isolation: 1.5 KV built-in

#### Serial Interface

Number of Ports: 8 or 16  
Serial Standards:  
CN2610: RS-232  
CN2650/2650I: RS-232/422/485

#### Connector:

CN2610/2650: 8-pin RJ45  
CN2650I: DB9 male

RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)

#### Serial Line Protection:

15 KV ESD protection for all signals  
2 KV optical isolation (CN2650I)  
Console Port: Dedicated RS-232 console port on rear panel (8-pin RJ45)

#### Serial Communication Parameters

Data Bits: 5, 6, 7, 8  
Stop Bits: 1, 1.5, 2  
Parity: None, Even, Odd, Space, Mark  
Flow Control: RTS/CTS, DTR/DSR, XON/XOFF  
Baudrate: 50 bps to 921.6 Kbps  
Pull High/Low Resistor for RS-485: 1 K $\Omega$ , 150 K $\Omega$   
Terminator for RS-485: 120  $\Omega$

#### Serial Signals

RS-232: Tx+, Rx+, RTS, CTS, DTR, DSR, DCD, GND  
RS-422: Tx+, Tx-, Rx+, Rx-, GND  
RS-485-4w: Tx+, Tx-, Rx+, Rx-, GND  
RS-485-2w: Data+, Data-, GND

#### Software

Network Protocols: ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, ARP, PPPoE, DDNS

Security Protocols: RADIUS, HTTPS, SSH, PAP, CHAP

Configuration Options: Web Console, Serial Console, Telnet Console, Windows Search Utility

Windows Real COM Drivers: Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7 x86/x64, Embedded CE 5.0/5.0, XP Embedded  
Fixed TTY Drivers: SCO Unix, SCO OpenServer, UnixWare 7, UnixWare 2.1, SVR 4.2, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x  
Linux Real TTY Drivers: Linux kernel 2.4.x, 2.6.x

Management: SNMP MIB-II

IP Routing: Static, RIP-I, RIP-II

#### Operation Modes

Standard: Real COM, TCP Server, TCP Client, UDP, RFC2217, Terminal, Reverse Telnet, PPP, DRDAS, Redundant COM, Disabled

#### Applications

Terminal Sessions: 8 sessions per port

#### Physical Characteristics

Housing: Metal, IP30 protection

#### Weight:

CN2610-8: 3525 g  
CN2610-16: 3560 g  
CN2610-8-2AC: 3760 g  
CN2610-16-2AC: 3810 g  
CN2650-8: 3740 g  
CN2650-16: 3790 g

CN2650-8-2AC: 3900 g

CN2650-16-2AC: 3960 g

CN2650I-8: 3666 g

CN2650I-16: 3776 g

CN2650I-8-2AC: 3932 g

CN2650I-16-2AC: 4022 g

#### Dimensions:

Without ears: 440 x 198 x 45 mm (17.32 x 7.80 x 1.77 in)

With ears: 480 x 198 x 45 mm (18.9 x 7.80 x 1.77 in)

#### Environmental Limits

Operating Temperature:

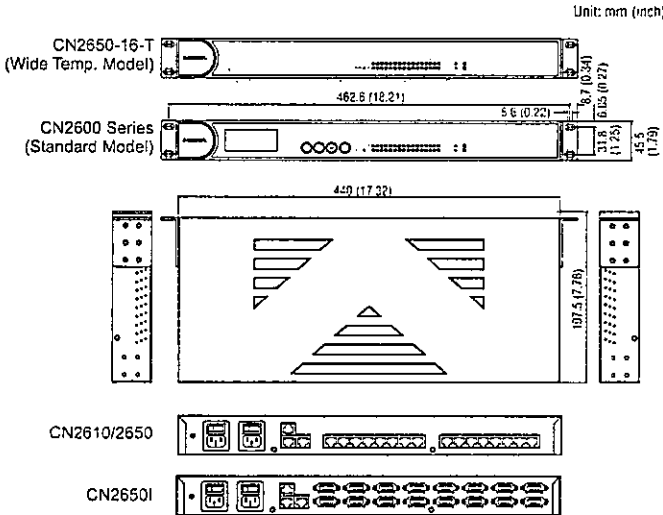
Standard Models: 0 to 55°C (32 to 131°F)

►► Terminal Servers

Wide Temp. Models: -40 to 75°C (-40 to 167°F)  
 Storage Temperature: -40 to 75°C (-40 to 167°F)  
 Ambient Relative Humidity: 5 to 95% (non-condensing)  
**Power Requirements**  
 Input Voltage: 100 to 240 VAC, 47 to 63 Hz  
 Power Consumption: 235 mA @ 100 VAC, 145 mA @ 240 VAC  
 Power Line Protection: 1 KV burst (EN61000-4-4: EFT/B), 2 KV surge (EN61000-4-5)  
**Standards and Certifications**  
 Safety: UL 60950-1, EN 60950-1  
 EMC: CE, FCC  
 EMI: EN 55022 Class A, FCC Part 15 Subpart B Class A  
 EMS: EN 55024, EN 61000-4-2 (ESD) Level 4,

EN 61000-4-3 (RS) Level 3,  
 EN 61000-4-4 (EFT) Level 4,  
 EN 61000-4-5 (Surge) Level 2,  
 EN 61000-4-6 (CS) Level 2,  
 EN 61000-4-8 Level 4,  
 EN 61000-4-11  
 Freefall: IEC-68-2-34, IEC-68-2-32  
 Vibration: IEC-68-2-6  
 Green Product: RoHS, CRoHS, WEEE  
**Reliability**  
 Alert Tools: Built-in buzzer and RTC (real-time clock)  
 Automatic Reboot Trigger: Built-in WDT (watchdog timer)  
 MTBF (mean time between failures): 99,302 hrs  
**Warranty**  
 Warranty Period: 5 years  
 Details: See [www.moxa.com/warranty](http://www.moxa.com/warranty)

**Dimensions**



**Pin Assignment**

**8-pin RJ45 connector**

Pin	RS-232	RS-422/423	RS-485	DB9	DB25
1	DSR	-	-	-	-
2	RTS	TxD-(B)	-	-	-
3	GND	GND	GND	-	-
4	TxD	TxD-(A)	-	-	-
5	RxD	RxD-(B)	Data-(B)	-	-
6	DCD	RxD-(A)	Data-(A)	-	-
7	CTS	-	-	-	-
8	DTR	-	-	-	-

**DB9 male connector**

Pin	RS-232	RS-422/423	RS-485	DB9	DB25
1	DCD	TxD-(A)	-	-	-
2	RxD	TxD-(B)	-	-	-
3	TxD	RxD-(B)	Data-(B)	-	-
4	DTR	RxD-(A)	Data-(A)	-	-
5	GND	GND	GND	-	-
6	DSR	-	-	-	-
7	RTS	-	-	-	-
8	CTS	-	-	-	-

**Ordering Information**

**Available Models**

CN2610-8: Dual-LAN terminal server with 8 RS-232 ports, 0 to 55°C operating temperature  
 CN2610-16: Dual-LAN terminal server with 16 RS-232 ports, 0 to 55°C operating temperature  
 CN2610-8-2AC: Dual-LAN, dual-AC-power terminal server with 8 RS-232 ports, 0 to 55°C operating temperature  
 CN2610-16-2AC: Dual-LAN, dual-AC-power terminal server with 16 RS-232 ports, 0 to 55°C operating temperature  
 CN2650-8: Dual-LAN terminal server with 8 RS-232/422/485 ports, 0 to 55°C operating temperature  
 CN2650-16: Dual-LAN terminal server with 16 RS-232/422/485 ports, 0 to 55°C operating temperature  
 CN2650-8-2AC: Dual-LAN, dual-AC-power terminal server with 8 RS-232/422/485 ports, 0 to 55°C operating temperature  
 CN2650-16-2AC: Dual-LAN, dual-AC-power terminal server with 16 RS-232/422/485 ports, 0 to 55°C operating temperature  
 CN2650I-8: Dual-LAN terminal server with 8 RS-232/422/485 ports and 2 KV optical isolation, 0 to 55°C operating temperature  
 CN2650I-16: Dual-LAN terminal server with 16 RS-232/422/485 ports and 2 KV optical isolation, 0 to 55°C operating temperature  
 CN2650I-8-2AC: Dual-LAN, dual-AC-power terminal server with 8 RS-232/422/485 ports and 2 KV optical isolation, 0 to 55°C operating temperature  
 CN2650I-16-2AC: Dual-LAN, dual-AC-power terminal server with 16 RS-232/422/485 ports and 2 KV optical isolation, 0 to 55°C operating temperature  
 CN2650-8-2AC-T: Dual-LAN, dual-AC-power terminal server with 8 RS-232/422/485 ports, -40 to 75°C operating temperature  
 CN2650-16-2AC-T: Dual-LAN, dual-AC-power terminal server with 16 RS-232/422/485 ports, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

**Package Checklist**

- 1 CN2600 terminal server
- CBL-RJ45F9-150: 8-pin RJ45 to DB9 female connection cable, 150 cm
- 2 power cords (AC models only)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

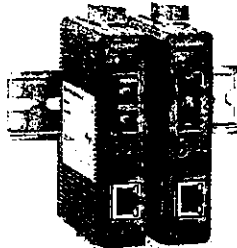
臺北捷運環狀線（第一階段）  
機電系統工程、軌道工程、自動收費系統工程  
**TAIPEI CIRCULAR LINE (PHASE 1)**  
**E&M SYSTEM, TRACK WORKS, AFC SYSTEM**  
**CF610/CF611/CF617**

附件 八  
媒體轉換器規格

**APPENDIX 8**  
**MEDIA CONVERTER SPECIFICATIONS**

# IMC-21 Series

*Entry-level industrial 10/100BaseT(X) to 100BaseFX media converters*



- > Multi-mode or single-mode, with SC or ST fiber connector
- > Link Fault Pass-Through (LFP)
- > -10 to 60°C operating temperature range
- > DIP switches to select FDX/HDX/10/100/Auto/Force



## Introduction

The IMC-21 industrial media converters are entry-level 10/100BaseT(X) to 100BaseFX media converters designed to provide reliable and stable operation in harsh industrial environments. The converters are a cost-effective solution that run on either a 12 to 48 VDC power input or 18 to 30 VAC power input, and can operate

reliably in temperatures ranging from -10 to 60°C. The rugged hardware design ensures that your Ethernet equipment can withstand demanding industrial conditions. The IMC-21 converters are easy to mount on a DIN-Rail or in distribution boxes.

## Specifications

### Technology

Standards:

IEEE 802.3 for 10BaseT

IEEE 802.3u for 100BaseT(X) and 100BaseFX

IEEE 802.3x for Flow Control

### Interface

RJ45 Ports: 10/100BaseT(X)

Fiber Ports: 100BaseFX (SC/ST connectors)

LED Indicators: Power, 10/100M (TP port), 100M (fiber port), FDX/COL (fiber port)

DIP Switches: TP port's 10/100M, Half/Full modes, and Force/Auto modes, fiber connection's Full/Half mode, Link Fault Pass-Through (LFP)

### Optical Fiber

	Multi-mode	Single-mode
Wavelength	1300 nm	1310 nm
Max. TX	-13 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm
Link Budget	12 dB	29 dB
Typical Distance	5 km <sup>a</sup> 4 km <sup>b</sup>	40 km <sup>c</sup>
Saturation	-6 dBm	-3 dBm

a. 50/125  $\mu$ m, 800 MHz\*km fiber optic cable

b. 62.5/125  $\mu$ m, 500 MHz\*km fiber optic cable

c. 9/125  $\mu$ m, 3.5 PS/(nm\*km) fiber optic cable

### Physical Characteristics

Housing: Plastic, IP30 protection

Dimensions: 25 x 109 x 97 mm (0.98 x 4.29 x 3.82 in)

Weight: 125 g

Installation: DIN-Rail mounting

### Environmental Limits

Operating Temperature: -10 to 60°C (14 to 140°F)

Storage Temperature: -40 to 70°C (-40 to 158°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

### Power Requirements

Input Voltage: 12 to 48 VDC and 18 to 30 VAC

Input Current: 150 mA @ 24 VDC

Connection: Removable 3-contact terminal block

Overload Current Protection: 1.1 A

Reverse Polarity Protection: Present

### Standards and Certifications

Safety: UL 508

EMC: CE, FCC

EMI: FCC Part 15 Subpart B Class A, EN 55022 Class A

EMS:

EN 61000-4-2 (ESD) Level 3,

EN 61000-4-3 (RS) Level 2,

EN 61000-4-4 (EFT) Level 2,

EN 61000-4-5 (Surge) Level 2,

EN 61000-4-6 (CS) Level 2,

EN 61000-4-8 (PFMF) Level 1

Shock: IEC 60068-2-27

Fraefall: IEC 60068-2-32

Vibration: IEC 60068-2-6

Green Product: RoHS, CRoHS, WEEE

MTBF (mean time between failures)

Time: 353,000 hrs

Database: MIL-HDBK-217F, GB 25°C

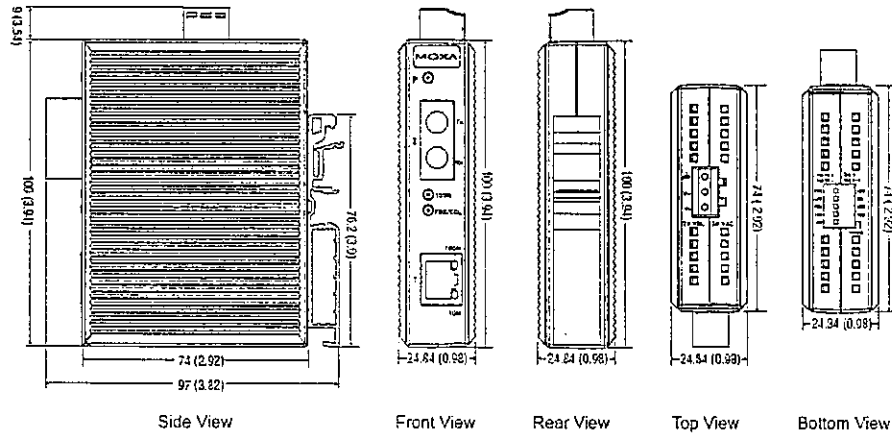
### Warranty

Warranty Period: 5 years

Details: See [www.moxa.com/warranty](http://www.moxa.com/warranty)

### Dimensions

Unit: mm (inch)



### Ordering Information

#### Available Models

IMC-21-M-SC: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi mode, SC connector

IMC-21-M-ST: Industrial 10/100BaseT(X) to 100BaseFX media converter, multi mode, ST connector

IMC-21-S-SC: Industrial 10/100BaseT(X) to 100BaseFX media converter, single mode, SC connector

#### Optional Accessories (can be purchased separately)

RK-4U: 4U-high 19" rack mounting kit

SC to ST Connectors: See Appendix A

#### Package Checklist

- 1 IMC-21 media converter
- Quick installation guide (printed)
- Warranty card

# Fiber Accessories

## : Fiber Optic Adaptors

### *SC male to ST female duplex adaptors*



These SC male to ST female duplex adaptors are provided as an optional accessory to give users of Moxa industrial Ethernet switches more fiber optic connection options. Simply plug the adaptors directly into the SC connector of any Moxa industrial Ethernet switch to convert the original SC connector into an ST connector. This allows you to use an ST connector with any MOXA industrial Ethernet switch, but without the need for an extra patchcord.

