

Terms of Reference



Supply, Installation, Operation and Maintenance of a COMMON USE PASSENGER PROCESSING SYSTEM (CUPPS) and related systems at the Hosea Kutako International Airport (HKIA)

1. Introduction

1.1 Purpose

NAC is soliciting proposals from interested suppliers for the design, supply, installation, commission, and maintenance support of a Common Use Passenger Processing System (CUPPS) at HKIA. NAC envisages a system where Common Use Passenger Processing System (CUPPS) can be utilized by our stakeholders operating at HKIA. The provided platform must be a seamless solution, allowing various airlines and handlers to share the airport's common workstations and associated peripherals (boarding pass printer, bag tag printer, MSR/OCR reader, bar-code reader, boarding gate reader etc) at check-in, boarding, transfer, lost and found and VIP lounges positions, to access their own Departure Control System. The system must also be accessible from back-office workstations.

The purpose of this document is to provide the business and technical requirements specific to HKIA and to identify and select an industry standard high-quality solution which could provide dynamic and optimal process and functionalities to maximize the benefits for all operating airlines.

Suppliers interested in submitting proposals to provide such solutions are required to follow the recommended guidelines and instructions contained in this Request for Proposal (RFP). In the event it becomes necessary to revise any part of this RFP, revisions will be provided by addendum.

1.2 Description

The main objective and the goals are to implement a CUPPS standard solution to handle ever increasing passenger and airline requirements in compliance with IATA recommended Practices and also considering the IATA Simplify the Business initiative (stb-whitepaper2015).

1.3 Objectives

Key Objectives

- CUSS/CUPPS compliance system to most current revision of IATA RP 1797 standard to enable multiple airlines, service providers, or other users to share physical check-in, gate positions, transfer simultaneously or consecutively at the airport.
- Seamless integration of all airlines Departure Control Systems to new CUSS/CUPPS operating platform at the airport.
- Highly reliable, robust system to serve all airlines with no downtime.
- Common graphical user environment for all CUPPS workstations where all user logins are secured with authentications.
- Readiness for IATA Resolution 753.

2. Background

The Namibia Airports Company (NAC) Limited was established in terms of the Airports Company Act 25 of 1998. The NAC is a state-owned entity and its portfolio ministry is the Ministry of Works and Transport.

The NAC develop, manage and operate eight (8) airports:

- Hosea Kutako International Airport (HKIA)
- Eros Airport
- Walvis Bay International Airport
- Ondangwa Airport
- Katima Mulilo Airport
- Keetmanshoop Airport
- Luderitz Airport
- Rundu Airport

The NAC would however want to capitalize and gain more functionality from the available technology to be able to perform functions such as common use ticket counter spaces, arrival and departure baggage carousels, and secondary resources such as security checkpoints and immigration counters. Initial scheduling and allocation of resources shall be based upon, but not limited to, rules established by the Airport in coordination with the Bidder to implement the rules base into the proposed resource management functionality.

The CUPPS solution shall ensure seamless passenger processing at HKIA, which handles around 1 million passengers annually (Pre-Covid 19). The proposed solution shall be able to handle HKIA's activity as described below and to evolve over the years, following any traffic increase.

3. Scope of Supply

This RFP includes the design, development, supply, configuration, installation, integration, testing, commissioning and 5-year operation and maintenance service of a Common Use Passenger Processing System (CUPPS) for HKIA.

The objective is to provide a common infrastructure enabling the different airlines and handlers operating at HKIA to share the airport's workstations from which they access their own Departure Control System (DCS) at locations such as Check-In, Transfer and Gates, Boarding Gates, and Lost and Found Baggage facilities.

The contractor will provide the CUPPS platform with all software and hardware components required to ensure the functionalities later described in the RFP document.

The procurement will include support and maintenance of licenses, central computer equipment and potential peripheral computer equipment, i.e., the entire CUPPS platform.

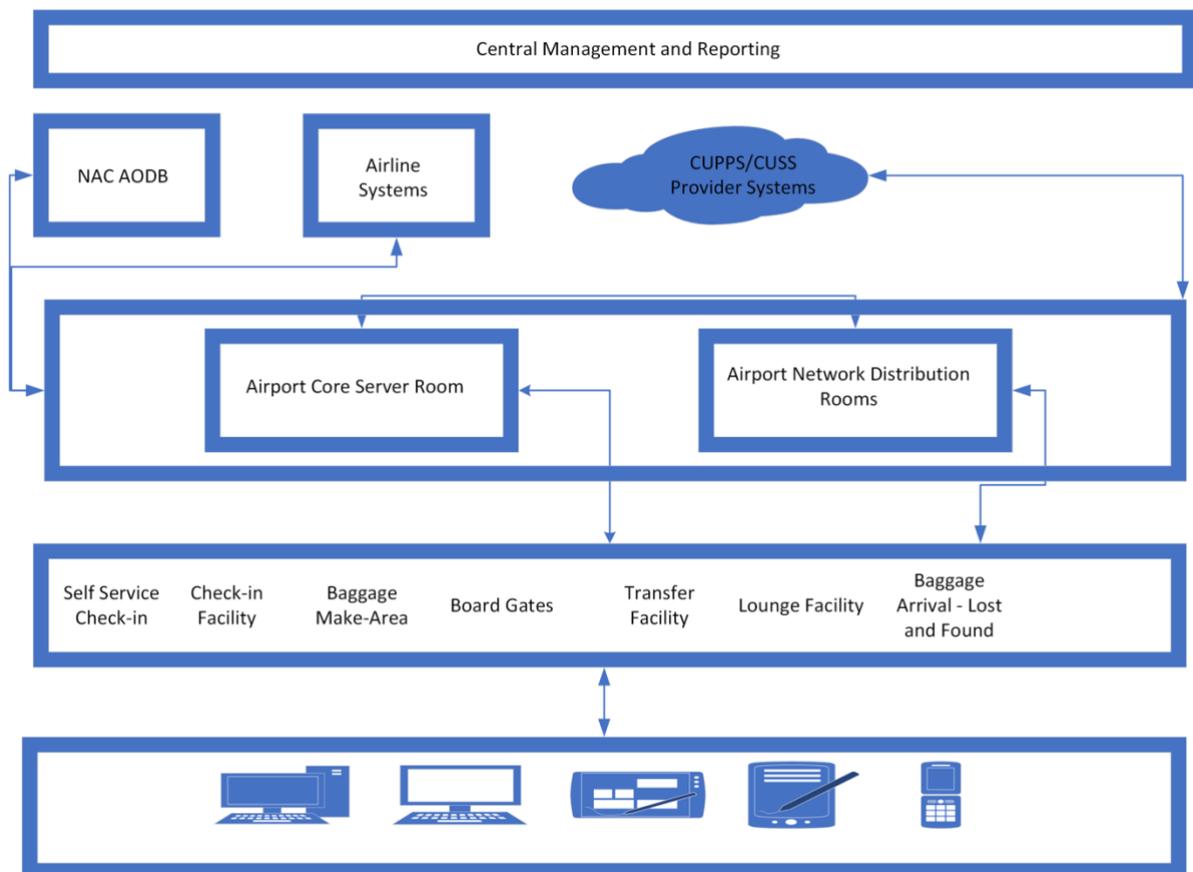
The scope of supply will consist in the following elements:

- System core hardware and software, including all required licenses.
- CUPPS workstation hardware and software, including all required licenses.
- Peripherals, including Bag Tag Printer, Boarding Pass Printer, General Purpose Printer, keyboard / pointing device, 2-D scanner, Optical Character Reader, Passport Reader, Document Printer, Boarding Gate Readers (As per the number of facilities detailed in the RPF).
- Configuration of all airline applications and CUPPS resources.
- All interfaces required for the operation of the system as described in this RFP.

3.1 High-Level CUPPS/CUSS Requirements.

Equipment	Quantity	Spare	Total Quantity
Check-in Facilities			
Workstation Hardware & Software			
CUTE Workstations with Keyboard / Mouse	17	2	19
Display/Monitor	17	2	19
Peripherals for Check-in Workstations such as Boarding Pass Printer, Bag Tag Printer, Bar Code Scanner, MSR/OCR	17	2	19
Board Gates Facilities			
Workstation Hardware & Software			
CUTE Workstations with Keyboard / Mouse	6	1	7
Display/Monitor	6	1	7
Peripherals for Board Gate Workstations such as Bar Code Scanner, MSR/OCR	6	1	7
Transfer Facilities			
Workstation Hardware & Software			
CUPPS Workstations With Keyboard / Mouse	2	1	3
Display/Monitor	2	1	3
Peripherals for Transfer Workstations such as Boarding Pass Printer, Bag Tag Printer, Bar Code Scanner, MSR/OCR	2	1	3
CUPPS Workstations With Keyboard / Mouse	2	1	3
Display/Monitor	2	1	3
Peripherals for Baggage Departure Workstations such as Boarding Pass Printer, Bag Tag Printer, Bar Code Scanner, MSR/OCR	2	1	3

Hand-Held Terminals	8	2	10
Baggage Arrival or Lost and Found Area Facility			
CUPPS Workstations With Keyboard / Mouse	2	1	3
Display/Monitor	2	1	3
Peripherals for Baggage Arrival Workstations such as Boarding Pass Printer, Bag Tag Printer, Bar Code Scanner, MSR/OCR	2	1	3
CUSS Kiosks			
CUSS Kiosk and Peripherals	2	1	3
Training Facilities			
CUPPS Workstations With Keyboard / Mouse	2	0	2
Display/Monitor	2	0	2
Peripherals for Training Workstations such as Boarding Pass Printer, Bag Tag Printer, Bar Code Scanner, MSR/OCR	2	0	2



3.2 Communication with airlines' DCS

The proposed CUPPS solution shall support communication of the CUPPS system with the airlines' central systems, through telecommunication networks whose implementation shall be ensured by airlines themselves or by their handling agents.

At present each airline operating at the airport is providing and maintaining their own equipment to enable them to provide the necessary services for their passengers.

The system will allow additional communication servers to be added later. Some airlines use direct TCP/IP connection, others use communication servers with various legacy protocols.

The CUPPS system allows the Airport and the Airline to contract with the network/communication provider of their choice. The system must be independent from the network provider.

The proposer will describe both possibilities in his offer and will explain their running respectively. The proposer will specify which protocol(s) are supported by his solution.

The proposer will also detail the system configuration required for each solution.

Software modules specific to airlines must be certified by those airlines prior installation.

4. CUPPS Business Requirements

4.1 Qualifications

- A. In order for a Contractor to qualify for this project, the firm must meet the following minimum requirements:
1. The Contractor must have been in the business of selling and installing similar common use passenger processing systems at airports for a minimum of ten (10) years with an installed base of at least 1000 common use workstations.
 2. The Contractor must have been actively engaged in installing, maintaining and operating similar systems and services with a minimum of 250 workstations for at least ten (10) host airlines.
 3. The Contractor must have a minimum of three (3) sites that are actively using the same or similar systems, and each of those sites must be currently in operation, and have been in operation for at least the preceding six (6) months.
 4. The Contractor must currently be able to provide a CUPPS CTE certified solution that is installed in a production environment.
 5. The Contractor must provide a CUPPS solution that supports legacy CUTE terminal emulators (TE) in a seamless and transparent manner to the user.
 6. The Contractor must currently support self-boarding gate equipment installed in an airport environment.
 7. The system shall be capable of supporting Common Use Self Service (CUSS) kiosks as an integral part of the design on the same common use platform.
 8. The Contractor must have a minimum of 100 Common Use Self Service (CUSS) kiosks installed in an airport environment with support for at least 20 CUSS certified applications.
 9. The Contractor must have been in the business of directly providing (not via a third party) centralized global support center services utilizing ITIL trained service personnel on a twenty-four (24) hours /seven (7) days per week basis for a minimum of five (5) years. The support center must provide, as a minimum, full incident management, remote monitoring, server / network management and second level support.
 10. The Contractor's CUPPS solution must be implemented in such a way that it performs in a PCI DSS-compliant manner.
 11. The Contractor must provide proof that a PCI DSS Implementation Guideline document for its solution is available and can be provided upon request.

12. The Contractor must provide proof of a PCI DSS Report On Compliance (ROC) for its solution.
 13. The CUPPS platform must offer a pre-integrated module for 2D bar coded boarding pass passenger tracking, count and monitoring capabilities.
 14. The CUPPS platform must be able to support comprehensive real time statistics that shall be automatically captured for workstation occupancy time and number of documents printed and CUSS kiosk transactions on an airline-by-airline basis.
- B. The Contractor is required to submit information regarding a minimum of three (3) reference sites that are actively using the same or similar systems.
1. The sites should be for airports of a similar size in terms of the number of ticket counters, gate counters, gates, passenger counts, baggage throughput, and flight operations.
 2. This information shall include the contact name, address, telephone number, and date of original installation for each site listed.

4.2 Overview

"Common Use" for the purposes of this document means that carriers will be capable of using the same systems at any particular position whether simultaneously or consecutively at different times without having to reload operating systems or software.

The system shall be designed to be accessed via a common graphical user environment from CUPPS workstations and/or remote web-based terminals must be CUPPS Compliant to most current revision of IATA RP 1797 Standard. All CUPPS components that shall integrate seamlessly to a stable and flexible system. A solution shall be deployed to minimize problems and maximize a positive airport experience. Design shall allow HKIA to participate in dialogue as to optimize the solution. System design shall optimize existing space and resources and allow for modular growth and flexibility

- 4.2.1 CUPPS Base Components - this base submission component shall comprise all the required components for typical CUPPS operation.
- 4.2.2 Common Use Self Service (CUSS) Kiosks - this base submission component shall comprise all the required components as specified in this RFP.
- 4.2.3 Vision - The complete CUPPS system must convey a high-tech expression that is reflective of a modern airport.
- 4.2.4 Affordability - Every component must be optimized for cost effectiveness. Upgrades shall be performed for hardware and/or software free of cost during the contractual period.
- 4.2.5 Flexibility – Responsiveness and adaptability to changing services and user requirements must be accommodated in each system design, including modularity.

- 4.2.6 Functionality - Every component must be selected for optimum performance throughout for the contractual period, particularly in the provision of infrastructure.
- 4.2.7 Airport Operations - The airport activities must not be interrupted during the delivery of the CUPPS Systems. Careful consideration must therefore be given to sustaining the normal operations at all times by 24x7.
- 4.2.8 Safety and Security - Safety and security are of paramount importance and responsibility for ensuring this environment must be assured by every participant in the delivery of the project.
- 4.2.9 Partnering – The CUPPS Supplier shall be expected to enhance this concept at every opportunity so as to achieve optimum results with the NAC users, operational staff, third party technical advisors, and other trade contractors, authorities having jurisdiction, program and project managers.
- 4.2.10 Professionalism - The CUPPS Supplier shall be required to deliver professional services in the delivery of the CUPPS system, in accordance with the Statement of Work developed jointly with NAC during the negotiation period.
- 4.2.11 Adhere to Policies and Procedure - The CUPPS Supplier shall be expected to serve the best interests of NAC and to respect NAC policies and procedures. This however shall not limit the CUPPS Supplier from suggesting improvements in these policies and procedures relative to the new system and operations.

4.3 Design Criteria

In the design and development of the CUPPS components, below fundamental goals shall be realized to ensure the quality and effectiveness of the CUPPS solution.

- 4.3.1 Functionality - The solution must exhibit and provide functions that satisfy stated and implied needs
- 4.3.2 Maintainability - The solution must be such as to facilitate minimum effort needed in the future to make modifications.
- 4.3.3 Expandability - The solution must facilitate growth commensurate with demand.
- 4.3.4 Efficiency - The solution must exhibit favorable relationship between the level of performance and the amount of resources used to achieve it under stated and implied conditions.
- 4.3.5 Usability - The solution must facilitate reasonable effort needed for use by a stated or implied set of users.
- 4.3.6 Security (Data privacy) - The solution shall be inherently secure and robust to safeguard unauthorized use of its resources, as well as prevent it from being a vehicle for intrusion to the underlying network infrastructure.
- 4.3.7 Stability - The solution shall be robust as a whole, and all components shall be demonstrated to have a proven track record of stable interoperability with other components as applicable.
- 4.3.8 Fault tolerance - The solution shall be designed such as to withstand for single failure of any of its critical core components. CUPPS Supplier is expected to propose a robust and redundant system.

- 4.3.9 Maturity - The solution shall be demonstrated to be in wide deployment and have feature set indicative of the supplier's understanding of airline and airport operations. This shall be documented by means of client references (implemented within last 3 years) airport with location, year of deployment, CUPPS version, number of workstations etc.
- 4.3.10 Adaptability - The solution shall be able to adapt to changing operational environment, such as change of network services, hardware upgrades, replacement and others.
- 4.3.11 Conformance - The solution shall conform to all appropriate industry standards, including but not limited to those listed in this RFP.

4.4 CUPPS SYSTEM FUNCTIONAL SPECIFICATION

The CUPPS system shall be designed such as not to require any modifications to the carriers' existing suite of applications. All applications and functions of the CUPPS workstation shall be available to authorized users without rebooting the workstation. The CUPPS solution shall comply with the latest revision of IATA RP 1797.

4.4.1 CUPPS FUNCTIONAL REQUIREMENTS (mandatory)

- A. The system shall be designed and installed to operate in the following manner:
1. The system shall be designed with configurations to support check-in and gate operations for multiple airlines through the use of CUPPS compliant airline applications. The CUPPS shall also support the use of legacy CUTE Terminal Emulators (TE) in a seamless and transparent manner to the user.
 2. The system must be deployed according to the recommendations and requirements in the PCI DSS Implementation Guideline document approved by the Contractor's PCI QSA.
 3. The workstation's screen and keyboard interface shall support direct host connections with users having access to all applications which are available on the host as supported by the individual airline application.
 4. Workstations shall access the host systems through equipment housed in the central equipment rooms (Core Rooms).
 5. The system shall be capable of supporting both IP and legacy protocol based airline applications.
 6. The system shall be capable of supporting Common Use Self Service (CUSS) kiosks as an integral part of the design on the same common use platform.
 7. Peripherals shall be driven through a software based Hardware Abstraction Layer (HAL) function allowing standard formatted data to be processed regardless of the underlying peripheral characteristics.
 8. The Automatic Ticket and Boarding Pass Printers (ATB) and the Bag Tag Printers (BTP) shall have the capability of using common stock, or an airline may load their own stock when staffing a position.
 9. Comprehensive real time statistics shall, at a minimum, be automatically captured for workstation occupancy time, number of

documents printed and CUSS kiosk transactions on an airline by airline basis. This information must be available on a real time basis to the airport via a local statistics database. Reports shall be provided to the airport summarizing workstation and kiosk performance.

B. CUPPS Workstations shall support the following functionality:

1. Operating systems on workstations must be installed with English (\EN-US" or \EN US" depending on the notation, or \EN-UK" or \EN UK" depending on the notation) as the operating system's language. Other languages and input method editors (IME) may be installed as needed.
2. Application Management: CUPPS platforms must implement application management functionality appropriate to support the CUPPS platforms.
3. Authentication: CUPPS platforms must provide authentication services to authenticate users onto the workstation and other local network resources as appropriate.
4. COTS Software Interoperability: COTS applications must be well-behaved and must not pose any unreasonable performance impacts or security risks to the platform or local network. Well-behaved COTS software, defined as a commercial application that does not make use of the CUPPS platform's services, such as devices, must run on the CUPPS platform.
5. CUPPS Application Requirements: CUPPS applications must be well-behaved and must not pose any unreasonable performance impacts or security risks to the platform or local network. Each CUPPS application must adhere to a set of command line standards designed to easily query the application's version and platform supplier.
6. Event Management: The CUPPS platform must implement an event management function to facilitate application and platform event information exchange with the management interface.
7. Hardware Abstraction Layer: The CUPPS platform must provide a HAL that shields applications from the platform supplier and firmware versions of the underlying workstation or device hardware. Additionally, the HAL must shield applications from the interface used to communicate with the device (e.g., USB, serial, wireless, etc.). By definition, HAL requirements do not apply to raw devices.
8. Logging: The CUPPS platform must provide a general purpose logging interface that is appropriate for application support and debugging purposes.