#### **ADP-SCm-STf-S**

SC male to ST female duplex adaptor for single-mode fiber

Single-mode: 9/125  $\mu\text{m}$

Ferrules and Sleeves: Zirconia Ceramic

Body Color: Blue

Insertion Loss: 0.5/1.1 (TYP/MAX)

SC-side Connector: SC male

ST-side Connector: ST female

#### **ADP-SCm-STf-M**

SC male to ST female duplex adaptor for multi-mode fiber

Multi-mode: 62.5/125  $\mu\text{m}$

Ferrules and Sleeves: Zirconia Ceramic

Body Color: Gray

Insertion Loss: 0.1/0.3 (TYP/MAX)

SC-side Connector: SC male

ST-side Connector: ST female





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機電系統工程、軌道工程、自動收費系統工程  
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**E&M SYSTEM, TRACK WORKS, AFC SYSTEM**  
**CF610/CF611/CF617**

附件九  
細部設計文件歷次內部修正記錄表及  
歷次審查意見回覆表彙整

**APPENDIX 9**  
**DETAILED DESIGN SUBMITTALS INTERNAL REVISION**  
**HISTORY AND REVIEW COMMENTS REPLIES SUMMARY**



## 內部修正紀錄表

**INTERNAL AMENDMENT LIST**

A. Chen	D. Villa	J. Shiung	G. Barone	發行核定版 Release approval version (YM-102T-11084-00)	APR 24, 2014	06
A. Chen	D. Villa	B. Chen	G. Barone	依業主審查意見更新 Revised to response client's comments (YM-102T-08011-00)	NOV 15, 2013	05
A. Chen	D. Villa	B. Chen	G. Barone	依業主審查意見更新 Revised to response client's comments (YM-102T-05078-00)	JUL 26, 2013	04
A. Chen	D. Villa	B. Chen	G. Barone	依業主審查意見更新 Revised to response client's comments (YM-102T-01009-00)	APR 04, 2013	03
A. Chen	D. Villa	B. Chen	G. Barone	依業主審查意見更新 Revised in response to client's comments (YM-101T-04051-00)	JAN 02, 2013	02
L. Liao	D. Villa	B. Chen	G. Barone	依業主審查意見更新 Revised in response to client's comments (YM-100T-06192-00)	APR 24, 2012	01
L. Liao	D. Villa	B. Chen	R. Bruce	初次發行 First issue	NOV 09, 2011	00
編製 Prepared (PE)	校核 Checked (SPE)	複核 Approved (QM)	核准 Authorized (PD)	說明 Description	日期 Date	版次 Revision

文件審查意見回覆表  
RESPONSE REVIEW TRANSMITTAL

F	SEMPO	YM-102T-08011-00	DEC 30, 2013	Notation 1
E	SEMPO	YM-102T-08011-00	SEP 10, 2013	Notation 2
D	SEMPO	YM-102T-05078-00	JUL 03, 2013	Notation 2
C	SEMPO	YM-102T-01009-00	FEB 25, 2013	Notation 2
B	SEMPO	YM-101T-04051-00	MAY 31, 2012	Notation 2
A	SEMPO	YM-100T-06192-00	DEC 20, 2011	Notation 3
版次 Revision	審查單位 Issuer	審查文號 Issuer's SRT Reference	審查日期 Date Issued	審查狀況 Status of Approval

項次 No	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
1	無 N/A	無 N/A	無 N/A

**文件審查意見回覆表**  
**RESPONSE REVIEW TRANSMITTAL**

<b>E</b>	<b>SEMPO</b>	<b>YM-102T-08011-00</b>	<b>SEP 10, 2013</b>	<b>Notation 2</b>
<b>D</b>	<b>SEMPO</b>	<b>YM-102T-05078-00</b>	<b>JUL 03, 2013</b>	<b>Notation 2</b>
<b>C</b>	<b>SEMPO</b>	<b>YM-102T-01009-00</b>	<b>FEB 25, 2013</b>	<b>Notation 2</b>
<b>B</b>	<b>SEMPO</b>	<b>YM-101T-04051-00</b>	<b>MAY 31, 2012</b>	<b>Notation 2</b>
<b>A</b>	<b>SEMPO</b>	<b>YM-100T-06192-00</b>	<b>DEC 20, 2011</b>	<b>Notation 3</b>
版次 Revision	審查單位 Issuer	審查文號 Issuer's SRT Reference	審查日期 Date Issued	審查狀況 Status of Approval

項次 No	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
E1	GEN	2.2.1(1)/2.2.1.1/2.3.1.1 等等章節，「由行控中心播出去電」請更為「由行控中心播出去電」，以免與一般播打自動電話外線有所混淆。 In following chapters 2.1.1(1)/2.2.1.1/2.3.1.1, please change "由行控中心播出去電" to "行控中心播出去電" to avoid confuse the call of DLT and AT.	依要求修正。 中文描述「由行控中心播出去電」修改為「由行控中心播出去電」。 Modifie chinese description according to the requirement. Change the Chinese description form "由行控中心播出去電" to "行控中心播出去電".
E2	P145	表 2-6 與各子系統警報介面清單請增加 Clock 系統當 GPS 與 Master Clock 之間斷訊時之告警。同時修正圖 2-52。 In table 2-6, please add a subsystem alarm interface for Clock system to provide the disconnection alarm between GPS and Master clock. And update figure 2-52 also.	表 2-6 與各子系統警報介面清單與圖 2-52 的系統警報架構，加入時鐘系統。 GPS 與 Master Clock 連線狀態偵測屬時鐘系統範疇，本文僅釐清 CMFT 與時鐘系統之警報介面；此告警已描述於 TC1-66201 時鐘系統 - 細部設計 6.4 設備告警。 Table 2-6 Alarm Interface List with Subsystems and figure 2-52 System Alarm Architecture add Clock system. The connection status between GPS and Master Clock is the scope of Clock System. This document describe the alarm interface between CMFT and Clock System. The detailed description of this alarm please refer to TC1-66201 Clock System – Detailed Design 6.4 Device Alarm.
E3	SECT 2.3.4.1 ATS 列車訊息顯示 PAGE120 SECT 2.3.4.1	CMFT 伺服器接收 ATS 訊息：請詳細說明 ATS 提供予 CMFT 之訊息為何？ CMFT 伺服器傳送 ACK 訊息給 ATS：請詳細說明所傳送的 ACK 訊息種類及內容？	ATS 提供以下訊息封包送至 CMFT，主要為： a) 列車資訊 b) 月台到站資訊(由 ATS 運算)

項次 No	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
		<p>CMFT 伺服器解析 ATS 資訊內容，從而得知車站位置（上行、下行），顯示位置（月台、大廳）及顯示訊息內容：請再詳敘，除車站位置（上行、下行），顯示位置（月台、大廳）訊息外，對於列車到、站訊息顯示（包含抵達時間精確），其運算邏輯為何？是否仍由 CMFT 伺服器執行及解析，並進而傳送至各車站點矩陣顯示器控制單元 DCU 顯示，或經由各車站 DCU 向 CMFT 伺服器索取所需顯示的訊息？</p> <p>請就 CMFT 與 ATS 兩者間存在的界面，於相互取得完整關聯性及資訊內容後，詳述兩者資料傳遞與接收種類、內容，描繪資料流基礎架構，並詳加敘述於列車到、離站訊息顯示上，CMFT、ATS、DCU 三者分工角色。</p> <p>CMFT server received ATS information message: please detail describe about what message CMFT will receive from ATS?</p> <p>CMFT server send ACK message to ATS: please detail describe about the ACK message type and content.</p> <p>CMFT server analyzes the contents of the ATS message, and obtains the information about direction (up or down), location to display (platform or concourse) and content of message: please detail describe about the logical of this analyze procedure? Is CMFT server process the decode part and then send the display message to DCU to display the message? Or DCU in stations will request the display message from CMFT?</p> <p>Please detail describe the type and contents of messages in the interface between CMFT and ATS and draws the basis data flow chart and describe the relationship between CMFT, ATS and DCU of displaying message of the train arriving and departure.</p>	<p>c) 列車到離站資訊 d) ATS ACK 訊息 e) Health Check f) 列車位置資訊</p> <p>以上 a), b), c) 訊息封包為事件驅動訊息 (Event-Driven) 其中 b) 訊息如無內容變更則 30 秒再更新一次，而 e), f) 訊息則為持續傳送。</p> <p>當 CMFT 收到 ATS 訊息時，會檢查封包是否完整，並回覆 ATS 收到或者要求 ATS 重傳，主要回覆：</p> <ul style="list-style-type: none"> <li>- 列車資料更新請求</li> <li>- 月台到站資料更新請求</li> <li>- CMFT ACK 訊息</li> </ul> <p>CMFT 無須執行任何解析並直接轉送 ATS 訊息封包至相關車站之 DCU 系統，。並由 DCU 依所得到的預計到站時刻與實際時間比對後來判斷大廳與月台的顯示內容</p> <p>ATS provide following information packet to CMFT, which are:</p> <ul style="list-style-type: none"> <li>a) Train Information</li> <li>b) Platform Arrival Information (Estimated by ATS)</li> <li>c) Train Arriving / Leaving Information</li> <li>d) ATS Acknowledge Message.</li> <li>e) Health Check Message</li> <li>f) Train Location Information</li> </ul> <p>Message a), b) and c) will be event-driven basis and b) will update every 30s if no event, other message e) and f) are continuous basis.</p> <p>When CMFT received ATS message, CMFT will check the completeness of ATS package, then acknowledge ATS the transfer is completed or ask to resend the message and those are:</p> <ul style="list-style-type: none"> <li>- Train Update Request</li> <li>- Platform update Request</li> <li>- Acknowledge Message</li> </ul> <p>CMFT will forward the ATS message packet to DCU in relevant station</p>

項次 No	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
			<p>without any analysis of contents. The DCU will show display of platform and concourse according to comparison of current time and estimated arrival time from ATS.</p> <p>修正 SECT2.3.4.1 流程。DMD 停靠站訊息是由 DCU 自行解析，CMFT 僅轉發 ATS 訊息給各車站的 DCU，CMFT 不做任何停靠站到離站時間等的邏輯運算。</p> <p>Modified the flow diagram of SECT 2.3.4.1. DMD display train stops message according to the ATS message which DCU received from CMFT. And CMFT only transfer the ATS message from ATS to DCU, CMFT do not process logical calculate about train stops information for DCU.</p>
E4	SECT 2.3.2.5 P106	<p>2 台或以上的列車觸發「連動監看」事件，畫面除輪播外，請增加指定列車及螢幕之功能，例如列車 A 於螢幕 1、列車 B 於螢幕 2。</p> <p>If more than 2 trains trigger on-train interlocking monitor event, besides carousel display mode, please make operator can assign the train and display monitor. E.g. Train A display on monitor 1 and train B display on monitor2.</p>	<p>2 台或以上的列車觸發「連動監看」事件，畫面除輪播外，已增加指定列車及螢幕功能，操作員可以指定顯示螢幕 1 與螢幕 2 的列車影像，從螢幕的輪播事件清單中選擇。</p> <p>已補充列車觸發事件的顯示與移除方式，詳見本文 2.3.2.5 節，節錄如下： “在列車觸發連動監看時，操作員可以從列車觸發事件清單中，選擇事件來檢視影像，以及將事件從事件清單中解除。”</p> <p>If more than 2 trains trigger on-train interlocking monitor event, besides carousel display mode operator can assign the train and display monitor. Operator can choose the display image of monitor1 and monitor 2 form the train events list.</p> <p>The display and remove function of train interlocking event are add into this document. Please refer to 2.3.2.5, excerpts below: “When on-train interlocking monitor triggered, operator can select the video or remove the event from on-train triggered event list.”</p>
E5	SECT 2.3.5.4 P131	<p>旅客緊急通訊廣播流程說明缺少有駕駛員在列車上啟動通訊控制盤的情況。</p> <p>Passenger emergency intercom data flow diagram lack the situation of driver active the TRCP on train.</p>	<p>非 CMFT 範圍；駕駛員在車上啟用通訊控制盤的流程，於 TC1-6A201 列車通訊系統－細部設計 3.3 旅客緊急對講機中有詳細說明。</p>

項次 No	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
			This is not scope of CMFT, the data flow diagram of driver active the TRCP on train please refer to TC1-6A201 ON TRAIN COMMUNICATION SYSTEM - DETAILED DESIGN 3.3 Passenger (Emergency) Intercom.
E6	PAGE 23~25	<p>2.2.1.2 行控中心接聽來電不應 OCC 所有席位電話響鈴，應依直線電話所在位置接通不同席位，如：機廠內時直線電話拿起後，僅限機廠席位響鈴及接聽，其他席位不會響，避免互相干擾及影響主線電話接聽。</p> <p>2.2.1.2 Receiving incoming call at OCC should be according to the calling DLT location to connect to related console. E.g. when DLT in depot picked up, only depot console ringing and the other consoles don't to avoid interference and affect the answer of main line incoming call.</p>	<p>直線電話已配置 CMFT 主控台席位直線電話機的接聽區域，當責任區域內的直線電話來電時，僅有配置的 CMFT 席位的話機會響鈴。如：機廠內時直線電話拿起後，僅限機廠席位響鈴及接聽，其他席位不會響。</p> <p>倘若指定席位忙線或無法接聽時，此來電將轉入等候佇列中，只有在佇列中有等候接聽來電時，所有席位會同時響鈴。</p> <p>直線電話的呼叫流程請參考 TC1-62206 直線電話系統 – 系統軟體 3.2.1.1 直線電話呼叫流程。</p> <p>CMFT 僅顯示主控台直線電話話機的通訊狀態。</p> <p>DLT system will allocate the responsibility area for DLT telephone set of CMFT console. Only specific DLT phone set of CMFT console will ring the ringback tone while the call coming from its responsibility area. E.g. when DLT in depot picked up, only depot console ringing.</p> <p>If the default telephone is busy or no-answer state, this call will be transferred to the queue of waiting calls. And if the queue is not empty, all DLT telephone of CMFT consoles will ringing to wait for answering.</p> <p>The call flow of DLT phone set please refer to TC1-62206 DIRECT LINE TELEPHONE SYSTEM – SYSTEM SOFTWARE 3.2.1.1 Direct Line Telephone Call Flow.</p> <p>CMFT shows the phone set status of DLT telephone.</p>
E7	PAGE 26~28	<p>2.2.1.3 忙線時來電不應 OCC 所有席位電話響鈴，應依直線電話所在位置接通不同席位，如：機廠內時直線電話拿起後，僅限機廠席位響鈴及接聽，其他席位不會響，避免互相干擾及影響主線電話接聽。</p> <p>2.2.1.3 Receive call when busy at OCC should be according to the</p>	<p>直線電話已配置 CMFT 主控台席位直線電話機的接聽區域，當責任區域內的直線電話來電時，僅有配置的 CMFT 席位的話機會響鈴。如：機廠內時直線電話拿起後，僅限機廠席位響鈴及接聽，其他席位不會響。</p> <p>倘若指定席位忙線或無法接聽時，此來</p>