9. Permissions: The CUPPS platform must provide appropriate functionality to manage and secure access to CUPPS platform system resources, network resources, and user or airline data.
10. Platform and Workstation Management: The CUPPS platform must provide appropriate management functionality to facilitate the system administration, support, and usage.
11. Software Distribution: The CUPPS platform must provide a unified mechanism to distribute software to a specific CUPPS location.
12. Storage: The CUPPS platform must provide an interface to allow workstation applications to store data. The interface must support returning (releasing) scratch storage, defined as temporary storage that is private to the application instance that will be automatically deleted at the end of the application's session. The interface must also support persistent storage, defined as storage that is common to the logged-in user, which is not automatically deleted at the end of the application's session.
13. Vendor Independence: The CUPPS platform must implement the interfaces as per the CUPPS-Technical Specification such that a properly implemented CUPPS application works without modification across CUPPS implementations.
14. World-Wide Naming Standards: The CUPPS must adhere to world-wide conventions for the naming of CUPPS workstations and appropriate devices. This world-wide nomenclature standard is to facilitate identification and/or direct communication between airline hosts and/or application servers and any particular workstation available on a network.
15. Performance: The CUPPS platform must adhere to the appropriate performance standards from the IATA CUPPS Technical Specification, including the allowable times to complete the login process, the logout process, communications delay, and device performance.
16. Configuration: There shall be only one bootable partition on the workstation hard disk and that is for the base operating platform.

4.4.2 CUPPS Hardware Requirements

- A. All hardware requirements given are the minimal acceptable requirements for the system.
 - 1. Equipment located in Core Rooms shall be rack mounted in standard 19-inch racks.
 - a. Contractor shall provide the rack mount adapters for all equipment installed in the equipment rack.
 - b. Contractor shall cover unused slots using blank panels.
- B. CUPPS servers shall have a minimum hardware configuration as defined in the IATA CUPPS Technical Specification.
- C. CUPPS Workstations will consist of standard PCs capable of hosting all the required platform and application software, together with their associated peripherals. CUPPS Workstations shall have a minimum hardware configuration as defined in the IATA CUPPS Technical Specification.
- D. Automated Ticketing and Boarding Pass Printer (ATB)

Automated Ticketing and Boarding Pass Printers should support both airline-specific and generic paper stock. The printer should also have had at least six (6) months of operational experience with a customer. An Automated Ticketing and Boarding Pass Printer shall have a minimum hardware configuration of the following:

 - 1. Printing Technology: Direct Thermal
 - 2. Be able to be installed on or under a counter
 - 3. Have both front and rear feed coupon insertion
 - 4. Support IATA Resolutions 792
 - 5. Support AEA Technical Specifications for ATB
 - 6. Must support two-way communications between the host and the printer
 - 7. Have acceptance of generic mode protocol and CUTE mode protocol
 - 8. Should have down-line loaded airline logos in PCX or PROM format

9. Must have print resolution of at least 203 dpi (8 dots/mm)
10. Must offer a print/encode time of no more than five (5) seconds

E. Bag-Tag Printers (BTP)

Bag Tag printers need to produce high quality, high contrast baggage tags at a print density of at least 203 dpi. The printer should also have had at least six (6) months of operational experience with a customer. Bag-Tag printers shall have a minimum hardware configuration of the following:

1. Printing Technology: Direct Thermal
2. Must comply with IATA Resolution 740
3. Barcodes must be compliant with the following standards:
 - a. Interleaved 2 of 5
 - b. Industrial code 2 of 5
 - c. Industrial code 3 of 9
4. Must accept IATA recommended practice 1740a paper stock specification
5. Must offer a print speed of three (3) inches per second
6. Must support AEA Technical Specifications for BTP
7. Upgradable to support RFID

F. Document Printers (DCP)

Document Printers should have had at least six (6) months of operational experience with a customer. Document Printers shall have a minimum hardware configuration of the following:

1. Printing Technology: Impact, Dot Matrix
2. Paper path should accommodate from 3" to 10" width paper
3. At least two paper feeds
4. Ribbon life of 3 million characters
5. Print head life of 200 million characters
6. Must offer a print resolution of at least 203 dpi
7. Must offer minimum print speed of three (3) inches per second

All printers shall have a minimum hardware configuration as defined in the IATA CUPPS Technical Specification

G. Boarding Gate Reader (BGR)

Boarding Gate Readers need to support the handling of Bar Coded Boarding Passes (BCBP) coupons. The reader should have had at least six (6) months of operational experience with a customer. A Boarding Gate Reader shall have a minimum hardware configuration of the following:

1. Support IATA Resolution 792
2. Interact with workstations using AEA PECTAB concept
3. Document processing time for any BCBP coupon or mobile display should be <1 second for reading process
4. Must support AEA Technical Specifications for BGRs

H. Bar Code Scanner (LSR)

Some carriers use bar code readers. The scanner should have had at least six (6) months of operational experience with a customer. These readers shall have a minimum hardware configuration of the following:

1. Have a CCD imaging capability of reading the following bar code formats:
 - a. Interleaved 2 of 5
 - b. Industrial code 2 of 5
 - c. Industrial code 3 of 9
 - d. PDF417
 - e. Aztec
 - f. DataMatrix
 - g. QR

I. Magnetic Strip Reader (MSR)

These readers may be used for reading frequent flyer cards, credit cards or ATB coupons. The Magnetic Strip Reader should have had at least six (6) months of operational experience with a customer. These readers shall have a minimum hardware configuration of the following:

1. Integrated, ergonomic keyboards with self-contained MSR devices

2. Must read ATB documents, credit cards, frequent flyer cards, employee travel cards; read up to at least three (3) tracks
 3. Must meet ISO 3554/2894
- J. Passport and OCR Reader (OCR)
- The Passport and OCR Reader should have had at least six (6) months of operational experience with a customer. These readers shall have a minimum hardware configuration of the following:
1. Passport readers shall have optical character recognition.
 2. Integrated, ergonomic keyboards with self-contained OCR devices
 3. Must read all OCR passport types
 4. Must support character set ISO 8859-1 Latin 1
 5. MTBF must be at least 100,000 operation hours
 6. First read rate must be at least 95%

4.4.3 CUPPS Software Requirements

- A. Workstation Operating System
1. CUPPS workstations must use Windows 10 configured with English as the default language. Additional language packs or input method editors (IME) may be loaded as necessary.
- B. Platform Server Operating System
1. Platform servers may utilize any operating system deemed appropriate such that the server provides the following functionality equivalent to that provided by Microsoft Windows based servers and such that the implementation is transparent to end-user Software:
 - a. Shared network and shared printers that provide suitable access control mechanisms.
 - b. End-user authentication infrastructure that at least meets the terms specified in the IATA CUPPS Technical Specification.
 - c. Preferred operating system is Microsoft's latest compliant version Server OS.

- C. MATIP Gateways Operating System
 - 1. MATIP Gateways are required to use Windows OS, configured with English as the default language.
- D. Hardware Abstraction Layer (HAL)
 - 1. The CUPPS platform shall provide a hardware abstraction layer for all CUPPS managed hardware devices, including the necessary servers, workstations, devices, etc., such that a change in the hardware manufacturer, hardware, firmware, or similar embedded functionality, operating system drivers, etc., is transparent to the applications that may make use of the hardware.

4.4.4 CUPPS System Requirements

- A. The system shall adhere to a Client / server model.
- B. The system shall support peripherals connected over:
 - 1. RS232C Serial Interface
 - 2. Universal Serial Bus (USB)
 - 3. Parallel port interface (for dot matrix printer)
- C. CUPPS workstations shall be mutually independent of each other.
- D. CUPPS workstations shall be able to send data to a peripheral device which is physically connected to another workstation.
- E. The Contractor's system shall:
 - 1. Support each airline's host system.
 - 2. Support the integration of other applications in an open systems environment.
 - 3. Utilize industry standard components with a modular system architecture for ease in making additions and changes without adversely impacting performance or requiring equipment replacements.
 - 4. Be designed with redundancy to include servers and other major components so that there is not any single point of failure which can cause operations to be disrupted. This redundancy shall also include major network components and power supplies. System shall also be protected with a full backup that is backed-up on a daily basis and available for immediate data restoration.

5. Support a single login to authenticate the specific user to all the different systems that the user may require access to.
 6. The system shall also support the capability of a login with biometric authentication by way of fingerprints. (optional)
- F. System shall support wireless and other connectivity methods.
- G. The system shall support the legacy airline protocols by using the MATIP gateways to perform the necessary protocol handling.
1. The system shall support MATIP for those airlines that have already implemented this connectivity.
- H. System shall support web access to operations and site performance information as a management tool.
- I. The system shall support the following capabilities for increased security:
1. The Contractor's CUPPS solution must be implemented in such a way that it performs in a PCI DSS-compliant manner.
 2. For IP networks, a firewall shall be provided to block all traffic until a user is authenticated.

4.4.5 Hardware COUNTS AND Configuration

- A. The Common Use Passenger Processing Systems are based on the following:
1. 17 ticket counter positions
 2. 6 gate counters
 3. 2 (LOST AND FOUND)
 4. 2 (TRANSFER FACILITY)
 5. List of Airlines:

Item	IATA code	Airline Name	Software Operator	System Name
1	SA	South African Airways	SITA	AMADEUS: Customer Management (CM) Flight Management (FM)
2	4Z	Airlink	Amadeus	Altea CM
3	ET	Ethiopian Airlines	Sabre	Sabre
4	WA	West Air	Ink DCS	INK DCS

5	TAAG	Angolan Airlines	Amadeus	Altea
6	EW	EurowingsDiscover	Amadeus	Altea
	EW	EurowingsDiscover	LH Systems	cFront app. suite
	EW	EurowingsDiscover	Zebra powered by Android	Quantum Aviation Solutions, BRS

B. Ticket Counter Position: The typical Common Use Passenger Processing Systems hardware complement of a ticket counter position shall be:

1. One (1) CUPPS WS with 17 or 19-inch monitor
2. One (1) ATB
3. One (1) BTP
4. One (1) MSR/OCR
5. One (1) LSR (Optional)

C. Gate Counters: Gate counters shall be 6-position counters. The typical Common Use Passenger Processing Systems hardware complement of a gate counter position shall be:

Note: Counts will be project specific, based on counter design.

1. 6 CUPPS WS with 17 or 19-inch monitor
2. 6 DCP
3. 6 MSR/OCR
4. 6 BGR

D. Transfer Counters: Transfer counters shall be 2-position counters. The typical Common Use Passenger Processing Systems hardware complement of a transfer counter position shall be:

Note: Counts will be project specific, based on counter design.

5. 2 CUPPS WS with 17 or 19-inch monitor
6. 2 ATB
7. 1 BTP
8. 1 MSR/OCR

E. **Other Locations: These will be project specific.**

- F. Lost and Found Counters: Lost and found counters shall be 2 -position counters. The typical Common Use Passenger Processing Systems hardware complement of a lost and found counter position shall be:

Note: Counts will be project specific, based on counter design.

9. 2 CUPPS WS with 17 or 19-inch monitor
10. 2 DCP

4.4.6 References

- A. The latest printed edition of the publications listed below form a part of the Specification to the extent referenced.
- B. References:
1. Association of European Airlines (AEA) Technical Specifications
 2. International Air Transport Association (IATA)
 - a. IATA Recommended Practice ("RP") 1797; Common Use Passenger Processing Systems (CUPPS) Recommended Practice, Technical Requirements and Technical Specification
 - b. IATA RP 1740a; Baggage Tag Media Quality Guidelines
 - c. IATA RP 1740c; Radio Frequency Identification (RFID) Specifications for Interline Baggage
 - d. IATA RP 1706c; Common Use Self Service (CUSS)
 - e. IATA Resolution 722c; Automated Ticket/Boarding Pass – Version 2 (ATB2)
 - f. IATA Resolution 722e; Automated Ticket/Boarding Pass (ATB) and Multiple Purpose Document (MPD) – Coupon-by-Coupon Technical Specification
 - g. IATA Resolution 740; Form of Interline Baggage Tag
 - h. IATA Resolution 792; Bar Coded Boarding Pass

4.4.7 Design

- A. The design of the Common Use Passenger Processing System shall be based on standardized components and software as defined in IATA Recommended Practice 1797 – Common Use Passenger Processing Systems (CUPPS) Technical Specification.

4.4.8 CUPPS LICENSE

- 4.4.9 The CUPPS license shall be based on number of Active Workstations. Operators logged-in and actively engaging with application/s considered as “Active Workstations”.
- 4.4.10 The CUPPS solution to be licensed (Concurrent) for minimum of 40 Active Workstations.

4.5 COMMON USE SELF SERVICE KIOSK

4.5.1 GENERAL OPERATING REQUIREMENTS

- A. The Common Use Self Service (CUSS) System at the Airport shall operate in the following manner:
 - 1. CUSS shall permit customized airline check-in and electronic ticketing by passengers on a shared system to include the generation of required documents.
 - 2. System shall deploy touch screen technology for ease of use by the passengers
 - 3. Software platform shall be compliant with the latest IATA CUSS 1.3 standard at least.
 - 4. System shall be capable of remote diagnostic testing, remote management, and remote collection of statistical data.
 - 5. System shall be PCI-DSS certified for payment capability in the future, common use payment solution is a plus. CUSS Kiosk hardware shall be ready to accommodate payment equipment, in an integrated design.
 - 6. System shall be ready for biometric enrollment, any reference here of works already done would be a plus.

4.5.2 HARDWARE REQUIREMENTS

- A. All hardware requirements given are the minimal acceptable requirements for the system.
 - 1. Equipment located in Core Rooms shall be rack mounted.
- B. CUSS kiosks shall have the following minimum hardware configuration:

1. PC with latest Core Duo processor, minimum
2. 19" LCD with multitouch touch screen overlay
3. Full page document scanner and OCR reader
4. Three (3) track magnetic card reader
5. Wide format GPP for boarding documents
6. 1D/2D bar code scanner, capable of reading bar codes from both paper and mobile devices, in the following formats: PDF417, DataMatrix, Aztec and QR
7. Baggage Tag Printer for BTP printing capability at the CUSS Kiosk
8. UPS battery backup and separate remote power management.
9. Durable enclosure and capable of customized brandingDoor open sensor

4.5.3 SOFTWARE REQUIREMENTS

- A. Software platform must be compliant with the latest IATA CUSS standard.
- B. The software platform shall include the following applications:
 1. A launch application that provides access to airline-specific applications.
 2. A core application whose function it is to manage all kiosk hardware and software modules specific to the kiosk and the interactions between them.
 3. A system manager function to monitor all software modules and report errors to the remote management system.
 4. An automated remote file update capability for the OS and platform software.
 5. A remote configuration capability for updating static information required by CUSS.
 6. A capability for windows services to auto-restart if they should fail, as required to maintain continuous operations.

4.5.4 SYSTEMS REQUIREMENTS

- A. The Contractor's system shall:
 1. Support connection to each airline's remote CUSS application server.
 2. The system shall use industry standard components with a modular system architecture for ease in making additions and changes without adversely impacting performance or requiring equipment replacements.
 3. All major system hardware components shall be designed with redundancy to include servers and other major components so that there is not any single point of failure which can cause operations to be disrupted. This redundancy shall also include major network components and power supplies. System shall also be protected with a full backup that can be backed-up on a daily

basis and available for immediate data restoration.

4. ATB printers and Gate Readers shall support 2 Dimensional Barcode (2DBC)
5. System shall support an automated method to collect usage information for billing purposes, on a time signed in basis.

4.5.5 PERFORMANCE REQUIREMENTS

- A. A Service Level Agreement (SLA) shall be established as part of the performance requirements. The SLA will include, at a minimum, the hardware, software, and network performance specifications for the CUSS kiosks. It will also include the system availability requirements, system response time requirements, and fault repair response time requirements.
- B. A CUSS kiosk shall be available at least 99.5 percent of the time. To be available, the kiosk must be fully functional.
- C. Statistical data needs to be available 24x7 via a password protected web site. Reporting web site needs to provide standardized reports, as well as the ability to customize the reports. Reports should be printable in a pdf format, and include the following:
 - Reports by day, week, month
 - Reports by population of kiosks, or subsets thereof
 - Reports programmable by application provider (airline), or by total
 - Both SLA and kiosk usage reports. Usage reports to include the following:
 - Usage by application provider, both in number of events, and overall usage time
 - Display event types, e.g. events which result in the printing of a document, and categorization of events without a printed document, including agent rework, curiosity events (e.g. screen touches) and aborted transaction (by the CUSS platform)
 - Maintain and display a log of CUSS events by application provider, e.g. initialized, active, available, unavailable, and stopped

4.5.6 MANAGEMENT REQUIREMENTS

- A. All CUSS kiosk components shall be capable of being Simple Network Management Protocol (SNMP) managed. Further network management requirements shall be coordinated with the appropriate construction specification for "Local and Wide Area Networks". All devices, including printers, must be SNMP manageable.

4.5.7 HARDWARE COUNTS

- A. The following section only provides general guidelines for hardware counts. For the exact hardware count will be found in the Contract for this Project. The CUSS kiosk counts will be based on the following:

1. 2 x. Self-Service Check-In Locations

4.6 Baggage Reconciliation System. (BRS)

4.6.1 Introduction

Baggage Reconciliation Systems (BRS) is widely used by airlines and airports to reconcile baggage to passengers during the departure process and also to improve the efficiency of their baggage-handling operation. BRS comprises a baggage database with a series of additional functions at the disposal of the user to provide baggage management capabilities.

The BRS shall use state of the art technology and provide the following:

- A high availability computing environment
- A database holding all the baggage operational data
- Functionality for reconciling bags with passengers
- Functionality for tracking bags around the airport
- Interfaces to airline Departure Control Systems (DCS), both local and remote
- Mobile computers capable of scanning bag tags
- Report printing

Bags checked in by passengers are delivered to the baggage make-up area by the airport baggage handling system (BHS), where they are loaded into either Unit Load Devices (ULDs) or baggage carts. As the bags are loaded, the bar coded bag tags are read by staff using a hand held computer and sent to the BRS database. Guidance is given by a BRS response to staff as to whether they may or may not load the scanned bag. The BRS will be able to track which bags are contained in specific ULDs and carts if required to be offloaded later on. The BRS will await notification of boarded passenger at the departure gates. At flight closure BRS will provide the baggage handlers with the ULD location of any bags belonging to non-boarded passengers. No bag will be loaded onto an aircraft if passenger has not boarded. The aircraft will not depart until all bags have been reconciled with passengers.