項次 No	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
		calling DLT location to connect to related console. E.g. when DLT in depot picked up, only depot console ringing and the other consoles don't to avoid interference and affect the answer of main line incoming call.	<p>電將轉入等候佇列中，只有在佇列中有等候接聽來電時，所有席位會同時響鈴。</p> <p>直線電話的呼叫流程請參考 TC1-62206 直線電話系統 – 系統軟體 3.2.1.1 直線電話呼叫流程。</p> <p>CMFT 僅顯示主控台直線電話話機的通訊狀態。</p> <p>DLT system will allocate the responsibility area for DLT telephone set of CMFT console. Only specific DLT phone set of CMFT console will ring the ringback tone while the call coming from its responsibility area. E.g. when DLT in depot picked up, only depot console ringing.</p> <p>If the default telephone is busy or no-answer state, this call will be transferred to the queue of waiting calls. And if the queue is not empty, all DLT telephone of CMFT consoles will ringing to wait for answering.</p> <p>The call flow of DLT phone set please refer to TC1-62206 DIRECT LINE TELEPHONE SYSTEM – SYSTEM SOFTWARE 3.2.1.1 Direct Line Telephone Call Flow.</p> <p>CMFT shows the phone set status of DLT telephone.</p>
E8	PAGE 67~70	<p>2.2.5.3 服務對講機通訊章節中提及，當列車於手動駕駛模式時，駕駛員可要求與行控中心通訊...</p> <p>a. 建請不僅限於手動假使模式時方可使用。</p> <p>b. 機廠區列車服務對講機僅限機廠席位響鈴及接聽，避免互相干擾及影響主線電話接聽。</p> <p>c. 通話過程應以全雙工進行。</p> <p>2.2.5.3 In service intercom chapter, "When the train is on manual driving mode, the driver may request intercom with OCC..."</p> <p>a. Please do not limitation this function only activity on manual mode.</p> <p>b. The SI request from depot should be ringing and answer by depot console to avoid interference and affect the answer of main line incoming call.</p> <p>c. The call should be a full duplex call.</p>	<p>已確通訊控制盤(服務對講機)不限定於手動架式模式才能啟動，修改本文 2.2.5.3 節描述，節錄如下：</p> <p>"當駕駛員於車上啟動通訊控制盤時，駕駛員可以使用使用服務對講機，要求與行控中心通訊..."。</p> <p>a. 駕駛員可以在非手動駕駛模式時，開啓列車通訊控制盤，使用服務對講機。</p> <p>b. CMFT 可以依列車位置設定接聽的責任席位，如機廠區僅限機廠席位響鈴及接聽。</p> <p>c. 服務對講機設備與 CMFT 通訊為半雙工通訊；詳細請參閱 TC1-6A201 列車通訊系統 – 細部設計 3.4 服務對講機。</p> <p>Confirm that TRCP(SI) is not limited to activate on manual driving mode, modify the session 2.2.5.3 description and excerpts below:</p>

項次 No	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
			<p>"When the driver is activated the TRCP in the train, the driver may request intercom with OCC..."</p> <p>a. Driver can activate the TRCP to use SI while train is not in the manual mode.</p> <p>b. CMFT console can pre-set the responsibility area of incoming call from train. E.g. calls from trains in depot will be ringing on depot console</p> <p>c. The communication between CMFT and SI is half-duplex call. Please refer to TC1-6A201 OTC - DETAILED DESIGN 3.4 Service Intercom.</p>
E9	PAGE 71-74	<p>2.2.5.4 旅客緊急通訊(PI)</p> <p>a. 機廠區列車 PI 僅限機廠區席位響鈴及接聽。</p> <p>b. 通話過程應以全雙工進行。</p> <p>2.2.5.4 Passenger Emergency Intercom Intercom(PI)</p> <p>a. The PI request from depot should be ringing and answer by depot console to avoid interference and affect the answer of main line incoming call.</p> <p>b. The call should be a full duplex call.</p>	<p>a. CMFT 可以依列車位置設定接聽的責任席位，如機廠區列車僅限機廠區為響鈴及接聽。</p> <p>b. 旅客緊急通訊(PI)設備與 CMFT 通訊為全雙工通訊；請參閱 TC1-6A201 列車通訊系統 – 細部設計 3.3 旅客緊急對講機。</p> <p>a. CMFT console can pre-set the responsibility area of incoming call from train. E.g. calls from trains in depot will be ringing on depot console</p> <p>b. The communication between CMFT and PI is full-duplex call. Please refer to TC1-6A201 OTC - DETAILED DESIGN 3.3 Passenger (Emergency) Intercom.</p>
E10	PAGE 151	<p>表 2-10：CMFT 主控台與主要通訊功能限制表中，*2：可同時對不同車站廣播。</p> <p>請說明是否可以同時對不同列車進行廣播，若不行，應增加該功能。</p> <p>In Table 2-10 CMFT Console communication function limitations, *2: A station accepts one communication from CMFT console.</p> <p>Please clarify is it allow to execute broadcasting to different trains at the same time? If not, please add this function.</p>	<p>已增加說明。</p> <p>不同主控台可以同時對不同的列車進行廣播。</p> <p>節錄如下：</p> <p>"*2: 不同主控台在執行列車廣播時無法同時對同一列車廣播，但可以同時對不同列車廣播。"</p> <p>Description has been added. Different consoles can be broadcast to different trains at the same time.</p> <p>Excerpts as below.</p> <p>"Different consoles can be broadcast to different trains, but cannot broadcast to the same train at the same time."</p>
E11	PAGE 154	<p>表 2-11：角色與權限對照表中，監聽旅客動態與報表列印 2 項，權限開放範圍應至所有控制員。</p> <p>In table 2-11 Roles and Permissions</p>	<p>已調整角色與權限對照表，詳見表 2-11：角色與權限對照表。</p> <p>The roles and permissions mapping table has be adjusted. Please refer to</p>

項次 No	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
		Mapping Table, about the authority of Monitor Passenger Movement and Report Printing should be open to all grades.	Table 2-11: Roles and Permissions Mapping Table.
E12	一般 General	1 至 11 項意見，請納入 CMFT 討論會中討論，並依結論辦理修訂。 About item 1 to 11, please add these agenda in CMFT demonstration and update according to the conclusion of the meeting.	知悉。 Noted.
E13	SECT 2.10	章節內容請一下提供： a. 第 2、3 期擴充說明 (1) 硬體擴充：系統預留介面、系統擴充介面、系統硬體擴充說明等 (2) 軟體擴充：系統軟體項目、系統軟體說明等 b. 擴充架構相關圖說 c. 其他 Please provide the content of this chapter as below: a. The phase 2 and 3 expansion description (1) Hardware expansion: system reserved interface, system expansion interface, system hardware expansion instructions, etc. (2) Software expansion: system software item, system software instructions, etc. b. Expandable architecture and related drawings. c. Others.	本章節已依要求修改；請參閱 2.10 相關說明。 The chapter has been modified according to the requirements. Please refer to 2.10 for detailed information.

**文件審查意見回覆表**  
**RESPONSE REVIEW TRANSMITTAL**

<b>D</b>	<b>SEMPO</b>	<b>YM-102T-05078-00</b>	<b>JUL 03, 2012</b>	<b>Notation 2</b>
<b>C</b>	<b>SEMPO</b>	<b>YM-102T-01009-00</b>	<b>FEB 25, 2013</b>	<b>Notation 2</b>
<b>B</b>	<b>SEMPO</b>	<b>YM-101T-04051-00</b>	<b>MAY 31, 2012</b>	<b>Notation 2</b>
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D1	審查意見回覆 8 Comment reply 8	仍請提升為 Intel Core i7 3.4GHz 或同等級 Quad-Core(含)以上處理器。 Still, please consider to upgrade the CPU to Intel Core i7 3.4GHz or same level of Quad-Core process.	知悉。 CMFT 主控台的處理器已提升為 Intel Core i7-2600(3.4GHz)。請參閱 3.3 通訊多功能操作主控台 CMFT Console。 Noted. The CPU of CMFT Console has upgrade to Intel Core i7-2600(3.4GHz). please refer to 3.3 通訊多功能操作主控台 CMFT Console for detail information.
D2	SECT 2.2.5.4 , P76~77	圖 2-19 中文為駕駛員按 PI，英文為 Passenger 壓 PI，請確認 In Figure 2-19, in Chinese says Driver press PI, but in English translated as Passenger press PI, please confirm.	已修正。 正確為「旅客按 PI」。 Revised. 「Passenger press PI」 is correct.
D3	SECT 2.7.1.1/165 頁 SECT 2.7.1.1/Page 165	請補充說明 Share storage 是否有備援機制/單點故障疑慮。 Please provide additional information if Shared storage has redundancy mechanisms / single point of failure concerns.	已補充。 Share storage 亦是備援設計，沒有單點故障疑慮。已補充說明於 2.7.1.1 備援設計的硬體規劃 Hardware planning for Redundancy Design。 「儲存裝置配合 CMFT 伺服器備援規劃，亦為備援設計；其內含雙主動、熱抽換式 RAID 控制器、雙電源及 RAID5 磁碟保護機制」。 Supplemented. The Share storage also adopts redundancy design; there is no single point failure concern. Please refer to 2.7.1.1 備援設計的硬體規劃 Hardware planning for Redundancy Design. 「The Share storage also adopted redundancy design to coordinate with CMFT Server redundancy planning. It contains dual active, hot-swappable RAID controllers and power suppliers.

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			and RAID 5 disk protection mechanism」.

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<b>C</b>	<b>■SEMPO</b>	<b>YM-101T-09023-00</b>	<b>OCT 24, 2012</b>	<b>Notation 2</b>
<b>B</b>	<b>■SEMPO</b>	<b>YM-101T-02013-00</b>	<b>MAR 23, 2012</b>	<b>Notation 2</b>
<b>A</b>	<b>■SEMPO</b>	<b>YM-100T-06151-00</b>	<b>NOV 29, 2011</b>	<b>Notation 3</b>
版次 Revision	審查單位 Issuer	審查文號 Issuer's SRT Reference	審查日期 Date Issued	審查狀況 Status of Approval

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C1	P67 OF 98	<p>請說明安裝於車站房間之音量衰減器，是否為三線式器設計，並請繪製結線圖於安裝設計圖說文件中。</p> <p>Please descript volume attenuator installation in station room, whether it is three wires type design. Please draw wiring diagram in installation design document.</p>	<p>音量衰減器是使用三線式的配置設計。已於 4.13 章節增加說明，請參閱 4.13 及 6.4 章節。</p> <p>音量衰減器的接線圖將於廣播系統安裝設計文件中繪製。</p> <p>The volume attenuator is use three wire type. It added in section 4.13, please refer to section 4.13 and 6.4.</p> <p>The wiring of volume attenuator will draw in the installation design document.</p>
C2		<p>請說明控制中心對列車廣播必須具備預錄及口語廣播功能設計。</p> <p>Please descript control center broadcast to the train will have pre-recorded broadcast and spoken broadcast function design.</p>	<p>行控中心 CMFT 將提供對列車廣播功能，並具備預錄及口語廣播功能。</p> <p>The CMFT of OCC will provide train broadcast function with the per-recorded and spoken.</p>
C3		<p>請說明車站(各樓層)啟動火警廣播之設計說明。</p> <p>Please describe how is starting fire broadcasting design in the station (on each floor).</p>	<p>車站(各樓層)啟動火警廣播之設計說明如下：</p> <p>消防廣播主機係依照水電標提供的分層火警信號來啟動火警廣播。並依據消防法規第 135 條內容所提之第 113 條鳴動方式發佈各樓層的火警訊息，以及依據消防法規第 137 條與 PTS2.4.1 之(2)項規定，提供抑制接點用以抑制火警受信總機之警鈴聲響。請參閱 3.2 章節之(d)項說明。</p> <p>依據 PTS2.4.1 (11)之 C 項，消防廣播主機提供可與緊急電話連線，強制切入或啟動，做緊急優先廣播之功能。並符合消防法規第 136 條之 3，地上 11 樓以上及地下 3 樓以下，應使用緊急電話方式啟動之規定。請參閱 4.10 章節之(C)項說</p>

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			<p>明。</p> <p>The description of start fire broadcast for each floor in Station as below.</p> <p>The fire alarm unit is to receive fire signal of each floor from water/electricity utility system to start fire alarm broadcast. According to the fire regulation 135, it describes that use alert sound to announce the fire message to each floor. According to the fire regulation 137 and PTS2.4.1(2), please provide contact point to restrain fire alarm sound until. Please refer to section 3.2 (d).</p> <p>According to the PTS2.4.1 (11) C, the fire alarm unit provide connection for emergency telephone, enforce take control or start for emergency broadcast. And compliance with fire regulation 3 of 136, above 11 floor and below 3 floor should use emergency telephone to start. Please refer to section 4.10 (C).</p>
C4	P49	<p>列車離站警音產生器之警音，每次接收號誌列車離站訊號產生警音時，須能固定警音聲響次數及每次警音產生皆能從第一段開始播放。</p> <p>When train departure tone generator of alarm sound, and every time receiving signalling system of train departure signals to generate alarm sounds. This sound shall be fixed number of times and every time generates alarm sounds all is start playing from the first.</p>	<p>遵照辦理。請參閱 4.6 章節。</p> <p>Noted. Please refer to section 4.6.</p>
5	一般 General	<p>請說明廣播語音預錄部分，一段預錄音播放時間最長可播多長，(建議至少能提供播放至 1 分鐘以上)。訊息</p> <p>Please descript pre-recorded broadcast. How long that a section pre-recorded message of the play time broadcast can reach (suggestion provide at least more than one minute of playing time).</p>	<p>廣播系統提供每一段預錄廣播的播放時間最長可達 3 分鐘。</p> <p>The PA system provide</p> <p>The maximum time of a section pre-recorded of play time is 3 minutes.</p>
C6	P64	<p>吸頂式喇叭外觀材質為鐵質雙層烤漆，惟於附件一第 14 頁，項次 25 文件答覆為鍍鋅鋼板，請釐清材質到底為</p>	<p>附件一第 14 頁，項次 25 的“概念設計文件答覆”之吸頂式喇叭外觀材質實屬筆誤，外觀材質應為鐵質雙層</p>

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		何。 The In-ceiling speaker appearance material is iron with double paint, only in Annex I of page 14, item 25 reply galvanized steel. Please clarify what kind of material?	烤漆，已於“在細部設計文件中之答覆”欄位中增加說明。 Annex I of page 14, item 25, “The In-ceiling speaker appearance material is iron with double paint” is slip of a pen. Has added description in detail design document.
C7	P33	圖 5 之火警警音圖形顏色過淡。 The color of fire alarm broadcast graphics is too pale (Figure 5).	已修改，請參閱圖 5。 Revised, please refer figure 5.
C8	P33	圖 5 之緊急廣播作動時，等級次高之火警警音為 0db，但等級更低的離站音及一般廣播反而有聲音，請說明。 When activate emergency broadcasting. The 0db is the second high of fire alarm sounds, but train departure tone and general broadcast of lower level on the contrary is have voice please describe (Figure 5).	圖 5 上的 0 不是代表 0dB，只是聲音的起始點，代表一般廣播、離站音、火警廣播、緊急廣播還沒發生前的狀態。已於圖說中增加說明，請參閱圖 5。 火警廣播與緊急廣播都是由消防廣播主機的單一輸出埠將聲音傳送至自動增益功率放大器，所以當緊急廣播啟動時，火警廣播一定是完全靜音。 當火警廣播或緊急廣播啟動時，聲音會由消防廣播主機輸出至自動增益功率放大器並啟動放大器的 EMG(emergency)，同時將原有的一般廣播或是離站音再降 20dB，此時還是會有一點聲音。 The 0 in figure 5 is not 0dB. It just a voice start point, means situation before general broadcast, train departure tone, fire broadcast and emergency broadcast happened. The fire alarm and emergency broadcast are form a output of fire alarm unit and transfer to AGC Amplifier. So when the emergency broadcast start, fire alarm broadcast mute. When fire alarm and emergency broadcast start, the sound will form fire alarm unit to AGC and start EMG. In the same time, all general broadcast or train departure tone will to drop 20dB.
C9	P27	(h)排程廣播功能 排程廣播功能若因車站已在執行廣播而未執行，應可在車站廣播結束後，自動執行原訂之排程廣播，避免控制員還要重新操作。	當行控中心 CMFT 執行排程廣播-1 時，如果有 2 個車站未完成執行排程廣播，此未完成執行排程廣播的車站將紀錄於 CMFT 的廣播系統歷史紀錄中。



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		<p>(h) Scheduled Broadcast Function</p> <p>If OCC scheduled broadcast function unable implementation because of station broadcast is already preceding broadcast. The OCC scheduled broadcast should be come after station broadcast end and then automatically to perform. This function is to avoid control staffs need to re-operate.</p>	<p>排程廣播功能不會自動重複執行排程廣播-1，以避免因自動重複執行之功能，而造成排程廣播-2 無法依照排程執行。</p> <p>When CMFT of OCC start Scheduled Broadcast -1 in two stations not finish scheduled broadcast, the unfinished station will record in the PA history of CMFT.</p> <p>The schedule broadcast can't re-operate schedule -1 automatically. It is to avoid auto re-operate case the schedule broadcast -2 can't start.</p>
C10	4.1 節/P.37 Section 4.1/P.37	<p>請說明「廣播系統歷史紀錄」是否均可記錄每一次的廣播時間、地點及其內容(包括口播及錄播)。</p> <p>Please descript "broadcasting system history" whether can record every broadcast of time, place, and its contents (including the spoken broadcast and pre-recorded broadcast).</p>	<p>行控中心 CMFT 將提供廣播系統歷史紀錄，並記錄每一次的廣播時間、地點及其內容(包括口播及錄播)。</p> <p>The CMFT will provide PA history and record each broadcast time, location and contents including the spoken broadcast and pre-recorded broadcast.</p>
		<p>以下空白 Following is blank.</p>	