4.6.2 Scope

4.6.2.1 BRS (Baggage Reconciliation System) Overview

- A. The BRS shall run on a cloud system. The. Cloud system should be redundant.
- B. The BRS supplier shall provide
 1. Cloud System
 2. System Administrator Workstations including:
 - a. data input
 - b. system control
 - c. management devices
 - d. software
 3. Operator Workstations including data input and system control and management devices and software

4. Necessary firewalls necessary to interface with external systems
5. Cabling to connect equipment to the network and power infrastructure
6. Document printers
7. Bag Tag Printers
8. Test and Training Environment

4.6.3 Functional and Technical Requirements

4.6.3.1 General System Requirements

- A. User equipment shall include PC based workstations, printers, mobile terminals designed for robustness and ease of use.
- B. The system shall be suitable for use by airlines, ground handling agents and duly authorised bodies such as police and/or regulatory authorities.
- C. The system shall provide a real-time, interactive Baggage Reconciliation System (BRS), which allows baggage handlers to make a bag load/no-load decision based on real time information.
- D. The BRS shall be designed to handle locally checked bags, transfer bags, expedite bags and gate bags for both containerised and bulk loaded operations.
- E. The BRS shall be integrated with third party systems including the common use check-in system, flight information display system, IATA RP1745 message distribution (SITA BagMessage) and IATA WorldTracer.
- F. The BRS shall be designed to be highly available and resilient to failure, such that it is suitable for operation 24 x 7
- G. The BRS shall be designed to be readily adapted to new technology and features.
- H. The supplier shall demonstrate a thorough understanding of the issues facing airlines, handling agents and airport operators, including making data available to the authorities.
- I. The BRS shall comply with IATA 1745 Recommended Practice, (31st Edition) and with ICAO Annex 17.

The supplier shall provide a comprehensive support model to support the infrastructure and user equipment.

4.6.3.2 System Sizing

- A. The BRS supplier shall size the solution and number of workstations and handheld terminals (HHTs) based on handling [X] million departing passengers per annum. However, the solution should be scalable to handle up to [X] million departing passengers per annum in the next 5 years.
- B. The BRS shall provide immediate user access to historical baggage data for up to three months.
- C. The BRS supplier must provide details of any system sizing limitations in terms of the maximum number of flights that may be handled per day and simultaneously, number of bags that may be handled per peak minute, number of bags for which data is retained in the system and for how long.
- D. System Availability shall exceed 99.9% measured over a rolling three-month period.

4.6.3.3 Standards

The following documents and standards (“Standards”) shall apply to BRS:

- A. The BRS supplier works shall be provided to comply with:
- B. all Statutory Agency requirements.
- C. all Applicable Laws and regulations.
- D. The BRS supplier shall show that relevant Standards have been selected and applied and, by testing or otherwise, demonstrate that compliance has been achieved.
- E. ICAO Annex 17
- F. Support for messages defined in IATA RP 1745 of the latest version of the IATA Passenger Services Conference Resolutions Manual.
- G. IEEE802.11 b/g/n for Mobile Terminals.

4.6.3.4 Hardware and Architecture

The BRS design shall support the following requirements:

- A. Provide an Open system architecture which is scalable.
- B. Implement a web-based architecture, utilising central data and application server(s), PC workstations and mobile terminals.
- C. In the event of external systems not being available, the BRS shall be able to

continue to function:

1. If no BSM data has been received, whether due to an airline DCS or message distribution failure, the BRS shall record the container in which a bag is loaded
 2. If BRS is configured for sending BPMs, then the BPMs shall be stored locally until they may be sent
- D. Data shall be stored on at least two separate devices, providing true redundancy.
- E. The BRS shall provide access to the system from the common use check-in workstations.
- F. All plant shall be suitable for the environment in which it is installed.
- G. Provide a system with built-in high availability, providing maximum up time for the server system and communications infrastructure.
- H. Failure of a single component shall not result in the loss of the whole system.
- I. All components of the system constructed in a failover configuration shall be designed such that the failed component can be isolated and replaced or repaired without affecting the operation of the system.

4.6.3.5 Network Infrastructure

- A. Network infrastructure will be provided by the Airports Company.
- B. The supplier shall ensure that the BRS is supported by a resilient and robust local area network providing redundant connectivity between the user equipment and the server system.
- C. The supplier shall provide a wireless network compliant with IEEE802.11b/g/n for the connectivity between the mobile terminals and the server system.
- D. WLAN must provide radio coverage where required by users as specified in a written document and map.
- E. WLANs must connect to the server system via a router/firewall All wireless devices must support WPA encryption.

4.6.3.6 Interfaces

The BRS shall provide a resilient and robust interface to the following third-party systems.

- A. Common Use Workstations
1. The BRS shall provide an interface to the common use check-in system,

enabling access to BRS from any common use workstation.

B. Flight Information System

1. The BRS shall provide an interface to the FIDS3 System.
2. BRS is a client and shall establish the connection to FIDS3 system.
3. The BRS system shall be capable of receiving and displaying the following data in real-time from the Airport FIDS3:
 - Flight number
 - Flight route
 - Flight date
 - Outbound or arrival indicator
 - Gate and stand number
 - Scheduled time of departure/arrival
 - Expected time of departure/arrival
 - Actual time of departure/arrival,
 - Aircraft type
 - List of baggage chutes where bags will be loaded
4. The system shall receive real-time flight information and updates to handle flights with the up-to-date data.
5. The FIDS3 will deliver flight information for the actual day of operation.

C. WorldTracer

1. The BRS shall provide an interface to the IATA WorldTracer system.
2. The BRS system shall be integrated with WorldTracer and shall transmit forward messages as appropriate during the handling of expedite baggage.

D. BagMessage

1. The system shall interface with SITA's BagMessage Service for the reception of baggage information messages from all carriers.
2. Any costs required for the implementation, use and support of this interface shall be included in the supplier's price.

4.6.3.7 User Equipment

The supplier shall supply and support the following user equipment for the BRS system:

Description	Quantity
Workstations	2
Printers	2
Mobile Terminals	8
Baggage Tag Printers	2
Batteries	8
Battery chargers	2

- A. Suppliers shall specify their quantity of recommended spares included within their scope of supply and justify their philosophy for the proposed holding and scaling of spares.
- B. The supplier shall also specify the additional equipment to be provided for the purpose of battery charging.
- C. PC Workstations
 1. The supplier shall provide PC-based workstations for the supervisory functions of baggage reconciliation.
 2. Each PC shall be provided with base unit (small form factor is preferred), 17"/19"/21" monitor, keyboard and mouse.
 3. Each PC shall be protected against virus attacks by suitable antivirus software which shall be updated regularly.
 4. The operating system of each PC shall be regularly updated with operating system
- D. Document Printers
 1. The supplier shall provide printers for the purpose of producing reports and IATA standard container sheets/ULD cards.
 2. The printers shall be capable of printing bar coded media.
- E. Mobile Terminals (HHTs)
 1. Mobile terminals will be used by baggage handling agents in the baggage make-up area, belts, and on the apron to scan the bar codes of bag tags to identify the individual piece of baggage to the BRS.
 2. The mobile terminal will have the following characteristics:

3. Windows Mobile 6.5 operating system
4. A minimum ¼ VGA screen (240x320 pixels, portrait mode. Full VGA preferred)
5. Minimum 128MB RAM
6. Alpha-numeric keyboard
7. Audio sounder
8. Bar code reader capable of decoding code 39 and code 2-of-5 codes
9. Must weigh less than 1KG (including battery)
10. Support IEEE 802.11 b/g/n
11. Support EAP/LEAP network authentication and WPA2 security
12. Weatherproof, rugged, and robust (IP 64 standard minimum, IP67 preferred):
13. Withstand vibration levels of 10 100Hz with 2g for 1 hour.
14. Withstand repeated drops of at least 1.6m onto concrete.
15. Operating temperature should be between 0 C and +40 C.
16. The Supplier should deliver the mobile terminals with appropriate accessories such as a holster & strap, protective covers, and recharging devices.
17. The re-charging device shall be able to re-charge 1/2/4 batteries simultaneously in 4 hours.
18. The Supplier should provide at least one spare battery for each mobile terminal.
19. The hand-held terminal application shall have a web-browser user interface and use both colour and sound for warnings and alerts.

F. Baggage Tag Printing

1. The BRS shall be capable of printing baggage tags for the purposes of processing expedite baggage (RUSH tag printing) and for the printing of replacement baggage tags where a tag has become damaged or detached.
2. The BRS shall produce baggage tags which shall be customizable to

a specific airline or ground handler baggage tags format.

3. The BRS shall be capable of producing container sheet labels on bag tag stock as an alternative to the printing of container labels on paper or card.

4.6.3.8 Functional Requirements

A. General

The BRS shall meet the following functional requirements. Please indicate if your product is compliant, partially compliant, or non-compliant:

1. Track the movement of baggage from check-in to flight departure
2. Informing users whether a specific bag may be loaded according to the information specified in IATA baggage information messages, the flight information, and the airline baggage segregation policies applicable to the flight.
3. Deal with all types of flight operations including scheduled, charter and low-cost carrier flights.
4. Support for flights with up to 4 classes of passengers (First, Business, Premium economy, and Economy).
5. Support loading and unloading of baggage in Unit Load Devices (ULDs) or carts.
6. Allocate ULDs and carts to flights and recording details of bags as they are loaded into containers or holds.
7. Record the position of ULDs on aircraft and bulk-loaded baggage in the aircraft holds.
8. Produce Flight Manifest listing ULDs and Holds and their contents.
9. Determine which bags have been loaded, and produce flight reconciliation reports that identify missing bags, not loaded bags, bags to be offloaded.
10. Clearly identify using sound and colour alerts bags that must be off-loaded and provide clear/relevant information that will enable users to quickly locate the bag and remove it.
11. Provide real-time flight information to the baggage handling staff on their mobile devices, based on the latest available information from the flight information system.
12. Provide comprehensive tools for enquiry and management information,

including a full audit trail.

13. Provide archived information for up to 90 days, containing full details of the flights handled, the baggage loaded on to them.
14. The BRS shall be capable of issuing a post-flight Baggage Manifest Message and be able to e-mail or teletype using SITA Type 'B' messaging to downline stations.

B. Loading and Offloading Baggage

The proposed BRS must as a minimum:

1. When a bag is presented for loading, clearly and unambiguously, using sound and colour, indicate to a user if a bag may or may not be loaded, based on an evaluation of all security information, baggage segregation definitions, and airline policies concerned.
2. Permit bags to be loaded in ULDs, baggage carts, or directly to an aircraft hold.
3. Distinguish between and display totals for bags loaded in baggage carts and unpositioned ULDs, and bags onboard the aircraft, whether in a hold or a ULD.
4. The evaluation of a bag to load must include the following security information, provided in the BSM for the bag:
5. The Authority Load element
6. The Authority to Transport element
7. The active/inactive tag element
8. Whether the passenger is checked-in or not
9. Whether the passenger is on standby
10. Whether the passenger is a high-profile passenger
11. If the bag has been cleared by the X-ray screening system
12. The evaluation of a bag to load must take account of airline policies for the following:
13. Whether or not to load bags for a checked-in passenger
14. Whether or not to load bags for a passenger not checked-in
15. Whether or not to load bags for a standby passenger

16. Whether or not to load bags for a high-profile passenger
17. The evaluation of a bag to load must take account of baggage segregation rules for the ULD, cart or aircraft hold where the bag is intended for loading:
18. The flight for the bag corresponds with the flight assigned to the ULD or cart.
19. The destination of the bag corresponds to the destination assigned to the ULD or cart.
20. Any other segregation criteria
21. If a bag is approved for loading BRS shall record the ULD or cart identification, the handler identifier, the bag identifier, and the load sequence number of the bag in the baggage container. A BPM shall be sent to the appropriate airline host.
22. If a bag is not approved for loading, the keyboard shall be locked to prevent further action until the user has acknowledged the response. The following information shall be recorded: the ULD or cart identifier, the handler identifier, the bag identifier, the flight number and date, and an error reason.
23. If, at any time, a bag needs off-loading because of a BIM or a user requiring the bag to be stopped, an audible and an alert warning in colour shall be given to all users working on the flight.
24. BRS shall provide the information necessary to allow a bag to be offloaded. It must identify and provide the user with the ULD, cart, or bulk hold that the bag has been loaded into; an indication of the location of the bag in the ULD, cart or the hold by means of a loading sequence number.
25. A user must be able to offload an individual bag requiring offloading. The offloading shall be confirmed by scanning the tag of the bag to be offloaded.
26. Any bag may be offloaded after a warning and user confirmation.
27. A user must be able to offload all bags on a flight, or all bags in a ULD or cart in a single transaction
28. If Baggage Information Messages are unavailable, or if an airline cannot provide such messages, bags must be permitted to be loaded. BRS must record the ULD or cart where the bag was loaded and its position within the loading device.
29. The BRS shall record all loading information about the bag and keep full

history of events associated with the bag.

30. The system shall be able to print and/or display a complete manifest at any time. The manifest will list the details of all the loaded bags.

C. Warning and Alerts

1. The BRS should generate warnings and alerts and display them to users until problem is solved - for example, when a bag requires attempts to load an authorised bag into an incorrect ULD or Hold.

D. Expedite (Rush) bags

1. BRS shall provide a function that allows only authorized users to add Rush Bags to the system without a BSM being received.
2. Any RUSH bags on a flight must be manifested as such.
3. When a bag has been successfully expedited, the system shall, if required:
 4. Send a BPM to the airline host
 5. Send a BSM to the airport sorting system.
 6. Send a FWD message to WorldTracer
7. Users shall be able to expedite bags using the original tag number or a new tag number.
8. Users shall be able to deal with expedite bags that have lost their original tag.
9. Users shall be able to expedite multiple bags going to the same destination in a single transaction
10. The expedite process shall take account of any restrictions that may be placed on expedite baggage by individual carriers.

E. Gate bags (bags checked-in at the gate)

1. For Gate bags the BRS shall allow the creation of a new tag number entry and associates it with the sequence number of the corresponding passenger.

F. Crew Bags

1. Crew bags notified by an airline DCS or created by the BRS itself shall be

accepted for loading.

2. It shall be possible to generate and print crew tags directly from the BRS. If a tag number is allocated, it must not duplicate that of other bags already in the system.
3. Crew bags shall be manifested as such.

G. Standby bags

1. Standby bags may be loaded according to an airline policy.
2. If an airline policy has been set, standby bags may be provisionally loaded to a cart or ULD but may not be placed on an aircraft unless the bag has been confirmed as authorised to load.

H. Other types of bags

1. The BRS shall provide a solution for dealing with unreadable bag tags (i.e., bags with a bag tag that cannot be scanned).
2. The BRS shall provide a solution for dealing with bags with no tags.
3. BRS shall provide a solution for dealing with different bags with the same tag number (duplicate tags),
4. The BRS system shall provide a solution for dealing with damaged bags

I. Transfer Bags

1. BRS shall provide colour views of inbound transfer bags showing their inbound connecting flights, the numbers of transit bags with an onward connection, and numbers and tags details of those bags with onward flights
2. BRS shall provide views of departure flights with a summary of which inbound flights inbound contain transfer bags for the outbound flight.
3. The BRS shall support "Tail to Tail" operations whereby transfer bags are taken directly from one aircraft to another, without going through the baggage make up area.

J. Onward connecting bags

1. BRS shall provide views and totals of onward connecting bags per flight and per destination.

K. Flight Management

1. BRS shall provide an overview of imminent departures and arrivals. The list must be sortable by different criteria, such as: time, flight number, flight status, and destination.
2. The flight overview must show a loading status indicating the number of checked, loaded or rejected baggage of different types.
3. The status of the flight, regarding baggage activities must include Open, Closed, Departed, Arrived and Cancelled.
4. The flight status must be amendable manually or by messages received from FIS messages.

L. Flight Creation

1. Flights may be created in the BRS:
2. Upon reception of an appropriate 'create flight' message from the Flight Information System
3. Based on flight schedules and/or manual input within the BRS
4. By an individual, (manual flight creation).
5. Any Baggage Source Messages (BSMs) received before a flight is created must not be rejected or lost.

M. User Management and Security

1. Indicate if there is any restriction in the number of BRS users
2. Users can be members of either an airline or ground handling agent (GHA).
3. Multiple ground handling agents shall be supported.
4. A GHA shall be able to handle flights of any airline that it is contracted to handle according to different baggage handling policies of each airline.
5. Users shall not be able to view, modify or process data of flights not handled by their airline or GHA.
6. A GHA shall be able to delegate the handling of flights to another GHA, if required, for operational reasons. Both GHAs must be able to update the flight. The delegated GHA must only be able to access the delegated flight, and no other non-delegated flights from the same carrier.

7. Each user shall be assigned to a “role” which defines the functions that the user can access. The roles shall be defined by the system administrator(s).
8. User passwords shall be stored in an encrypted form. Only a user may change their own password.
9. A system administrator shall be the only one having access to all flights from all GHAs.

N. ULDs, carts and bulk holds:

1. The BRS shall provide a mechanism to register ULDs or carts to their appropriate flight, and to print bar coded container sheets.
2. It shall be possible to produce a list of ULDs, carts or holds designated for a flight, along with details of their contents.
3. When dealing with ULDs or carts, the user must be able to identify the loading device by use of the bar-coded container sheet, or a bar coded representation of the ULD or cart identification string (e.g., AH7651ZZ)
4. Two or more container sheets may be assigned to a single ULD or cart, each having different baggage segregation characteristics.
5. BRS shall provide a function to warn users when a ULD or cart is full, according to a pre-defined number of bags that may be loaded.
6. BRS shall provide a facility to allow a user to close a ULD or cart so that no more bags may be loaded into it.
7. Before the loading device may be closed, the user must be warned of any bags requiring offloading in the loading device.
8. A baggage handler must be able to record the position of the ULD in an aircraft by scanning entering the position that the ULD is to occupy.
9. A ULD may not be positioned if there are any bags that require offloading due to security or segregation reasons.
10. It must be possible to remove a positioned ULD from the aircraft.
11. The BRS shall freely allow transferring all bags between ULDs, aircraft holds and baggage carts on the same flight.; Bags must be able to be moved:
12. From a ULD to a cart to a different ULD, or to an aircraft hold
13. From a baggage cart to a ULD, to an aircraft hold, or to another cart

14. From an aircraft hold to a cart to a different hold, or to a ULD

O. Baggage Segregation

1. The system shall allow each cart, ULD or aircraft hold to be designated to accept only bags with specific attributes, such as, class, destination, onward connection.

P. Tracking

1. Tracking of baggage within the airport is a requirement of the BRS.
2. The BRS shall provide functionality for tracking baggage at any point within the airport. These points will be specified and configured within the BRS system.
3. The BRS handheld terminals shall be able track the bags.
4. BRS shall be capable of receiving BPM data from third party scanners (e.g., a baggage handling system), time stamping and storing such data within the BRS database.
5. BRS shall be capable of alerting users when errors or other conditions requiring notification to users are met.
6. Baggage enquiries carried out on the workstation and mobile terminals shall display the last tracking location.
7. The workstation shall display all bags that have remained in a particular tracking state or location for longer than a pre-defined period.
8. The workstation shall display information about all the bags which were last seen at a specific location, and/or display information about bags which have passed through a specific tracking point

Q. Bag Enquiry

1. BRS must be able to enquire of passenger baggage by different criteria, including bag tag number, passenger name, seat number, passenger security number or passenger check-in sequence number
2. Full flight and baggage details of all bags belonging to a passenger shall be displayed.
3. Any Baggage Information Messages (BIMs) received or sent concerning the bag must be available for display or printing by the user and/or supervisor.

4. The BRS must allow an authorised user to stop the bags belonging to one or more passengers.
5. A bag which a user has requested to stop may not be loaded.
6. Stopped bags may be 'un-stopped' by an authorised user.