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<b>B</b>	<b>SEMPO</b>	<b>YM-101T-04051-00</b>	<b>MAY 31, 2012</b>	<b>Notation 2</b>
<b>A</b>	<b>SEMPO</b>	<b>YM-100T-06192-00</b>	<b>DEC 20, 2011</b>	<b>Notation 3</b>
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B1	SECT 3.7	<p>依契約 PTS2.4.7(3)「CMFT 人機界面應以動態圖形顯示操作元件及設備狀態，並提供觸控式螢幕控制（本觸控螢幕應能耐拍撞，且為防括強化玻璃），且具中文操作環境及可顯示中文的終端機設備，使行控中心控制員得以進行相關操作。」，請廠商提供本 LCD 螢幕之「觸控式」方式、「能耐拍撞，且為防括強化玻璃」之玻璃等級提出詳細設計說明。</p> <p>According to contract PTS2.4.7 (3) "The CMFT human-machine interface shall prompt interactive graphic display of the operating components and equipment status, come with touch-dial screen control(the touch-dial screen should be able to withstand impact, and with scratch –proof tempered glass), with Mandarin operating environment and can prompt terminal equipment in Mandarin, allowing train control centre personnel to conduct relevant operations".</p> <p>Please ask contractor to provide the way LCD Screen Touch Panel work. "withstand impact, and with scratch – proof tempered glass "</p> <p>Please propose a detail description of glass level.</p>	<p>1. 觸控系統壽命單點敲擊可達 3500 萬次以上，相關面板規格、觸控系統規格已補充於 TC1-67205 2.2.5 通訊多功能操作主控台顯示器。</p> <p>2. 玻璃落球測試報告已補充，請參閱 TC1-67205 附件五-通訊多功能主控台顯示器。</p> <p>1. Touch screen system can bear single-point percussion more than 35 million times, related panel specification, touch screen specification please refer to TC1-67205 2.2.5 CMFT CONSOLE MONITOR.</p> <p>2. Steel ball drop test report of touch screen has replenished, please refer to TC1-67205 APPENDIX 5 CMFT CONSOLE MONITOR.</p>
B2	一般	<p>請繪 CMFT 操作臺上各項設備功能操作使用擺設平面及立面圖。</p> <p>並請納入於月技術會議時提供之 CMFT「語音介面功能規劃使用說明」。</p> <p>Please provide the plan and elevation diagram of equipment arrangement at the operations desk.</p> <p>Please include in CMFT "functional Voice UI planning usage illustration" at Monthly Technology Meeting</p>	<p>CMFT 擺設請參考 TC1-67203 通訊多功能操作台 –安裝設計 2.1 通訊多功能操作台設備位置圖清單。</p> <p>CMFT equipment arrangement at the operators desk please refer to TC1-67203 CMFT – Installation Design 2.1 EQUIPMENT LOCATION DIAGRAM LIST FOR CMFT</p>

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B3	P26	2.0 第二行「時間系統」請更為「時鐘系統」。 2.0, second line: Replace "time system" with "clock system".	已修正，請參考 2 系統概述。 Revised, please refer to 2 System Description.
B4	P36/37	表 2-3 及表 2-4 操作程序是否正確請重新檢討。 Please review operation procedures in table 2-3 and 2-4, and check their correctness.	表 2-3，表 2-4 已修正。 Table 2-3 and 2-4 has revised.
B5	一般	DLT 在 CMFT 操作上應具備 3 方交談功能。 Direct Line Telephone on CMFT should include three-way conference call.	CMFT 席位的數位電子話機具有多方電話會談功能(3 到 6 方)，詳細請參考 TC1-62201-直線電話系統-細部設計:2.直線電話系統說明。 CMFT 只顯示 DLT 的通話狀態，無法對 DLT 進行操作。 Digital telephone set on CMFT console support conference call (3 to 6 ways), please refer to TC1-62201-DIRECT LINE TELEPHONE SYSTEM-Detail Design: 2.DIRECT LINE TELEPHONE SYSTEM DESCRIPTION. CMFT only display calls status of DLT, cannot operate DLT functions.
B6	SECT 3.1	請廠商提出分析及詳細說明，以確認 CMFT 伺服器 (IBM x3650M3)、儲存系統 (IBM DS3512) 及交換器 (ALU OmniSwitch 6400-24) 的設備規格，可以符合現階段行控中心及備援行控中心操作，以及未來擴充至 46 個車站規模之需求。廠商應針對 CMFT 伺服器之設備等級 x3650M3、x3650M4 及 x3750M4 (包括 CPU 能力、CPU 數量、快取記憶體、記憶體、內部儲存容量、電源供應器、RAID 支援等級、網路介面數等) 提出評估及分析資料。另外，於機架上，是否提供螢幕以供本伺服器使用？ Please ask contractor to propose an analysis and detail description to confirm system equipment specification of CMFT Server, Storage System and Switch can meet the current phase OCC and BOCC operation and future expansion up to 46 stations requirements. Please ask contractor to propose a assessment and analysis information according to level of CMFT Server x3650M3,x3650M4 and x3750M4.(include CPU processing	已補充分析資料： 1. IBMx3650M3、IBM DS3512 TPC 需求分析，請參閱 3 系統設備規格: 基準與評估。 2. ALU OmniSwitch6400-24 符合 VAN、STP/RSTP 及 LACP 等國際規範。 3. 擴充：在 3 系統設備規格:基準與評估的基礎上，在未來擴增為 46 車站時，與各系統交易量擴增為 46/14 倍計算，則每小時平均需求為 3351.4 QphH，系統最大負載為 10054.3 QphH，此數據仍在 x3650 運算能力範圍內。且 CMFT 伺服器預留擴充槽，供未來路網延伸時，可以提供更多的處理效能。 4. CMFT 機櫃中已設置鍵盤滑鼠螢幕整合控制器(KVM)。 Analysis data has been added: 1. The TPC requirement analysis of IBM x3650M3 and IBM DS3512 please refer to 3 SYSTEM EQUIPMENT SPECIFICATION. 2. ALU OmniSwitch6400-24 In accordance with the VAN, STP /

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		power, CPU quantity, cached memory, memory, internal storage capacity, power supplier, RAID level, number of network interfaces). On the rank are there any monitors provided for CMFT Server?	RSTP and LACP international norms. 3. Expandability: Based on 3 SYSTEM EQUIPMENT SPECIFICATION. If TCL expand to 46 stations in the future, the transaction with each system grows to 46/14 times, than the hourly average requirement will be 3351.4QphH, and maximum loading will be 10054.3 QphH, IBMx3650M3 has capability to cover the maximum loading in the future. CMFT will reserve expansion slots for future extension to enable higher processing performance. 4. CMFT rack contain keyboard mouse and screen integrated controller (KVM).
B7	SECT 3.2	內建磁碟機之容量、型式及數量為何？ 本案所建議之 RAID 等級為何？為何採用本等級 RAID？ 本儲存系統是否須與 IBM System x3650 M3 一併採用？ 本設備與 DCS3950、DS5000、DCS9900、DCS3700 系列之規格差別為何？ 為何 BOCC 不提供本儲存設備？ BOCC 的 CMFT 伺服器之內建儲存設備等級為何？ 請詳列本設備各模組，並說明各模組之功能及其故障所產生之影響，並說明是否會產生單點故障，而造成設備失能之情況。 What are the capacity, model and quantity of interior hard disk? What is the suggested RAID level? Why the RAID level is used in here Does the storage system work with IBM System x3650 M3? What is difference between this specification and DCS3950, DS500, DCS9900, DCS9700 specification? Why the storage device is not provided in BOCC? What is the level of CMFT Server internal storage device?	1. 行控中心儲存系統為容錯轉移叢集的磁碟叢集設備，採用介面為 6Gbps 的 SAS 界面與 CMFT Server 連接；本儲存系統使用 RAID 5，可用儲存空間為 4TB。 2. 備援行控中心不採用備援設計，資料儲存於 CMFT 伺服器內建儲存系統，採用為 RAID 5 配置，可用儲存空間為 4TB；容量與行控中心相同。 1. Storage system in OCC is the disk equipment for failover cluster. It connects to CMFT server with SAS interface (6Gbps). The storage system adopt Raid 5 configuration and storage space is 4TB. 2. BOCC is not adopting redundant design. Use CMFT build-in storage as storage system. It use Raid 5 configuration and have the same storage space as OCC storage system.

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		Please list all the modules in this device and explain the individual module functionality and the effect of malfunctioned module. Please explain whether a single point of failure can cause the system break down.	
B8	SECT 3.6	<p>本交換器是否採 stack 方式與另一台交換器連接？</p> <p>本交換器是否符合 MEF9 及 MEF14 認證？</p> <p>為避免產品過時，請提供本產品問世之相關資料。</p> <p>廠商應提供相關設計資料，以確認本設備在頻寬需求、故障切換模式、系統特性及未來擴充等符合營運需求。</p> <p>BOCC 的交換器請提供雙電源模組。</p> <p>是否符合 RSTP/STP、QSOP 或其他國際規範之通訊協定？</p> <p>Are the switch and other switch joined by a stack?</p> <p>Is the switch certified by MEF9 and MEF14?</p> <p>In order to prevent the product obsolescence, please provide the related released information.</p> <p>Please ask contractor to provide the related design information so it can be confirmed that the bandwidth, requirements, switch-over mode, system characteristic meets the operation requirements.</p> <p>In BOCC please provide Two Power Modules in Parallel.</p> <p>Is the switch complied with RSTP/STP or other National Standard Communication Protocol?</p>	<p>1. 在行控中心 CMFT 將有一套以兩個交換器堆疊而成的堆疊式交換器組，此交換器組被視為一套交換器。</p> <p>2. 符合 MEF9/MEF14 認證。(符合 MEF 9 的 E-Line/E-LAN 服務，及 MEF14 的 Service Level 規格要求。)</p> <p>3. Alcatel-Lucent OmniSwitch 6400-24 於 2008Q2 上市，並開始銷售/安裝於電信業者內。</p> <p>4. 設備提供依合約規範。</p> <p>5. ALU OmniSwitch6400-24 符合 VAN、STP/RSTP 及 LACP 等國際規範。</p> <p>1. CMFT would have a set of stacked switches formed by two switches stacking together and would be seen as one set or one logical switch in OCC.</p> <p>2. In accordance with MEF9/MEF14 certification. (In accordance with the the MEF 9 E-Line/E-LAN service, and MEF14 Service Level specifications.)</p> <p>3. Alcatel-Lucent OmniSwitch 6400-24 listed and begins selling / installing carriers within 2008Q2.</p> <p>4. Provided equipments according to the contract.</p> <p>5. ALU OmniSwitch6400-24 In accordance with the VAN, STP / RSTP and LACP international norms.</p>
B9	SECT 2.1.1(3)	<p>一台 CMFT 主控台將安裝於測試軌控制室，請廠商檢討及評估本主控台與 CMFT 伺服器之間的連接界面，屬電氣界面或光纖界面？</p> <p>One CMFT Console will be installed in Test Track Control Room. Please ask contractor to access the interface</p>	<p>測試軌 CMFT 控制台與 CMFT 伺服器連接介面修改為光纖介面，光電轉換設備資訊請參閱 3.8 媒體轉換器；相關圖說請參閱 TC1-67202、TC1-67203。</p> <p>The interface between CMFT console in Test Track Control room and CMFT server has revised as fiber optic</p>

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		between CMFT Console and Server. Is it an electrical interface fiber optic interface?	interface. For detailed the Ethernet/Fiber converter please refers to 3.8 Media Converter. Related diagram please refer to TC1-67202、TC1-67203.
B10	SECT 2.5.3, SECT 2.7.1.1, 意見回覆項次 7	BOCC 無線電設備名稱及數量應依數位無線電系統概念設計 E 版修訂。 The name and quantity of BOCC Tetra should amend according to?.	依 TC1-6B001 數位無線電系統概念設計修訂。 Revised according to TC1-6B001 Digital Radio System Conceptual Design.
B11	SECT 2.6.3、表 2-10 及意見回覆項次 17	<p>文內 CMFT 伺服器可以容納最高 10 台 CMFT 主控台，本資訊與 SECT 2.10 之 20 台數量不一致，請澄清。</p> <p>捷運公司未來營運時，是否可經由「管理員」修改表 (2-10) 內之 7 位角色的權限？</p> <p>若現階段 CMFT 伺服器 (硬體及軟體容量) 最高僅能提供 10 台之主控台，亦無法滿足營運需求，請提高可連接之主控台數量。</p> <p>In the text CMFT Server can allocated maximum 10 CMFT Consoles. The number of allocatable device is not the same in section 2.1. Please clarify it.</p> <p>Can "Administrator" update the privileges for every role in table 2-10 when MRT operates in the future?</p> <p>If CMFT Server can only support maximum 10 consoles and still can not meet the operation requirement. Please raise up the number of consoles it can connect.</p>	<p>1. 權限:系統管理員可以修改所有角色的權限，請參考 2.6.1 使用者管理:角色"CMFT 將預先定義下列角色，管理員可依需求做新增、刪除或修改角色權限..."；與系統管理員"系統管理員角色的權限無法修改，此角色對所有功能皆擁有最高權限。"</p> <p>2. 擴充性:已修正行控中心與備援行控中心擴充性的描述，請參閱 2.6.3 主控台管理與 2.10 未來擴充性:中行控中心與備援行控中心 (2) CMFT Console 擴充。</p> <p>1. Authority: Administrator can change every account's permissions please refer to 2.6.1 USER MANAGEMENT: Role "CMFT will pre-define the following roles, and the administrator can add, delete or modify the role permissions based on requirements..." and 2.6.1 USER MANAGEMENT: System Administration "The role permissions of System Administration cannot be modified, this role has the highest authority for all functions."</p> <p>2. Expandability: The description of future expandability of OCC and BOCC has modified. Please refer to 2.6.3 CMFT CONSOLE MANAGEMENT and 2.10 FUTURE EXPANDABILITY : ( 2 ) CMFT Console Expandability.</p>
B12	SECT 2.6.1	<p>捷運公司未來營運時，是否可經由「管理員」修改表 (2-10) 內之 7 位角色的權限？</p> <p>Can "Administrator" update the privileges for every role in table 2-10 when MRT operates in the future?</p>	<p>系統管理員可以修改所有角色的權限，請參考 2.6.1 使用者管理:角色"CMFT 將預先定義下列角色，管理員可依需求做新增、刪除或修改角色權限..."；與系統管理員"系統管理員角色的權限無法修</p>