R. User Information pages

The BRS should provide a range of information pages for users, including, but not limited to:

1. Flight Monitoring and Flight Status
2. Bags To Go by class, inbound flight and destination
3. Bag Lists by ULD, cart or Hold

S. On-Line Help

1. An on-line help for the BRS application facility shall be available on the workstation.
2. Help screens shall be context sensitive.

T. Language

1. The BRS application shall be presented in the English language.

U. Reports

The BRS shall include a comprehensive reporting functionality, including the following reports:

1. Complete Baggage List per Flight including Load Status of each bag.
2. Baggage Manifest per Flight.
3. Bags Loaded by a User.

Please provide the list of standard reports with a short description of each report. Indicate which reports can be sent by email and/or Type B and are suitable for faxing.

V. Documentation

The Supplier shall provide full user documentation in English, including:

1. Functional Specification
2. User Guides for the BRS application

3. Training materials
4. System Administration and Configuration Guide
5. Logical and Physical network implementation drawings

W. Training

1. The Supplier shall provide training to airline and GHA training staff, who will pass on the training to other staff.
2. Training sessions shall be delivered in English.
3. All training materials shall be provided in the English language in digital form.
4. The Supplier will perform the BRS system (hardware/software) maintenance support during the contract term.
5. The Supplier shall provide regular software upgrades. These upgrades will include functional or performance enhancements, new features, bug fixes and updates to ensure BRS is compliant with the current IATA specifications.
6. Software upgrades shall be installed remotely.
7. The Supplier shall provide following maintenance and support service:
 - a. System monitoring (24x7x365) of the infrastructure elements (servers, operating system, network equipment etc.)
 - b. Monthly reporting indicating compliance with the contracted Service Level Agreement.
 - c. The Supplier shall provide a help desk (24x7x365) in English.
 - d. Provide a copy of your standard Service Level Agreement specifying your response times and levels of support.
 - e. Provide a simple diagram that indicates how requests for support are handled and escalated should the need arise.

X. Warranty

1. The Supplier shall describe the scope and term of the hardware and software warranties offered.

4.6.3.9 Interfaces:

1. The CUPPS System shall interface with the airlines' hosts for transactions.
2. The CUPPS System shall interface with the Local Departure Control System (LDCS) servers for transactions. (If installed)
3. The CUPPS System shall interface with the Baggage Handling System on the airport to provide active/non active Baggage Service Messages (BSMs).
4. The CUPPS System shall interface to the scales at each check-in counter.
5. The CUPPS System shall interface with the Flight Information Display system (FIDS).
6. The CUPPS System shall interface with the Airport Information Management System (AIMS).

4.6.3.10 Other Requirements

1. The System shall be scalable and expandable to accommodate future increase of number of workstations in any of the deployed Airports.\
2. The workstations in the Airports shall be connected to the CUPPS VLAN either wired through 1 x Gigabit or 10/100/1000 MBit TX NIC or wireless through RF wireless network (802.11b/g/n) only in baggage make-up areas.
3. The CUPPS Application servers shall be located in the HKIA Core rooms and shall provide the capability for remote monitoring.
4. CUPPS servers shall be installed in Core rooms. It is required that each airline shall use the IP circuits provided by the Bidder.
5. The System and applications software are controlled and configured by working parameters stored in tables and easy to change without programming actions.
6. User interaction with the System shall incur no noticeable delay in line with airline application specifications.
7. The System shall be able to accept a wide range of CUPPS compliant input and output peripherals
8. The System shall provide multiple levels of password-protected security.
9. The Passenger Processing Systems (CUPPS and CUSS) at HKIA airport shall operate as an integrated platform performing all required processes. Any of the Passenger Processing Systems shall exactly perform in a common-use environment.
10. The Passenger processing processes at HKIA may require capturing, scanning and storing Passenger Travel Documents information. Such process shall use the peripherals provided by the passenger processing systems at the Check-in and gate areas.
11. The CUPPS workstations shall be integrated with scales at the check-in counters where the airline users can weigh, tag, and drop checked-in luggage.
12. The Bidder shall install all core equipment required for the CUPPS system in order to be fully operational.
13. The Bidder shall do quarterly redundancy and disaster recovery tests and provide reports with the results to the EMPLOYER. Immediate actions shall be taken to resolve failures.

14. The platform software consists of all the software required to enable CUPPS functionality, including all operating systems, databases, data exchange software where required, except those supplied by the application providers (airlines).

4.6.3.11 Deliverables

4.6.3.11.1 Compliance

4.6.3.11.1.1 CUPPS

Common Use Passenger Processing System (CUPPS) shall include check-in counters, boarding gates, lost property counters and other passenger processing areas as defined in this RFP. The CUPPS shall be fully compliant with the latest IATA (1797)/ATA (30.201)/ACI (500A07) Recommended Practice, Technical Requirements, and Technical Specifications, and shall allow multiple airlines to operate in the facility using their host software and a common set of compatible hardware, increasing the flexibility and efficiency of the facility.

The CUPPS shall also include a Common Use Management Application in order to provide usage data and peripheral status for common use positions. The System and its peripherals shall also conform to all other IATA related recommended practices and standards.

4.6.3.11.1.2 CUSS

CUSS (Common Use Self-Service Equipment) shall be fully compliant to IATA Recommendation Practice 1706c V 1.0 and later. The System and its peripherals shall also conform to all other IATA related recommended practices and standards. The Self-Service Kiosk shall provide ticketed passengers (passengers with e-tickets) the ability to perform many tasks, not limited to, check in for a flight, select or change a seat assignment, obtain a boarding pass for their departures and print bag tags for their check-in luggage. The system shall allow passengers to perform self-baggage check-in, allowing passengers to print the required number of bag tags, label their bags and drop their check-in luggage at a special assigned check-in luggage drop-off counter. At the drop-off counter the check-in luggage will be weighted under supervision of ground handling staff. When the bag is accepted, it will be inducted into the BHS conveyor according to the BHS procedures. The special assigned drop-off location can be an existing check-in counter. The CUSS should be used by passengers in a common shared environment. The CUSS architecture shall include the Kiosk Hardware Platform, Software Platform (CORBA layer for peripherals), and IATA compliant printers and readers, CUSS compliant applications such as the Common Launch Application, Management Application as well as the airline's applications. Each participating airline shall provide its own IATA CUSS Compliant applications.

4.6.3.11.1.3 General Compliance

All Specifications included in this design shall be used as functional performance-based specifications. The successful bidder shall be responsible for completing and coordinating requirements necessary to design, furnish and install fully engineered and functional systems. These requirements include any site analysis, furthering of design documents, determination of quantities of equipment, verification of existing conditions and external service providers, and the like. It shall be the responsibility of

the Bidder to provide any additional equipment, software, arrangements or infrastructure necessary to complete the system commissioning.

In wake of the recent pandemic declared during March 2020, due to the COVID-19 outbreak, the design and functionality of the systems must allow for contactless exchange of information between the passenger and the different airport stakeholders such as the airlines. The functionality of the entire system is very much depended on safe operation and to ensure as less contact as far as possible to avoid the spread of the coronavirus disease (COVID-19).

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5. MAINTENANCE AND SOFTWARE RIGHT-OF-USE

Supplier shall engage with NAC for a support agreement for five (5) years period commencing from user acceptance testing (UAT).

The supplier shall propose software license and maintenance agreements accordingly.

The bidders shall also specify the contractual/administrative procedures (for licensing and software maintenance) should the airport wish to install additional workstations after the solution's initial implementation.

5.1 Scope of Maintenance

The system provider shall deliver Level 3 support in English.

Level 1 and 2 maintenance also known as preventive maintenance will be carried on by the NAC Technical staff.

After final acceptance of the solution, the system provider shall intervene:

- For hotline/helpdesk line,
- or correction of anomalies,
- For updates (new software versions).

In their proposal, the bidders shall describe their maintenance services methodology.

Software maintenance includes an obligation of results to carry out:

- Development and implementation of temporary corrections or emergency bypassing solutions when applicable and according to the type of anomaly,
- Supply of new versions,
- Delivery and installation of new versions.

5.2 Remote Maintenance/Hot Line/Helpdesk Line

The bidders shall describe the terms and conditions for their hotline service.

NAC will provide a list of people entitled to contact the supplier's hotline.

The selected bidder shall commit to answering all questions/support requests emanating from these people, taking into account the criticality of the request and/or the level of the reported anomaly

5.3 Corrective Maintenance

The Supplier shall provide a technical support center (service desk) for corrective maintenance.

The supplier shall have an obligation to provide all necessary resources and take all necessary steps to eliminate the observed errors/failures on the CUPPS software platform.

- NAC shall perform 1st level of corrective support and maintenance.
- NAC will also perform level 2 maintenance activities (see details in the section Maintenance training).
- NAC shall enable remote access to the CUPPS software platform for the supplier.
- 3rd level of support and maintenance (engineer's support) shall be provided remotely by the supplier.

5.4 Correction of Anomalies

Three categories of anomalies will be considered, leading to different types of processing:

- Blocking,
- Non-blocking with high priority,
- Non-blocking with low priority,

The blocking or non-blocking nature as well as the anomaly priority will be determined by NAC.

Both NAC and the supplier shall commit to hold up to date a maintenance log. This log will include all anomalies and interventions carried out within the frame of the contract.

5.4.1 Blocking anomaly processing

Upon receipt by email of an anomaly description, the supplier shall undertake to find a solution correcting the anomaly or allowing to bypass it within a maximum of one (1) hour. When situations arise preventing access to systems NAC and the supplier shall find alternative solutions to ensure the airlines and ground handler can continue with their operations.

If a solution allowing to bypass the anomaly has been implemented the final solution will be installed and tested within 5 days.

5.4.2 Non-blocking with high priority anomaly processing

Upon receipt by email of an anomaly description, the supplier undertakes to provide a final correction within 5 days in test-environment.

NAC will confirm this correction on a set of tests coming from real data, within 2 days from receipt of the correction in test-environment. After the Airport's agreement the supplier will install the correction on the operational site.