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			<p>改，此角色對所有功能皆擁有最高權限。”</p> <p>Administrator can change every account's permissions please refer to 2.6.1USER MANAGEMENT:Role"CMFT will pre-define the following roles, and the administrator can add, delete or modify the role permissions based on requirements..."and 2.6.1 USER MANAGEMENT: System Administration"The role permissions of System Administration cannot be modified, this role has the highest authority for all functions."</p>
B13	SECT 2.7.2.2	<p>OCC 與 BOCC 間之系統切換時間超過 98 分鐘，請廠商針對主要設備之切換方式及程序再行研析，以縮短切換程序。</p> <p>The communication switch-over process requires 98 minutes to complete. Please ask contractor to analyze the switch-over method and process to reduce completion time.</p>	<p>已修正，依據 TC1-68201 通訊光纖傳輸系統- 細部設計修正，切換時間修正為 68 分鐘，請參閱 2.7.2.2 切換說明。</p> <p>Revised, correction based on TC1-68201-Communication FOT System-Detail Design. The communication switch-over process requires 68 minutes. Please refer to 2.7.2.2 SWITCH-OVER DESCRIPTION.</p>
B14	SECT 2.8，表 2-14（數位無線電派遣台軟體）	<p>在 CMFT 主控台故障，系統進入降級模式時，為何主控台可以進行無線電個呼及發送短訊？請釐清派遣台及主控台之功能。</p> <p>When CMFT Console is malfunctioned, and the system is running in fall-back mode. Why the console can conduct an Individual Call and send SMS? Please clarify the difference between Active Server and Dispatcher Server?</p>	<p>降級模式：系指 CMFT 伺服器故障，且備援主機也無法正常使用時，此時將啟用降級模式，而 CMFT 主控台仍有部分功能可以保持運作；降及營運時 CMFT Console 可操作功能，詳細請參考表 2-14。</p> <p>Fall-back Mode: it means both CMFT server and redundant CMFT server down; CMFT will go into the fall-back mode. In this mode, CMFT console can only provide with partially operated communication functions of the subsystem. Please refer to table 2-14.</p>
B15	SECT 2.10 及意見回覆項次 17、19	<p>內文「CMFT Server 將預留 CPUx1、記憶體、及磁碟擴充槽，供未來第二、三階段路網延伸時，可以提供更多的處理效能。」，因此請廠商列表提供 CMFT 伺服器在現階段及未來第二、三階段所使用 CPU、記憶體、及磁碟擴充槽數量，並提供研析資料，以說明上述 CMFT 伺服器在所連接的 CMFT 主控台數量及車站數量下，CPU 及記憶體等並無過載的疑慮。</p> <p>請廠商針對內文「CMFT 系統與設備告警將記錄在資料庫中，未來可以有限度開放 CMFT 資料庫，供未來系統存取。」提出圖說資料及如何有限度開放</p>	<p>已補充分析資料：</p> <ol style="list-style-type: none"> <li>1. IBMx3650M3、IBM DS3512 TPC 需求分析，請參閱 3 系統設備規格：基準與評估。</li> <li>2. 擴充：在 3 系統設備規格：基準與評估的基礎上，在未來擴增為 46 車站時，與各系統交易量擴增為 46/14 倍計算，則每小時平均需求為 3351.4 QphH，系統最大負載為 10054.3 QphH，此數據仍在 x3650 運算能力範圍內。且 CMFT 伺服器預留擴充槽，供未來路網延伸時，可以提供更多的處理效能。</li> </ol>

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		<p>CMFT 資料庫，以確認可供未來系統存取。</p> <p>In the text "CMFT Server will reserve CPUx1, memory and hard disk expansion slots for future network expansion to enable higher processing performance". Please ask contractor to list CPU, memory and hard disk expansion slots quantity in the table. And provide more information on the number of connected CMFT Console and station of CMFT Server has no overloaded CPU and memory.</p> <p>Refer to "CMFT system and equipment alarms will be recorded in the database, in the future, CMFT database can be limited access for future systems". Please provide an illustration diagram and how CMFT database can have limited access for future systems.</p>	<p>3. CMFT 將提供未來系統讀取權限，讀取 CMFT 告警資料表，供未來線系統整合。請參考 2.10 未來擴充性 (4) CMFT 系統告警輸出。</p> <p>Analysis data has been added:</p> <p>1. The TPC requirement analysis of IBM x3650M3 and IBM DS3512 please refer to 3 SYSTEM EQUIPMENT SPECIFICATION.</p> <p>2. Expandability: Based on 3 SYSTEM EQUIPMENT SPECIFICATION. If TCL expand to 46 stations in the future, the transaction with each system grows to 46/14 times, than the hourly average requirement will be 3351.4QphH, and maximum loading will be 10054.3 QphH, IBMx3650M3 has capability to cover the maximum loading in the future. CMFT will reserve expansion slots for future extension to enable higher processing performance.</p> <p>3. CMFT database can provide read authority of alarm tables for future systems. Please refer to 2.10 FUTURE EXPANDABILITY (4) CMFT System Alarms Export.</p>
B16	意見回覆項次 12	<p>各級網路系統及相關設備是否有支援「multicast」的功能？</p> <p>Does network system and devices at all level support "Multicast" functionality?</p>	<p>本交換機 Alcatel-Lucent OmniSwitch6400-24 支援 Multicast 功能。請參考 TC1-67205-附件四-網路交換器。</p> <p>Alcatel-Lucent OmniSwitch6400-24 support "Multicast" functionality. Please refer to TC1-67205 Appendix 4: Product specification: Features: Multicast.</p>
B17	意見回覆項次 17、41 及 SECT 2.9	<p>請針對「CMFT 圖形介面修改、CMFT 系統參數修改、OTC 設備參數增修 DMD 設備配置與參數增修、場站平面圖修定」提出細部設計資料。</p> <p>Please refer to "CMFT User Interface Modification、CMFT System Parameter Modification、OTC Equipment Parameter Modification..." and give detail design information.</p>	<p>在通訊設備房中的一台 CMFT Console 將提供開發軟體，供維護人員修改、編輯 CMFT 之操作環境。請參考 2.9 系統維護。</p> <p>One of CMFT console in CER can provide with software development tool that maintenance staff use to create or maintain operating environment. Please refer to 2.9 System Maintenance.</p>



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B18	意見回覆項次 14	<p>仍請廠商針對行控中心（包括 BOCC）的區域網路設計，提供合宜做法（例如檢討 NTP 之區網連接等等）及設計說明（例如 LAN 的架構），本區域網路應考量降低網路故障（某一節點或路徑，或網路迴圈產生）時所可能影響之範圍，以避免整體網路同時中斷，例如研析降低 NTP 之區網連接範圍等。</p> <p>仍請廠商針對營運人員面對設備可能中毒的疑慮下，檢討設置防毒軟體，以減少影響營運的因素，提升系統可靠度。</p> <p>In the design of LAN architecture please ask contractor to provide the right approach (eg. Review NTP LAN connection etc) and design description (eg LAN architecture). When a device is malfunctioned (eg some node or path or network), this can avoid to bring down the whole network simultaneously by reducing the affecting area. Eg reduce the scope of NTP LAN connection area.</p> <p>Operators may face virus attack on facilities. Please ask contractor to install anti-virus software. It can reduce factors affecting the service operation and improve the reliability of the system.</p>	<p>OCC CMFT LAN 與 GE 連線，均有兩部交換機互為備援。請參考 2.1.1(6)網路交換器。</p> <p>CMFT 所處的網路系統為一封閉網路，妥善管理，嚴守封閉原則，以免不穩定因素加入。請稟持封閉原則使用本系統。為求系統穩定，不建議安裝其他系統。</p> <p>At OCC CMFT LAN, there are redundant network switches connecting to GE switches to prevent a single switch failure resulting system does not work."2.1.1(6) Network Switch" for more information.</p> <p>CMFT installed in a closed network. Using good management and keep the system closed for avoiding other unstable causes. Please use the system as a closed system. For the system stability, installing other systems in to the system is not advisable.</p>
B19	一般	<p>設備規格請依契約第 16602 章 1.5.3 「設計溫度」檢討確認。</p> <p>The system equipment specification should refer to contract, Chapter 16602 Section 15.3 "", for further confirmation.</p>	<p>CMFT 設備安裝地點屬第 I 級規範(控制室及設備室)或第 II 級規範(分散安裝於機櫃內或托架上之設備)，CMFT 提供的設備符合 16602 章 1.5.3 「設計溫度」要求。</p> <p>CMFT equipment installation site is a Grade I specifications (control room and equipment room) or Grade II specifications (Equipment dispersed installed in rack or bracket). CMFT equipments satisfied the requirements of 16602: 1.5.3 "temperature requirements".</p>
B20	一般	<p>請廠商提供一列表，以說明各控制員在使用主要功能時所產生之主控權協調或衝突狀況。</p> <p>Please ask contractor to provide a table list which describe compromise and conflict situation when the operator takes the initiative of the main functions.</p>	<p>不同通訊系統的通訊功能皆可獨立使用；同時使用通訊功能時的限制表，請參閱 2.6 系統管理描述。</p> <p>Communication functions between different communication systems can be used independently. Communication functions limit table please refer to 2.6 SYSTEM MANAGEMENT.</p>

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B21	SECT 2.2.5.4, P69	<p>本節係旅客緊急通訊，然流程說明第 1 點卻寫「駕駛員」按 PI（中英文皆是），到圖 2-19 又變回「Passenger」壓 PI，請確認。</p> <p>流程說明缺少有駕駛員在列車上啟動通訊控制盤的情況。</p> <p>This section is Passenger Emergency Intercom. In flow diagram step 1: It writes "driver" presses button. (Both Chinese and English). In flow diagram it changes back to "passenger" presses button. Please double check.</p> <p>There is no action taken by driver to activate the communication control panel in Passenger Emergency Intercom operation flow description.</p>	<p>1. 已修正。"1. 旅客按 PI 按鈕要求與行控中心通訊"。</p> <p>2. 行控中心如何接聽服務對講機，請參考 2.2.5.3 服務對講機通訊。</p> <p>3. 駛員如何操作列車通訊控制盤如何操作，請參考 TC1-6A201 列車通訊 – 細部設計與 TC1-6A206 列車通訊 – 系統軟體。</p> <p>1. Revised, "Passenger presses PI button to request communication with OCC".</p> <p>2. CMFT how to communicate with service intercom, please refer to 2.2.5.3 Service Intercom.</p> <p>3. Drivers how to operate TRCP, please refer to TC1-6A201 ON TRAIN COMMUNICATION - DETAILED DESIGN and TC16A206ON TRAIN COMMUNICATION – SYSTEM SOFTWARE</p>
B22	SECT 2.3.2.5, P98~99	<p>請說明若有 2 台或以上的列車觸發「連動監看」事件，畫面如何顯示於行控中心？</p> <p>Please explain how video signals display on dedicated wall-mounted monitors when system interlocking function is triggered by two or more trains.</p>	<p>已補充："若有第二部或更多列車觸發連動監看，閉路電視系統將輪播這些列車的影像"。請參閱 2.3.2.5 列車連動監看。</p> <p>Please refer to 2.3.2.5 ON-TRAIN INTERLOCKING MONITOR "If there are two or more train triggered interlocking function. CCTV will be carousel display these images."</p>
B23	一般	<p>各式流程圖皆缺少中文翻譯。</p> <p>No Chinese translation in different types of flow diagrams.</p>	<p>中文翻譯已補充，請參閱各流程圖。</p> <p>Chinese translation has been added; please refer to related operation flow diagram.</p>
B24	SECT 2.3.5.4, P122	<p>旅客緊急通訊廣播流程說明缺少有駕駛員在列車上啟動通訊控制盤的情況。</p> <p>第 13、14 點之 TRIU，請確認是否為 TROU。</p> <p>There is no action taken by driver to activate the communication control panel in Passenger Emergency Intercom flow description.</p> <p>In step 13 and 14 please confirm whether TRIU should be replaced with TROU.</p>	<p>駕駛員啟動通訊控制盤時，旅客緊急通訊操作流程請參考 2.2.5.4 旅客緊急通訊；</p> <p>2.3.5.4 資料流程圖：表示 CMFT 收到旅客緊急廣播時的資料流程。駛員如何操作列車通訊控制盤如何操作，請參考 TC1-6A201 列車通訊 – 細部設計與 TC1-6A206 列車通訊 – 系統軟體。</p> <p>第 13、14 點 TRIU 已修正為 TROU。</p> <p>When driver to activate the TRCP on train, passenger emergency intercom flow please refer to 2.2.5.4 PASSENGER EMERGENCY INTERCOM. 2.3.5.4 Data flow diagram</p>

項次 No	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
			describes the data flow while CMFT receive passenger emergency intercom data. Drivers how to operate TRCP, please refer to TC1-6A201 ON TRAIN COMMUNICATION - DETAILED DESIGN and TC16A206ON TRAIN COMMUNICATION - SYSTEM SOFTWARE. Step 13 and 14 TRIU has been replaced with TROU.
B25	SECT 2.7.22, P156	圖 2-58 當 OCC 切換時, SDH 切換至 BOCC 為何需要 90 分鐘? 包不包含人員移動時間? 若不包含, 請想辦法縮短切換時間。 Why SDH requires 90 minutes to switch over to BOCC in Diagram 2-58? Is travel time included? If no included, please try to reduce the switch-over time.	已修正, 依據 TC1-68201 通訊光纖傳輸系統- 細部設計, 通訊系統的切換時間為 68 分鐘, 請參閱 2.7.2.2 切換說明。此時間不考慮人員移動時間。 Revised, correction based on TC1-68201-Communication FOT System-Detail Design. The communication switch-over process requires 68 minutes. Please refer to 2.7.2.2 SWITCH-OVER DESCRIPTION. This time does not consider the moving time of operators.
B26	SECT 2.10 4), P160	何謂「有限度」開放 CMFT 資料庫供未來系統存取? 請明確說明如何存取? 存取哪些資訊? What is "limited access" to CMFT Database for future systems? Please explain precisely how to access it? What data?	CMFT 將提供未來系統讀取權限, 讀取 CMFT 告警資料表, 供未來線系統整合。請參考 2.10 未來擴充性(4) CMFT 系統告警輸出。 CMFT database can provide read authority of alarm tables for future systems. Please refer to 2.10 FUTURE EXPANDABILITY (4) CMFT System Alarms Export.
B27	SECT 3.3, P164	CMFT Console 硬碟配置為何? 有幾顆? 應至少 2 顆, 一顆作為 OS, 一顆作為資料使用。 What is hard disk allocation for CMFT Console? How many? It requires at least two hard disks. One for OS. One for data access.	通訊與記錄資料是儲存於 CMFT 伺服器; CMFT 主控台不儲存通訊與記錄資料, CMFT 主控台主要磁碟空間消耗在作業系統與 CMFT 系統程式, 安裝硬碟一顆已足夠。 Communication log and Data are stored in CMFT server, not stored in CMFT console. CMFT console disk space consumption for operating system and CMFT program, one hard disk is enough for CMFT console.
B28	SECT 3.4, P165	CMFT Server 或 Console 於行控中心及備援行控中心應分別配置至少要有 2 台以上 DVD-RW 燒錄器。 The CMFT Server and Console in OCC and BOCC should be allocated a least two DVD-RD burner.	CMFT 主控台已配置 SuperMulti DVD(DVD-RW)燒錄器。 CMFT console has been equipped SuperMulti DVD (DVD-RW).

項次 No	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
B29	SECT 2, P26	<p>請提供 CMFT Server、CMFT Console 等設備資訊安全管控機制。</p> <p>Please provide information security management mechanism for CMFT Server and Console.</p>	<p>CMFT 伺服器上允許連線的 CMFT 主控台，採白名單模式，請參考 2.6.3 主控台管理。</p> <p>CMFT 伺服器及 CMFT 主控台在出廠時將關閉所有不必要的連線埠，並更新至當時穩定的系統版本。</p> <p>CMFT 所處的網路系統為一封閉網路，妥善管理，嚴守封閉原則，以免不穩定因素加入。請秉持封閉原則使用本系統。</p> <p>CMFT Server only allows CMFT Console to connect if it listed in white list. Please refer to 2.6.3 CMFT CONSOLE MANAGEMENT.</p> <p>CMFT Server and CMFT Console will disable unnecessary connection port and updated to stable version when shipping.</p> <p>CMFT installed in a closed network. Using good management and keep the system closed for avoiding other unstable causes. Please use the system as a closed system.</p>
B30	SECT 2.5.3, P140	<p>請工程司考量以硬體或軟體整合方式，將 DCS 的網管告警功能納入 CMFT。</p> <p>Please ask engineering department to consider a method of integrating hardware and software, so DCS alarm controlled function can be included into CMFT.</p>	<p>CMFT 可以整合 DCS NMS 告警資訊供 CMFT 操作員參考，讓 CMFT 畫面可以顯示與查詢 DCS 系統的告警。</p> <p>CMFT can integrate DCS NMS alarm information for CMFT operator. Operator can search and seen DCS alarms on CMFT console.</p>
B31	SECT 2.8, P157、158、159	<p>有關「當 CMFT 營運主機發生系統操作故障，且備援主機亦無法正常操作使用時，會進入降級營運模式」並依表 2-14 說明中無法進行列車連動監看、車上即時語音廣播、服務對講機通訊、旅客緊急通訊...等項目將影響行車及旅客安全，請重新檢討系統設計架構，以符復續營運安全需求。</p> <p>Refer to "When active server is malfunctioned and backup server is not function properly, it will go into the following fall-back mode" and items list in table 2-14(No on train interlocking monitor, service intercom, passenger emergency intercom.....).</p> <p>All these items may affect passenger and on train safety .Please reconsider the system architecture to fulfill the safety requirements for future service operation.</p>	<p>已重新規劃；在降級模式下，列車連動監看將可以持續運作；車上即時語音廣播、服務對講機通訊、旅客緊急通訊等 OTC 功能，將由降及設備 TETRA 派遣台繼續維持服務。</p> <p>Revised. In fall-back mode, train interlocking monitor will be remain operating, and Dispatcher will provide services for on-train broadcasting, service intercom, passenger emergency intercom.</p>

項次 No	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
B32	SECT 2.10, P160	有關「CMFT 在第一階段配置了 10 台 CMFT Console，CMFT 系統最終可配置 20 台 CMFT Console 以因應未來二、三階段系統擴充之需求」，對於未來二、三階段及第一階段若有增設需求時，僅餘 10 台可供設置，著實不符設置數量需求，請重新檢討可配置數量。 "In phase one CMFT allocates 10 CMFT Consoles. The maximum number of allocatable devices is 20 and it fulfils the needs for phase 2 and phase 3 system expansion". It only remains 10 devices for future phase 2 and 3 expansion. The number of devices left does not meet the requirement. Please reconsider the quantity of allocable devices.	已修正行控中心與備援行控中心擴充性的描述，請參閱 2.10 未來擴充性中行控中心與備援行控中心 (2) CMFT Console 擴充。 The expendability description for OCC and BOCC has revised. Please refer to 2.10 FUTURE EXPANDABILITY(2) CMFT CMFT Console Expandability.
B33	一般	依現階段細部設計所提需求，請於進版時提供相關功能頁面設計，以利後續依相關需求進行審查。 According to current stage detail design requirements, please provide related page design for related functions in later version of document.	CMFT 畫面設計與功能操作，請參考 TC1-67206 系統軟體。 CMFT GUI design and functional operation; please refer to TC1-67206 System Software.
B34	SECT 2.2.5.5, P71	PTS 中並無監聽旅客動態之功能，請廠商說明為何有此一功能？此一功能係透過列車上收音設備監聽車上旅客動態，請問該收音設備為 PI 麥克風嗎？該收音裝置能有效收音嗎？ In PTS monitor passenger movement through PI is not part of monitoring function. Please ask contractor why this function is included? Is the monitoring function using PI microphone to monitor passenger movement? Can sound receiving device receive sound clearly?	1. 於 PTS 2.4.10 列車通訊 (1) 行控中心可藉由車內喇叭對乘客作列車口語廣播及預錄廣播，並可藉由緊急對講機監聽。 2. 透過 PI 麥克風監聽。 1. In PTS 2.4.10 On-Train Communication (1) The OCC can broadcast pre-recording and vocal information to passengers via on-board speakers and listen via emergency intercom. 2. Using PI micorphone to monitor passenger movement.
B35	一般	本份文件中有甚多軟體說明，操作流程說明、流程圖、資料流程圖等，而在 CDSCS 中另有一份「通訊系統多功能操作台 - 系統軟體」送審文件，請說明該份文件與本份文件間的差別。 This document includes software description, operation flow description, flow diagram and data flow diagram... In CDSCS there is other submitted document". Please describe the difference between these two documents.	細部設計文件含系統說明、操作流程說明、流程圖、資料流程圖，屬系統分析文件； 系統軟體文件中將描述系統軟體架構、use case diagram、sequence diagram、以及畫面構成說明，屬系統設計文件。 Detail Design includes System description, operation flow description, operation flow diagram, data flow diagram, it is a system analyze document.

項次 No	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
			System Software describes system architecture, use case diagram, sequence diagram, and constructure of GUI. It is a system design document.
B36	SECT 2.5.1, P135	告警資訊來源：CMFT 告警資訊主要來自三個部分：但文中僅有 (1) 各通訊子系統的設備告警 (2) CMFT 操作告警及系統告警，缺少第三部分。 Source of Alarm Information: CMFT alarm information mainly from three parts: Only two sources of information appears in the text (1) Communication subsystem's equipment alarms (2) CMFT operational alarms and system alarms	已修正第三個來源：請參考 2.5.1 告警資訊來源。 Source of alarm information has revised. Please refer to 2.5.1 SOURCES OF ALARM INFORMATION.
B37	SECT 2.5.2.4, P139	歷史告警查詢：「告警訊息將會儲存於『歷史告警記錄』資料表中，為避免資料量過大影響系統效能，此資料表將規劃保留最近 14 天的歷史資料。」，一個資料規劃良好的系統，每一筆告警的資料量應該不大，建議是否不要限制 14 天，而應視資料量大小決定保留天數。 Historical alarms query: "Alarm message will be stored in the "Historical Alarm" table, to avoid information overload will affect system performance, the table will be planned to keep the last 14 days of historical data" The quantity of data must not be too large for every record. Data planning sustains a robust system. It is suggested not to set a limit for the number of days to keep data, such as 14 days. The amount of data should be used to determine the number of days to keep historical data.	CMFT 依 CDR 意見為基礎來設計規劃，CMFT 可以保留最近 14 天告警記錄；並且 CMFT 需要將告警資料將傳送給 SCADA 網路伺服器，CMFT 應無存放長期告警的需要，請參閱 2.5.2 告警處理。 CMFT design based on CDR comments, CMFT can keep last 14 days of historical alarm data. And CMFT have to send alarm to SCADA Web Server. CMFT should be no need to hold alarms for long-term. Please refer to 2.5.2 Alarm Handling.

文件審查意見回覆表  
**RESPONSE REVIEW TRANSMITTAL**

A	SEMPO	YM-100T-06192-00	DEC 20, 2011	Notation 3
版次 Revision	審查單位 Issuer	審查文號 Issuer's SRT Reference	審查日期 Date Issued	審查狀況 Status of Approval

項次 No.	圖說/章節/項次 Drawing/ Chapter/ Item	審查意見 Review Comments	答覆 Reply Answer
A1	SECT 2.2.2	CMFT 控制電視牆及 CMFT 之 CCTV 終端機皆未說明是幾分割 (例如最大及最小分割數)? 請補充說明。 Number of the split screens is not specified in wall-mounted monitors and CMFT CCTV terminal. (such as, maximum and minimum number of split screens). Further explanation needed.	1. 電視牆可以設定顯示為全畫面或 4 分割, 補充說明於 2.2.2 閉路電視。 2. CMFT 之 CCTV 監視器視訊是與牆上 16 部監視器之一的顯示內容相同 (包含 4 分割)。 1. Full screen or 4-split screen can be displayed .please refer to "2.2.2 Closed Circuit Television" for more information. 2. The display video signal of CMFT CCTV monitor will be same as one of the 16 wall-mounted displays (including 4-splits screen).
A2		選擇車站方式建議操作員直接點選螢幕畫面中車站圖控清單替代下拉式清單。(PA) Operators directly click on the station map list is proposed instead of drop-down list.(PA)	CMFT 設計將考量觸碰螢幕操作的方便性, 避免設計不利於觸碰螢幕操作的元件。 Touch screen accessibility should be a design priority. Try to avoid interface components that are not applicable for touch screen operation.
A3		車站消防主機作動時, 是否提供即時訊息至行控中心 CMFT 工作站。(PA) When fire host activates ,whether or not the real-time message is passed to OCC CMFT Workstations.(PA)	車站消防主機作動時, 將會提供即時訊息至行控中心 CMFT 工作站。 When fire host is activated, the realtime status message will be sent to OCC CMFT Workstations.
4	P18 2.2.1.2	CMFT 主控臺當雙支電話來電同時響起顯示在 Monitor 時請說明如何選擇操作流程 (AT/DLT)。 Please give further explanation on operation flow when two phone calls ring simultaneously on CMFT console.(AT/DLT)	已補充。CMFT 主控臺當雙支電話 (AT 及 DLT) 同時響起時, CMFT Console 顯示的是 DLT 的通話狀態, AT 來電並不會顯示在螢幕上。請參閱"2.2.1 直線電話" Rectified. When two phones, AT and DLT, ring at the same time, CMFT Console will display information of DLT phone state only. Please refer to "2.2.1 Direct Line Telephone".

A5	P110/P115 表 2-9	BOCC 應有告警管制 (AT/DLT) 。 BOCC should have alarm control (AT/DLT).	已修正。請參閱 2.5.3 告警管制設備清單。 Rectified. Please refers to 2.5.3 Alarm Controlled Equipment List
A6	P108/圖 2.49	請加繪 GPS 時鐘信號源給與 Master Clock (CLOCK) 。 Please add GPS clock passes the clock signals to Master Clock in the diagram.	已修正。請參閱 2.4.3 時間同步設計架構。 Rectified. Please refer to 2.4.3 Time Synchronization Architecture Design
A7	一般	廠商需了解,行控中心失能時(包括行控中心的光纖傳輸節點故障及全機廠停電等狀況),在備援行控中心的 CMFT 的所有功能應正常運作(包括無線電系統及列車通訊)。 Contractor needs to know when OCC disabled, which includes OCC fiber optical transmission node malfunction or depot power failure, all the functionality of CMFT need to fully operate in BOCC, which includes TETRA or OTC.	CMFT 將依 PTS 2.4.7 (12) 及 PTS 2.2.6 (11) 規定提供相關設備,請參考 2.7.2 備援行控中心系統設計。 All the relative 'CMFT devices will be provided according to" PTS 2.4.7 (12)" or "PTS 2.2.6 (11)". Please refer to "2.7.2 System Design in BOCC"
A8	一般	依 GS 第 16602 章電子設備 1.5.1, 廠商需提供詳細資料,以證明所提供之設備均符合規定的可靠度、維修度要求。 Refer to GS chapter 16602 electronic devices 1.5.1, Contractor needs to provide detail information to prove all devices are reliable and maintainable.	請參考 TC1-60201-通訊 - 可靠度、可用度、維修度分析 (含故障模式、效應與嚴重性分析)。 Please refer to" TC1-60201 - RAM Analysis (including FMECA) Communication" - Reliability, Usability, Maintainability Analysis (including Failure mode, Effects and Severity Analysis)
A9	一般	請提供重要設備內電源模組配置(是否有複置裝置?)之設置理念及實際做法 (包括外部電源之配置)。 Please provide the deployment idea and practical approach for power module in important equipment. (include external power deployment)	CMFT Server 電源規格含複置模組,並支援熱抽換。外部電源之配置請參考"TC1-60217- 通訊系統 - 配電設計"。 Redundant ultra-efficient power supplies. Hot swapping is supported. For detail of external power deployment, please refer "TC1-60217- Communications - Power Distribution Design".
A10	SECT 2.2.2	CCTV 影像如何投影至號誌系統之 MINI BOARD? 請提供操作機制。 How CCTV image project an image on Signal System's MINI BOARD? Please provide the operational mechanism.	1. 此處之 MINI BOARD 應為號誌系統之大型投影顯示器(LPD) ; 2. CCTV 如何提供影像給 LPD, 請參考 TC1-69201 - 閉路電視系統 - 細部設計:7 行控中心閉路電視系統 3. LPD 如何操作, 請參考"TC128088 - SCADA Projective Mimic Panel Display Description"。



			<ol style="list-style-type: none"> <li>1. MINI BOARD should be the Signal system's Large Projector Displayer (LPD).</li> <li>2. CCTV System how to provide video streams to LPD. Please refer to TC1-69201 - CCTV System-Detail Design. 7 OCC CCTV"</li> <li>3. The LPD how to operate please refer to the document "TC128088 - SCADA Projective Mimic Panel Display Description"</li> </ol>
A11	SCET 2.2.2.1	<p>請提供 CCTV 軟體 API 及 SDK 之功能描述。</p> <p>Please provide the CCTV software API and SDK functional description.</p>	<p>依捷運需求，CCTV 相關 API 與 SDK 元件需客製化，詳細功能將在 TCL-67206-通訊系統多功能操作台-系統軟體文件中詳述。</p> <p>A customizable CCTV API and SDK should be provided to fulfill MTR requirements. Please refer to TCL-67206-CMFT-System Software documentation for more information.</p>
A12	SCET 2.2.2	<p>請提供影像品質、影像下載速度(包括歷史影像及即時影像)、和影像 DELAY、LAG 之設計說明。</p> <p>Please provide the design details of image quality, image download speed (include historical image and real-time image), image delay and image lag.</p>	<ol style="list-style-type: none"> <li>1. 影像品質與速度: 詳細數值請參考 TC1-69201 閉路電視系統-細部設計 10.1 影像串流種類與頻寬對照。</li> <li>2. Delay 與 Lag: CCTV 系統的影像串流是由 IP 攝影機直接編碼輸出，因此對於影像串流的取用數量將有所限制，以避免 IP 攝影機超載使用而造成即時影像之 Delay、lag 及馬賽克問題。這些因素在設計時即已納入考量加以計算以及加以限制，可滿足在同一時間同時提供影像串流給車站監控工作站及車站 NVR 做為監看及錄影用，以及提供給行控中心電視牆的即時影像顯示。</li> </ol> <ol style="list-style-type: none"> <li>1. Image Quality and Download Speed: For detail description, please refer to TC1-69201CCTV System-Detail Design 10.1 Description of video stream types and bandwidth comparison</li> <li>2. Image Delay and Lag: CCTV system video stream encoded by the IP camera directly, so the access number of the video stream access will be limited to</li> </ol>

			avoid real-time video delay, lag, and mosaic that caused by IP camera hardware overloading. Those factors has been calculate and restriction in design already to satisfy to provide the video stream to the station surveillance workstation and station NVR as a monitoring and recording and also provide and showed on OCC TV wall at the same time.
A13	表 2-1	<p>請提供 CMFT 之詳細功能清單(請區分綜合功能表及子系統功能表), 並請以樹狀方式及圖表(螢幕呈現畫面)逐項列表說明, 本說明亦必須包括資料流程及操作流程。</p> <p>Please provide CMFT detailed function list (Please divided into integrated menus and sub menus) which is showed in a tree list and graphical way (graphics on the screen), and described for each item, the description must also include data flow and operation flow.</p>	<p>已補充。</p> <ol style="list-style-type: none"> <li>1. 功能清單: 請參閱 2.6.1 使用者管理 ;</li> <li>2. 操作說明: 請參閱 2.2 操作功能 ;</li> <li>3. 資料流程說明: 請參閱 2.3 資料流說明。</li> <li>4. 螢幕畫面將在 TCL-67206-通訊系統多功能操作台系統軟體文件中詳述。</li> </ol> <p>Rectified.</p> <ol style="list-style-type: none"> <li>1. Please refer to "2.6.1 Roles and Permissions Mapping Table "</li> <li>2. Please refer to "2.2 Operational Function" for instruction manual description.</li> <li>3. Please refer to "2.3 Data Flow Description" for data flow description.</li> <li>4. Screen shots will be included in the TCL-67206- CMFT - system software document.</li> </ol>
A14	圖 2-1 及圖 2-55 , SECT 2.4.3	<ol style="list-style-type: none"> <li>a. 表內之 PGIS 與 terminal server 之通訊是否為單向式?或雙向式?</li> <li>b. 本架構圖請包括其他機電系統, 例如 SCADA 及 GPS 等。</li> <li>c. 由於本架構與行控中心等設備皆有互相連接, 因此請提供一整體之網路連接圖說。</li> <li>d. 廠商在設計本地網路架構時, 應考量網路之規模, 並採合宜之做法(例如檢討 NTP 之區網連接等等), 以降低網路故障(某一節點或路徑, 或網路迴圈產生)時所可能影響之範圍, 以避免整體網路同時中斷。因此請廠商說明詳細做法, 以避免上述網路風暴發生。</li> <li>e. 行控中心之網路是否提供專屬之網管系統, 若有提供, 與其他網管系</li> </ol>	<ol style="list-style-type: none"> <li>a. "CMFT 與旅客導覽資訊系統控制台間之通訊方式為單向通訊。", 請參閱 2.1.1(4) 終端伺服器。</li> <li>b. 已修改。請參閱 2.1 系統架構。</li> <li>c. 已修改。請參閱 2.1 系統架構。</li> <li>d. OCC CMFT LAN 與 GE 連線, 均有兩部交換機互為備援。請參考 2.1.1(6)網路交換器。</li> <li>e. OCC LAN 將納入 FOT 網管系統。環線網路環境為封閉系統, 不提供防火牆 與 防毒軟體。</li> </ol> <ol style="list-style-type: none"> <li>a. "The communication between CMFT and PGIS is one way communication." Please refer to section 2.1.1(4) Terminal Server .</li> <li>b. Rectified. Please refer to 2.1</li> </ol>