The installation time will not exceed 15 days from the Airport's agreement

5.4.3 Non-blocking with low priority anomaly processing

Upon receipt by email of an anomaly description, the supplier undertakes to provide a final correction within 15 days in test-environment.

NAC will confirm this correction on a set of tests coming from real data, within 2 days from receipt of the correction in test-environment. After the Airport's agreement the supplier will install the correction on the operational site.

The installation time on operational site will be determined by mutual agreement between the Airport and the supplier and will not exceed 1 month from the Airport's agreement.

5.5 Progressive Maintenance

Within the scope of maintenance, the supplier shall deliver, upon request by NAC, the latest released software version at no extra cost.

The supplier shall provide all the details related to its service helpdesk such as phone number, e-mail, and standard opening hours.

5.6 Training

The supplier shall provide:

- Train-the trainers training
- Training for system (software, hardware),
- Training for software/system administration,
- Training for software use,
- Training for maintenance,
- Possible specific training.

The proposals should include a description of the bidder's training methodology and content.

For each type of training described above the bidders shall specify:

- The purpose of the training,
- The participant profile,
- Knowledge pre-requisite,
- Content/outline of the training.

The bidders shall specify the number of sessions required, their duration and the maximum number of persons per session.

The selected supplier shall provide differentiated training for the system's supervisors/administrators and the regular users.

The regular users (airline/ handler staff) should have a general knowledge of the software. They should be trained on the day to day operation of the system, including basic trouble shooting.

- The NAC's Technical team should receive a specific administrator's training. This transfer of knowledge to computer engineers should allow them to:
 - acquire a good knowledge of the architecture of the suggested software
 - master the whole of procedures
 - ensure the database administration
 - be overall independent in managing the systems

5.6.1 Maintenance Training

Consequently, the supplier shall train the NAC's technical team to ensure the hardware maintenance on its own, based on the "train the trainers" principle. This training should allow the NAC technical team to recognize the types of technical hitches, and include all recovery procedures after technical hitches.

The supplier shall also deliver Level 1 and 2 software maintenance training to the airport's technical IT team.

After the completion of training, the system administrators should be able to:

- recover the system in case of malfunction or interruption of regular operation,
- reinstall and configure the workstation on which the CUPPS platform is active,
- monitor system and communication links,
- detect and report problems in the functioning of the CUPPS platform,
- manage user accounts.

The Supplier will deliver the following items:

- procedures and instructions for using the CUPPS platform,
- instructions for maintaining the CUPPS platform (technical documentation for all elements of the CUPPS platform).

5.7 Project Implementation

- 5.7.1 Project should be fully completed in 6 months of time after the confirmation from NAC.
- 5.7.2 Please submit the proposed project plan and considered vital in the evaluation. Any proposal without the project plan will be rejected.
- 5.7.3 A dedicated project manager is required during the project period.

6. Evaluation and Qualification Criteria

	Evaluation Criteria	Score
1	Technical Experience	30
1.1	<p>Completed installation and commissioning/after sales services for three (3) CUTE/CUPPS Systems at different Airports over last ten years. Attaching at least 3 reference letters will warrant maximum points.</p> <p>A maximum of five (10) marks will be awarded for each relevant reference letter attached.</p> <p>If the Bidder Completed only after sales services for a CUTE/CUPPS System at the referenced airport, a maximum of five (5) marks will be awarded for each reference attached up to a maximum of 10 marks.</p> <p>No marks will be allocated for projects stated were no verifiable contact details are specified in the form of a reference letter.</p>	30
2	Qualification and Experience of Proposed Technical Staff	10
	<p>Attach certified (even for scanned documents) copy of Qualifications and C.V. as well as duly signed draft agreement/contract for staff not permanently employed by bidder.</p> <p>If no service agreement is provided for staff that are not permanently employed by bidder, such CV and qualifications will not be considered.</p>	
2.1	<p>Contract Manager (Team Leader/Project Manager): has B. Degree in IT Systems and CUPPS Hardware and a minimum 10 years practical works experience on CUTE/CUPPS Systems.</p> <p>A maximum 2 marks will be allocated for the qualification and 2 marks for the 10 years minimum experience on CUTE Systems.</p>	4
2.2	<p>Network Expert: has a B. Degree in IT Systems and Networks with a minimum 5 years practical works experience on CUPPS/CUTE Systems.</p> <p>A maximum 2 marks will be allocated for the qualification and 1 marks for the 5 years minimum experience on CUTE Systems.</p>	3
2.3	<p>Hardware Expert: has a B. Degree in IT Hardware with a minimum 5 years practical works experience on CUTE/CUPPS Systems.</p> <p>A maximum 2 marks will be allocated for the qualification and 1 marks for the 5 years minimum experience on CUTE/CUPPS Systems.</p>	3
3	Compliance to CUPPS Technical Specifications	15
3.1	<p>Compliance of Platform and Applications to CUPPS Technical Specification.</p> <p>CUPPS platform and applications should be certified against a current release of the Technical Specification.</p> <p>Bidders must provide their CUPPS compliance and CUPPS certification.</p>	15

4	Financial Resources	10
4.1	Financial Statements, audited for the last three years (attached copies)	3
4.2	Letter of intent from commercial entity to provide required performance guarantee for this contract.	3
4.3	Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, minimum line of credit N\$ 10,000,000.00. Attach copies of support documents.	4
5	Maintenance and Support	15
5.1	Bidders must provide technical methodology on their Support Service Model. Detailed procedure on the process management involved in the provision of service provision as well as the timeframes and minimum response times to resolve problems.	5
5.2	Bidders must provide detailed procedure on the Change Management Procedure to ensure future CUPSS Compliance.	5
5.3	Full description of the bidder's training methodology and content to be provided to NAC Technical Staff.	5
6	Namibian/Local Participation for Support and Maintenance	20
6.1	Bidder must indicate Namibian/Local Partnership for Support and Maintenance for Level 1 and Level 2 Support and Maintenance activities. Partnership percentage with Namibian/Local ICT Companies will gain the scores as detailed below:	
	> 51 %	20
	> 30 % < 50 %	15
	> 0 % < 30 %	5
	0%	0
	If no write up on the bidder's methodology to ensure adherence to response time and transfer of skills to local technicians is provided, no marks will be allocated.	
	TOTAL TECHNICAL RESPONSIVENESS SCORE	100

7. Drawings

These Bidding Documents include the drawings as listed in the table below.

List of Drawings		
Drawing No.	Description	Purpose
W6551EE36-T2-001	TERMINAL 2 – TELEPHONE AND DATA OVERVIEW CHART.	High Level Overview of Core Server Room and Data Distribution Facilities
W6551EE36-T2-002	TERMINAL 2 – SERVICE PROVIDER BACKBONE INFRASTRUCTURE	Patch Panel Connectivity
W6551EE36-T2-003	TERMINAL 2 - WESTERN DATA CABINETS LAYOUT.	Cabinet Layouts for Western Data Cabinets
W6551EE36-T2-004	TERMINAL 2 – EASTERN DATA CABINETS LAYOUT.	Cabinet Layouts for Eastern Data Cabinets
W6551EE36-T2-005	TERMINAL 2 – CENTRAL DATA CABINETS LAYOUT.	Cabinet Layouts for Central Data Cabinets
W6551EE36-T2-006	TERMINAL 2 – SERVER ROOM DATA CABINETS LAYOUT.	SERVER ROOM DATA CABINETS LAYOUT
W6551EE36-T2-C2-01	TERMINAL 2 – DATA NETWORK LAYOUT – AREA C2.	DATA NETWORK LAYOUT – AREA – Check-in Area
W6551EE36-T2-S2-01	TERMINAL 2 – DATA NETWORK LAYOUT – AREA S2.	DATA NETWORK LAYOUT – AREA – Check-in Area
W6551EE36-T2-C3-01	TERMINAL 2 – DATA NETWORK LAYOUT – AREA C3.	DATA NETWORK LAYOUT – AREA – Retail Outlets
W6551EE36-T2-C4-01	TERMINAL 2 – DATA NETWORK LAYOUT – AREA C4.	DATA NETWORK LAYOUT – Arrival and Lost and Found Counter
W6551EE36-T2-C5-01	TERMINAL 2 – DATA NETWORK LAYOUT – AREA C5.	DATA NETWORK LAYOUT – Arrival
W6551EE36-T2-N2-01	TERMINAL 2 – DATA NETWORK LAYOUT – AREA N2.	DATA NETWORK LAYOUT – Boarding Gates

W6551EE36-T2-N3-01	TERMINAL 2 – DATA NETWORK LAYOUT – AREA N3.	DATA NETWORK LAYOUT – Boarding Gates
W6551EE36-T2-N4-01	TERMINAL 2 – DATA NETWORK LAYOUT – AREA N4.	DATA NETWORK LAYOUT – Transfer Facility
W6551EE36-T2-N5-01	TERMINAL 2 – DATA NETWORK LAYOUT – AREA N5.	DATA NETWORK LAYOUT – Immigration
105094_T2-P-161_REV_0_A0	Terminal 2 - Overview	Entire Overview Terminal 2
105064_T2-JS-10_REV_0_A3	Check-in Counter Dimensions	Check-in Counter Dimensions
105085_T2-JS-18_REV_0_A3	Check-in Counter Dimensions	Check-in Counter Dimensions
108296_T2-JS-09_REV_1_A3	Check-in Counter Dimensions	Check-in Counter Dimensions

8. Inspections and Tests

The following inspections and tests shall be performed:

- Testing will be done with each Airline and Ground handler to ensure proper functioning of the systems.
- Each component as detailed in this document will be tested to ensure connectivity and functionality of the entire working solution.
- All reporting and statistical information will be extracted to ensure functionality of the reporting.
- All Interfaces listed in this document shall be tested to ensure proper functionality.
- All technical staff shall be tested to ensure knowledge transfer was facilitated in the best possible way.