		<p>統如何分工?是否提供防火牆及防毒軟體?</p> <p>a. Is it a one or two way communication between PGIS and terminal server?</p> <p>b. Please include other electro-mechanical systems in the system architecture diagram. E.g. SCADA or GPS.</p> <p>c. Since the equipment in OCC are interconnected. So please provide an overall architecture diagram.</p> <p>d. In the design of LAN architecture, Contractor should consider the network size and by adopting the right approach (e.g. review NTP LAN connection, etc.) .When a device is malfunctioned (e.g. some node or path or network loop) , this can avoid to bring down the whole network simultaneously by reducing the affecting area. Please Contractor explain the detailed practice in order to prevent network storm.</p> <p>e. Does a dedicated network management system be provided for OCC network, if yes, how is the division of work with other network management systems? Does it provide firewall and antivirus software?</p>	<p>System Architecture</p> <p>c. Rectified. Please refer to 2.1 System Architecture</p> <p>d. At OCC CMFT LAN, there are redundant network switches connecting to GE switches to prevent a single switch failure resulting system does not work."2.1.1(6) Network Switch" for more information.</p> <p>e. OCC LAN will be included in FOT Network Management System. TCL network environment is closed network. No Firewall and anti-virus software</p>
A15	SECT 2.1.2	<p>本軟體架構請提供所列各項軟體之版本、使用目的，並請確認是否為較新之版本。</p> <p>Please provide software version, purpose of use and latest version validation.</p>	<p>已補充，請參閱 2.1.2 軟體架構。</p> <p>Rectified. Please refer to "2.1.2 Software Architecture"</p>
A16	SECT 2.7	<p>1. 有關 OCC 切換至 BOCC 之時間估算，須待光纖系統切換架構及機制確認後再行討論。</p> <p>2. 於內文「...經過數次的重送活躍伺服器皆無回應...」，請說明是經過幾次重送？在何種情況下伺服器無法回應？各子系統之備援機制為何？伺服器在一般情況下其 CPU(或系統)之處理能力為何？如何估算？</p> <p>1. The estimated OCC system</p>	<p>1. 知悉。</p> <p>2. 已修正。子系統之備援機制請參閱子系統相關文件，CMFT 的降級營運請參考"2.8 降級營運"。</p> <p>1. Noted.</p> <p>2. Rectified. Please refer to subsystem related documentations for Subsystem backup mechanism. Please refer to "2.8 Fall-Back Mode" for CMFT fall-back operation.</p>

		<p>switch-over time should be discussed after the FOT switch-over framework and mechanism are confirmed.</p> <p>2. In the text '.. if the active server does not respond for a number of times..', please explain how many times of re-send? What is the backup mechanism for various subsystems? What is the performance capacity of the CPU (or system) under normal circumstances? How to measure?</p>	
A17	一般	<p>依 2.4.7(13)「廠商應提供 CMFT 應用程式開發之軟體及硬體設備，以利營運人員修改、編輯 CMFT 之操作環境，例如顯示圖形編輯、場站設備之配置數量及配置位置修改、訊息顯示編輯、警示設定及場站平面圖修定等等。」，請廠商說明如何增設 CMFT 數量，及如何讓營運人員修改、編輯 CMFT 之操作環境？並請提供「場站設備之配置數量及配置位置」之設計說明及圖說。</p> <p>According to section 2.4.7(13)"The contractor shall supply the CMFT application program's development software and firmware equipment to facilitate the operating personnel's modifying and editing the CMFT operating environment, such as the display graphic editing, modifying the station equipment's layout, quantities and allocation locations, signal display editing, alarm setting and train yard/station layout revision, etc.", please explain how to add the number of CMFT, and how the operator to modify and edit the operating environment of CMFT? And should also provide the design descriptions and diagrams for "station equipment's quantities and allocation locations".</p>	<p>已補充。</p> <ol style="list-style-type: none"> <li>1. CMFT 主控台擴增: 請參閱 2.6.3 主控台管理。</li> <li>2. 操作畫面將在 TCL-67206-通訊系統多功能操作台-系統軟體文件中詳述。</li> </ol> <p>Rectified.</p> <ol style="list-style-type: none"> <li>1. How to add the number of CMFT console; please refer to "2.6.3 CMFT Console Management".</li> <li>2. TCL-67206-CMFT-System Software design document contains a detailed description of User Interfaces.</li> </ol>
A18	SECT 2.4	<p>OCC 及 BOCC 之第一階 master clock 是否可互相備援？</p> <p>Could the stratum one master clock in OCC and BOCC backup each other?</p>	<p>當 OCC 母鐘設備故障時，BOCC 的母鐘可以接替 OCC 母鐘的功能，持續提供 NTP 同步功能。可參考 TC1-66201-時鐘系統—細部設計 5.3 章節「NTP 的內置備援」及 TC1-66201 圖 18&amp;19。</p> <p>When the OCC master clock</p>

			equipment failure, BOCC master clock can take over OCC master clock function to provide NTP time synchronization function. Please refer to TC1-66201 Clock System-Detail Design section 5.3: NTP BUILT-IN REDUNDANCY and TC1-66201 figure 18 & 19.
A19	SECT 2.5.3	<p>1. 本表內之 FOT 系統是否為相對應之網管系統？有包括 DCS 系統？</p> <p>2. 是否須將告警訊號傳至 SCADA？</p> <p>3. CMFT 系統是否有預留將系統狀況(包括設備告警狀況)輸出之功能及相關介面，以供捷運公司未來使用。</p> <p>1. Is FOT system within this table corresponds to the network management system? Does it include DCS system?</p> <p>2. Should alarm signal need to pass to SCADA?</p> <p>3. Does the CMFT system reserve the system state (include facility alarm state) export function and relative interface for TRTC future use?</p>	<p>1. FOT 網管系統不包含 DCS。</p> <p>2. 已補充。"主要通訊設備的故障訊息，將依"告警方式"參數化的設定內容，傳送給 SCADA 系統。"，請參閱 2.5.2 告警處理。</p> <p>3. 已補充。請參考 2.10 未來擴充性。</p> <p>1. DCS is not included in the FOT network management system.</p> <p>2. Please refer to "2.5.2 ALARM HANDLING": "Whether malfunction error message of main communication equipments delivers to SCADA system is according to alarm mode's parameterized setup"</p> <p>3. Rectified. Please refer to "2.10 FUTURE EXPANDABILITY"</p>
A20	一般	<p>請說明 CMFT 系統及個子系統之降級運作模式。</p> <p>Please explain CMFT system and subsystems operations in fall-back mode.</p>	<p>已補充。請參閱 2.8 降級營運。</p> <p>Rectified. Please refer to "2.8 Fall-back Mode"</p>
A21	表 2-10	<p>請說明表內有關「擁有操作權限」之意義？操作環境是否可依登入身分而有所變化？請廠商依 PTS2.4.7 說明如何處理「CMFT 人機界面應以動態圖形顯示操作元件及設備狀態，並提供觸控式螢幕控制(本觸控螢幕應能耐拍撞，且為防括強化玻璃)，且具中文操作環境及可顯示中文的終端機設備，使行控中心控制員得以進行相關操作。例如，控制員可經由階層式操作，進入車站設備配置圖，點選攝影機。CMFT 可由鍵盤、滑鼠及螢幕觸控等方式控制。重要之操控動作應有再確認之機制，以避免誤動作發生。」，尤其是觸控功能及誤觸機制。</p> <p>Please explain about the meaning of "have operational permission"? May operating environment be different by</p>	<p>1. 操作權限之意義：已修正；請參閱 "2.6.1 使用者管理:角色"。</p> <p>2. 登入身分與環境：請參閱"2.6.1 使用者管理:帳號"。</p> <p>3. 操作方式與確認：請參閱"2.1.1 系統架構說明 (3) 通訊多功能操作主控台"。詳細操作方式與再確認機制，將在 TCL-67206-通訊系統多功能操作台系統軟體文件詳述。</p> <p>1. Definition of Operational Permission: please refer to "2.6.1 User Management".</p> <p>2. Login Identity and Environment:</p> <p>3. Please refer to "2.6.1 USER MANAGEMENT: Account".</p> <p>4. Operation mode and Re-confirmation: Refer to "2.1.1</p>

		login ID? According to PTS 2.4.7, please explain how to handle "The CMFT human-machine interface shall prompt interactive graphic display of the operating components and equipment status, and come with a touch-dial screen control (the touch-dial screen shall be able to withstand impact, and with scratch-proof tempered glass), with Mandarin-operating environment and can prompt terminal equipment in Mandarin, allowing train control center personnel to conduct relevant operations. For instance, a control can access a stations equipment layout drawing via a hierarchical operation to click the camera. The CMFT can be controlled via the keyboard, mouse and touch-dial screen. Important operating motions shall come with a reconfirmation mechanism to avoid mishandling." Especially of touch-dial function and avoid mishandling mechanism.	SYSTEM ARCHITECTURE DESCRIPTION (3) CMFT Console" . Further details on operational mode and re-confirmation mechanism will be described in TCL-67206-CMFT-System Software documentation.
A22	表 2-1 系統軟體功能	<p>有關表 2-1 項次 4，點矩陣顯示及旅客導覽資訊軟體之軟體功能描述，其中包含開啓/關閉車站顯示器，請澄清該功能，是否可設定爲定時啓閉及人工操作啓閉車站顯示器等 2 種功能。</p> <p>Regarding table 2-1 item 4 DMD &amp; PGI SW software description it contains Active/shutdown DMD of stations. Please clarify this function whether automatic (in timely manner) and manually operated Active/shutdown DMD of stations configuration are both supported.</p>	<p>已補充。詳見 2.2.4 點矩陣顯示器。"綠能政策：</p> <p>操作員可以在 CMFT 主控台改變當日的營運時間(可設定爲：起-迄時間或全日營運)；當到達設定的營運時間，CMFT 主控台將主動要求 DMD 系統開啓或關閉節能，讓 DMD 關閉車站顯示器，以配合綠能政策。該營運時間將顯示在明顯的位置，並讓管理員或主任控制員可以依當日營運需求調整，該設定值將一直持續，直到營運時間再被調整。</p> <p>另外 CMFT 也提供了非營運時段手動開啓與關閉車站顯示器之整合功能，以保留行控中心的主控權。</p> <p>爲防止誤操作，在設定的營運時段範圍內，CMFT 與 DMD 將不接受 DMD 關閉顯示器之指令"。</p> <p>Rectified. Please refer to "2.2.4 DOT MATRIX DISPLAY".</p> <p>"Green Environmental Protection Policy:</p> <p>The operator can change the daily opening hours by setting up the start and end time or a 24 hours service.</p>

			<p>When a predetermined set-up time has been reached, CMFT will automatically send a request to DMD system to turn on or off the Power Save on a DMD. By following the Policy of Green Environmental Protection, it closes the DMD display. The daily opening hours will be displayed in an obvious location, so that the administrator or operator can adjust it to meet daily operation requirements. The original daily opening hours settings is kept until the next daily opening hours adjustment.</p> <p>In addition CMFT also takes the initiative by providing the DMD manual shutdown function in the non-operating hours to meet the energy saving policy.</p> <p>To avoid operational error produced due to faulty operation, CMFT and DMD will not accept any display shutdown instructions within setup opening hours."</p>
A23	SECT 2.2.2.2/P24	<p>有關 CMFT 主控台變更牆上監視器影像操作作業流程，其中僅於流程第 2 點說明「若無法完成操作，畫面上將顯示警示通知操作者」，而未詳加描述，若無法完成操作而畫面顯示警示通知操作者後，操作者該如何處理之程序(是否需 RESET)，請補充。</p> <p>Regarding to change wall-mounted monitor video image operation flow, it states "if operator cannot complete the operation, the console will prompt alert to operator" in step 2 without further explanation. Please give further explanation on how the operator handles the process (Reset required), if the operation fails and prompts the alert message.</p>	<p>已補充。請參考 2.2.2.2 變更牆上監視器影像。"若無法完成操作，畫面上將顯示警示通知操作者，並導引到障礙排除畫面。"</p> <p>Rectified, Please refer to 2.2.2.2 Change Video Image on Wall-mounted Monitor.</p> <p>"If system cannot complete the operation, the console will prompt alert to operator and redirect to troubleshooting page"</p>
A24	SECT 2.2.3/P28	<p>有關本文描述，車站廣播有其優先順序，當行控中心的廣播因廣播優先順序而被中斷時，CMFT 人機介面軟體將會警示操作者。另當車站優先廣播撥放完畢後，原行控中心之廣播是否會重播，或跳至下一預錄之廣播。請澄清。</p> <p>The description in this text states "station broadcast with priority. When</p>	<p>已補充。請參考 2.2.3 廣播(車站)</p> <p>"若是 CMFT 收到廣播中斷訊息，CMFT Console 會在畫面上提示廣播備中斷訊息，透過中斷提示訊息，行控人員可以決定是否重新播放該訊息。"</p> <p>Rectified. "If CMFT receive PA interrupted signal from PA system, CMFT Console will show PA is</p>

		OCC broadcasting was interrupted because of the priority, CMFT HMI software will alert the operator." Additionally when higher priority broadcasting terminates, whether OCC replay the previous broadcasting or jump to next pre-recorded broadcasting. Please clarify it.	interrupted, to re-broadcast this message will be decided by Operator."
A25	SECT 2.2.3.1/P31,33	有關廣播-預錄廣播及即時語音廣播操作流程，其中均僅於流程第 4 點說明「若語音通道連結失敗，警示操作員指定車站廣播操作失效」，而未詳加描述，若語音通道連結失敗，操作者該如何處理之程序（是否須 RESET），請補充 Regarding to pre-recorded broadcast and live broadcast operation flows, it states" if fails to connect to audio channel of selected station, prompt alert to operator that cannot complete the operation with the selected station." in step 4. Please give further explanation on how the operator handles the process, if the connection fails.	已補充。請參考 2.2.3.1 預錄語音廣播。 "若語音通道連結失敗，警示操作員指定車站廣播操作失效，並導引到障礙排除畫面。" Rectified. Please refer to 2.2.3.1 Pre-recorded Broadcast "If fails to connect to the audio channel of selected station, prompt alert to operator that cannot complete the operation with the selected station and redirect to troubleshooting page."
A26	SCET 2.2.4.1/P36, SECT 2.2.4.2/P37	有關顯示預錄訊息及手動輸入即時訊息操作流程，於流程第 4 點說明「若有錯誤顯示錯誤訊息」。請補充，當出現錯誤時，相關操作人員後續處理程序為何 Regarding to pre-recorded message display and real-time display operation flows, it states "if operates failed, prompt error message." in step 4. Please give further explanation on how the operator handles the process, if error message occurs.	已補充。請參考 2.2.4.1 預錄訊息顯示。 "若無法完成操作，畫面上將顯示警示通知操作者，並導引到障礙排除畫面。" Rectified. Please refer to 2.2.4.1 Pre-recorded message display. "If operates failed, prompt error message and redirect to troubleshooting page."
A27	SCET 2.2.5/P41	有關本節列車通訊設備描述，相關意見說明如下： 1. 當行控中心與車上服務對講機通訊時，該通訊內容是否有監聽設備，及雙向錄音裝置。 2. 當行控中心與旅客緊急通訊時，該通訊內容是否有監聽設備，及雙向錄音裝置。 3. 當手動駕駛控制員與車內旅客通訊時，該通訊內容於 OCC 是否有監聽設備，另車內及 OCC 是否有錄音裝置。 Regarding to OTC description in this	1. 行控中心的 CMFT 語音通信有錄音設備。詳細錄音請參考 TC1-63201-自動電話系統-細部設計 3.4 電話錄音功能。 2. 同上 3. 手動駕駛控制員與車內旅客通訊時，沒有與 OCC 語音通訊，OCC 無法對該通訊錄音。列車內無錄音裝置。 1. OCC CMFT voice communication device provides voice recording. For detail description, please refer to TC1-63201-AT System-Detail



		<p>section, we have following suggestions:</p> <ol style="list-style-type: none"> <li>1. When conducting intercom communication between OCC and Service Intercom, whether monitoring device or two-way audio recording device are installed for recording content of the intercom communication.</li> <li>2. When conducting intercom communication between OCC and passenger emergency intercom, whether monitoring device or two-way audio recording device are installed for recording content of the intercom communication.</li> <li>3. When conducting intercom communication between driver and passenger emergency intercom, will OCC be recording content of the intercom. Is there any recording device installed in vehicle and OCC?</li> </ol>	<p>Design 3.4 Telephone Voice Recording Function</p> <ol style="list-style-type: none"> <li>2. Ditto.</li> <li>3. When driver in communication with passenger emergency intercom, it do not have voice communication with OCC. OCC won't be record this communication.</li> </ol>
A28	SECT 2.2.5.4/P48	<p>有關旅客緊急通訊操作流程，未說明當列車手動駕駛操作時，駕駛如何與車內使用旅客緊急通話器（passenger intercom）之旅客通話相關操作方式，及行控中心通訊多功能操作台（CMFT）如何顯示該通話模式（OCC 是否可監聽），請補充。</p> <p>Regarding to passenger emergency intercom flow it does not mention how the driver use PI to communicate with passengers and how to display this communication mode on the CMFT console (can the voice be monitoring by OCC), when train operates manually. Please provide further explanation.</p>	<p>已補充。請參考 2.2.5.4 旅客緊急通訊。</p> <p>"當車上旅客要求緊急通訊時，可按下"旅客緊急通訊"按鈕與控制人員通話。旅客緊急通訊將直接送到行控中心，等待操作員接聽；若是車上通訊控制盤被駕駛員啟動，則旅客緊急通訊將等待駕駛員接聽，駕駛員接聽的動作將傳送至行控中心記錄，若 15 秒內駕駛員未接聽，該 PI 將轉發給行控中心，由行控中心接聽。"</p> <p>Rectified. Please refer to "2.2.5.4 Passenger Emergency Intercom".</p> <p>"When passengers on train request emergency intercom with operator, they can press the "Passenger Emergency Intercom" button and communication with operator. The emergency call is forward to OCC and waits for the OCC operator to answer .But when communication control panel in train is activated by the driver, emergency call waits for the driver to answer. OCC keep tracks of received phone call by taking a log file. If the driver does not answer the phone within 15 seconds, emergency</p>

			call is forward to OCC."
A29	SECT 2.2.5.5/49	<p>有關本節描述 OCC 操作員可透過 PI (Passenger intercom) 監聽車上旅客動態，請說明該監聽設備係安裝於 PI (即 PI 本身即有監聽功能) 或另有其他監聽設備。</p> <p>In this section it describes OCC operator can monitor passenger movement through PI. Please explain this monitoring device is installed in PI (i.e., PI itself with monitoring function.) or have some other device.</p>	<p>已補充。請參閱 2.2.5.5 監聽旅客動態： "OCC 操作員可透過 PI 的收音設備來監聽車上旅客的動態"。</p> <p>Rectified. Please refer to " 2.2.5,4 Passenger Emergency Movement"。</p> <p>MOVEMENT : "OCC operators can monitor passengers' movement through PI audio receiver."</p>
A30	SCET 2.2.5.6/P51, 2.2.5.6.2/P52,	<p>有關車載旅客資訊顯示器 (PID) 顯示預錄訊息及顯示即時訊息操作流程，未說明若有突發狀況，需臨時停止預錄訊息或即時訊息之顯示，請補充。</p> <p>Regarding to Pre-recorded or instant message operation flow, it does not mention the needs to suspend the pre-recorded or instant message. Please provide further explanation.</p>	<p>已補充。請參閱 2.2.5.6 車載旅客資訊顯示器訊息顯示。</p> <p>Rectified. please refer to "2.2.5.6 ONBOARD PID MESSAGE DISPLAY"</p>
A31	SECT 2.2.2/P69-P72	<p>當行控中心控制員 (operator) 欲監看之影像，未設定顯示於 OCC 監看牆 (monitor wall) 牆時，請澄清是否可由控制員透過通訊多功能操作台 (CMFT) 之操作，將畫面調出顯示於 CMFT 主控台上。</p> <p>When OCC operator wants to monitor the images without configuring on OCC wall-mounted monitors, please clarify whether operator can operate CMFT console to display images or not.</p>	<p>CMFT 的 CCTV 監視器是設計用於同步顯示欲監看的電視牆螢幕的畫面，因此當行控中心控制員欲監看的即時影像未設定顯示於 OCC 電視牆螢幕時，行控中心控制員無法透過通訊多功能操作台 (CMFT) 之操作，將畫面調出顯示於 CMFT 的 CCTV 監視器上。</p> <p>CMFT CCTV monitor is designed for synchronous display the selected screen from TV wall monitor which to be monitoring, the OCC operator is not able to operate CMFT to call and display the video on CMFT CCTV monitor when the video is not set and displayed on the OCC TV wall monitor.</p>
A32	SECT 2.3.5.4/P97	<p>有關旅客緊急通訊廣播流程，未說明當列車手動駕駛操作時，手動駕駛員如何利用手動駕駛控制台，進行車內廣播，及行控中心相關控制員是否可監聽手動駕駛員廣播內容，請補充。</p> <p>Regarding to passenger emergency intercom flow, it does not mention how the driver use manual control console to broadcast in the train, when train operates manually. And whether OCC operator can monitor broadcast content from the driver or</p>	<ol style="list-style-type: none"> <li>1. 當列車手動駕駛操作時，手動駕駛員如何利用手動駕駛控制台，進行車內廣播，請參閱 TC1-6A201-列車通訊系統-細部設計。</li> <li>2. OCC CMFT 無法監聽手動駕駛員廣播內容；請參考第 27 項。</li> </ol> <ol style="list-style-type: none"> <li>1. Please refer to "TC1-6A201 - OTC System- Detailed Design" for ways to broadcast under manual mode.</li> <li>2. OCC CMFT can't monitor the</li> </ol>

		not. Please provide further explanation.	broadcast content of the driver. Please refer to item 27.
A33	SECT 2.3.5.5/P99	<p>有關旅客緊急通訊（監聽模式）廣播流程，該監聽之操作，係透過旅客緊急通話器（passenger intercom）監聽，或利用其他設備，請補充。</p> <p>Regarding to passenger emergency intercom flow (monitor mode), the operation of the monitoring is through PI or some other device. Please provide further explanation.</p>	<p>PI 監聽模式是透過列車緊急電話（PI）來監聽旅客動態。</p> <p>PI monitor mode, to monitor passenger's movement through PI equipments.</p>
A34	SECT 2.5.2.1/P122	<p>有關告警顏色，相關意見說明如下：</p> <ol style="list-style-type: none"> <li>有關 'CMFT' 告警顏色使用青綠色（CYAN），因與其他操控台 information call 的綠色（GREEN）顏色相近，容易使操作人員不易辨識，請採用其他較容易辨識之顏色。</li> <li>告警顏色係涉及機電系統人機介面之設計，故請考量整體機電系統（電聯車、行車監控、號誌、月台門、通訊、供電、機廠設備）後，統一其設置原則。</li> </ol> <p>Regarding to alarm color, we have following suggestions:</p> <ol style="list-style-type: none"> <li>Regarding to using cyan CMFT alarm color it is too close to other console's information call color.(Green) It is easy for Operator not be able to distinguish the colors.</li> <li>Alarm color involves in electro-mechanical system HMI design, so please consider overall electro-mechanical system (Vehicle, ATS, Signal, Platform door, Communications, Power Supply, Depot facilities), unify the principle of setting.</li> </ol>	<p>知悉，配合機電系統整體規劃設置。</p> <p>Noted. Will consider the electro-mechanical system setup plan.</p>
A35	SCET 2.5.2.2/P113	<p>有關告警訊息定義，相關意見說明如下：</p> <p>依通訊多能操作台系統概念設計(TCI-67001-0) 第 3.1.2 節說明，CMFT 會顯示通訊設備狀態，並將行控中心、機廠、車站及相關建築物之主要通訊設備錯誤訊息傳送至 SCADA，但並未說明 CMFT 將顯示 SCADA 之告警訊息。惟表 2-8 說明，CMFT 產生之告警代碼範圍包含 SCADA（代碼 700-799），請</p>	<p>已修正。請參閱 2.5.2.2 告警訊息定義。</p> <p>Rectified. Please refer to "2.5.2.2 ALARM MESSAGE DEFINITION".</p>

		<p>澄清是否誤植。若此處非誤植，請說明當 SCADA 將傳送至 CMFT 告警之設備/系統為何。</p> <p>Regarding to alarm message definition, we have following suggestions:</p> <p>According to the description in the section 3.1.2 of CMFT CDR, CMFT will display the status of communication equipment, and the error messages from those main communication system equipment in OCC, depots, stations, and associate buildings will through CMFT transmit to SCADA system. It does not mention about CMFT will display the alarm messages, but in table 2-8 described that the alarm ID generated by CMFT includes SCADA (ID 700-799), please clarify whether it was error or not. If it is correct, please provide further explanation about what is the alarm equipment/system that SCADA sends to CMFT.</p>	
A36	SECT 2.7.1.2(1)/P124	<p>有關 CMFT 備援切換說明，於備援切換前，正常情況下 CMFT_1 為活躍伺服器 (active server)，請將 active server 之中文翻譯修正為「主動伺服器」。</p> <p>About description of switch-over, in the section "before switch-over", "Under normal circumstances, CMFT_1 is as the (active server)...", please amend the Chinese translation of "active server" to "主動伺服器".</p>	<p>已修正。本文件關於活躍伺服器 (active server)修改為「主動伺服器」。</p> <p>Rectified. Amend the chinses translation of "Active server" to "主動伺服器".</p>
A37	SECT 6.1.3/P144	<p>有關 CMFT 主控台之設備編號為 4MWS，非本頁描述之 4CWS，請修正。</p> <p>The CMFT console equipment number is 4MWS not 4CWS. Please correct.</p>	<p>已修正。請參考 6.1.3 設備流水號。</p> <p>Rectified. Please refer to "6.1.3 EQUIPMENT SERIAL NUMBER".</p>
A38	SECT 2.3.5.5/P99	<p>當列車亦長停駛或車內旅客有異常情況，行控中心除監聽旅客動態外，請將列車影像監看部分納入連動設計選項，以符合實際營運需求。</p> <p>When train stops anomalously or passenger encounters abnormal</p>	<p>已補充。列車異常停駛與列車監聽時，加入列車影像連動監看，請參閱 "2.3.2.5 列車連動監看"與"2.2.5 列車通訊設備"。</p> <p>Rectified. The event of train unexpected stop and OCC monitor</p>

		situations, OCC can only support voice monitoring on passenger movement. Please bring image monitoring into design options to fulfill the demand of normal operation.	passenger movement will be added into On-Train interlocking monitor, Please refer to "2.3.2.5 On-Train Interlocking Monitor".
A39	一般	<p>依 PTS 2.4.7(8)CMFT 操作失效時，應有降級模式操作之設計機制。其降級模式中，行控中心各子系統操作功能與原有功能差異如何？請於本文中詳細說明。</p> <p>According to PTS2.4.7(8) "When the CMFT operations should fail, there shall be a design mechanism for a reduce mode operation." , please explain detailed for the differences of operating functions of various subsystems between fall-back mode and normal mode.</p>	<p>已補充。請參閱 2.8 降級營運。</p> <p>Rectified. Please refer to "2.8 Fall-back operation"</p>
A40	一般	<p>行控中心 CMFT 系統功能將影響營運系統是否正常運作，請提供詳細風險控管及緊急復原計畫。</p> <p>OCC CMFT system functionality may affect the normal operation system. Please provide detailed explanation of risk management and emergency recovery plan.</p>	<p>CMFT 伺服器於行控中心的設計是採用複製裝置，以及有降級計畫，不會影響系統營運。</p> <p>風險控管請參考 TC1-60202 通訊 - 子系統危險分析 Communications - SubSystem Hazard Analysis (SSHA)文件說明。</p> <p>緊急復原計畫將於 TC1-67106 通訊系統多功能操作台 - 維修手冊 Communications Multi Function Terminal - Maintenance Manual 文件說明如何故障排除及修復。</p> <p>CMFT Server in OCC is redundant design, and CMFT has fall-back plan. CMFT won't affect the normal operation system.</p> <p>Risk management please refers to TC1-60202-Communication-SubSystem Hazard Analysis (SSHA).</p> <p>Emergency recovery plan will describe in TC1-67106-CMFT-Maintenance Manual.</p>
A41	一般	<p>請提供後續增設 CMFT 主控需求時，可經由簡便操作步驟及設定完成新設主控台，並於文中增列 CMFT 擴充相關說明。</p> <p>Please provide an option to go through simple operation and configuration steps to setup new consoles, when additional CMFT consoles are needed.</p>	<ol style="list-style-type: none"> <li>1. CMFT 主控台擴增:請參閱 2.6.4 主控台管理。</li> <li>2. CMFT 擴增:請參閱 2.10 未來擴充性。</li> </ol> <ol style="list-style-type: none"> <li>1. CMFT Console Expansion: please refer to "2.6.3 CMFT Console Management"</li> <li>2. CMFT Expansion: please refer to "2.9 Future Expandability"</li> </ol>

		Add related explanation for CMFT extension in the document.	
A42	SECT 2.2.2/P22	請考量現行捷運公司閉路電視操作模式，明訂 CMFT 可操控 SPEED DOME CAMERA 的功能。 Please consider the current operation mode of CCTV, and make sure CMFT can control SPEED DOME CAMERA.	已補充。請參考 2.2.2.4 SPEED DOME CAMERA 操作。 Rectified. Please refer to 2.2.2.4 Speed Dome Camera.
A43	SECT 2.5.1/P110	請以硬體或軟體整合方式，將 DCS 的網管警告功能納入 CMFT。 Please user hardware or software integration method to, bring DCS Network Management alert function into CMFT	FOT 網管系統之告警不包含 DCS 設備，CMFT 整合 FOT 系統之告警功能不包含 DCS 設備。 DCS device is not included in FOT network management system, CMFT integrated alarm function of the FOT system does not contain the DCS equipment