

Change Authorisation Note 006	Title: Third King Air Services	Date: 21 September 2021
Agreement relating to Aerial Surveillance	Type of Change: Contract Change	
Effective Date: The changes to the Agreement set out in this CAN shall take effect from 1 October 2021		
<p>1. The definitions in Schedule 1 of the Agreement shall be amended as per the underlined, italicised and struck through wording below:</p> <p>“Authority Requirements” means the requirements of the Authority set out in Schedule 2 (<i>Services Description</i>), <u>Schedule 2A (Third King Air Services)</u>, Schedule 3 (<i>Service Points, Service Credits and Performance Monitoring</i>), Schedule 4 (<i>Insurance Requirements</i>), and Schedule 16 (<i>Reports and Records Provisions</i>), Schedule 17 (<i>Exit Management</i>);</p> <p>“Service Points” means in relation to a Service Failure, the points that are set out against the relevant Service Requirement in the third columns of the tables in Schedule 2 (<i>Services Description</i>) <u>and Schedule 2A (Third King Air Services)</u>;</p> <p>“Services” means any and all of the services to be provided by the Supplier under this Agreement, including those set out in Schedule 2 (<i>Services Description</i>) <u>and Schedule 2A (Third King Air Services)</u>;</p> <p>“Services Description” means the services description set out in Schedule 2 (<i>Services Description</i>) <u>and Schedule 2A (Third King Air Services)</u>;</p> <p>“Service Requirements” means the requirements set out in the first columns of the tables in Schedule 2 (<i>Services Description</i>) <u>and Schedule 2A (Third King Air Services)</u>;</p> <p>“Supplier Solution” means the Supplier's solution for the Services set out in Schedule 5 (<i>Supplier Solution</i>) <u>and Schedule 5A (Third King Air Solution)</u> including any Annexes of those Schedules;</p> <p>“System” means the entire system (<u>including for the avoidance of doubt in respect of the Third King Air Line of Tasking and the Surge Line of Tasking</u>) including any assets, equipment, hardware, software and personnel that will deliver the capability;</p> <p>“Task” means an activity included in the Programme and/or instructed by the ARCC, <u>including for the avoidance of doubt activities (to be) carried out by the Third King Air Line of Tasking and the Surge Line of Tasking</u>;</p> <p>2. The following definitions shall be added to Schedule 1 of the Agreement:</p> <p>“Interim Panther” means the PA31 Panther aircraft described in Schedule 5A used to fulfil the Third King Air Line of Tasking until the completion of the Third King Air Modification;</p> <p>“Surge Flying Hour Charge” means the sum of the Surge Hourly Flying Rate multiplied by the number of hours flown by the Supplier in the relevant month using the Surge Line of Tasking in accordance with this Agreement;</p> <p>“Surge Hourly Flying Rate” means £2500.00 (exc. VAT), inclusive of fuel, chargeable to the Authority for each hour of flight undertaken using the Surge Line of Tasking, adjusted on a pro rata basis for part hours flown;</p> <p>“Surge Line of Tasking” means the surge line of tasking delivered primarily using Piper Navajo “Panthers” to be used only in accordance with this Agreement (including Annex B of Schedule 5A);</p>		

“Third King Air Flying Hour Charge” means the sum of the Third King Air Hourly Flying Rate multiplied by the number of hours flown by the Supplier in the relevant month in performance of the Third King Air Services in accordance with this Agreement;

“Third King Air Hourly Flying Rate” means £1200.00 (exc. VAT), inclusive of fuel, chargeable to the Authority for each hour of flight undertaken using the Third King Air Line of Tasking, adjusted on a pro rata basis for part hours flown;

“Third King Air Line of Tasking” means the second 12-hour line of tasking provided by the Third King Air Services to be used solely in accordance with this Agreement;

“Third King Air Modification” means the modification of a Beechcraft King Air 200 aircraft for the purpose of delivering the Third King Air Services;

“Third King Air Services” means the services set out in Schedule 2A (*Third King Air Services*);

“Third King Air Standing Charge” means £138,888.00 per month (exc. VAT);

3. Clause 1.4.2 shall be amended as per the underlined and italicised wording below:

Schedule 2 (*Services Description*), *Schedule 2A (Third King Air Services)* and Schedule 3 (*Service Points, Service Credits and Performance Monitoring*) and their Annexes;

4. Paragraph 3.2 of Schedule 3 (*Service Points, Service Credits and Performance Monitoring*) shall be amended as per the underlined and italicised wording below:

“If the level of performance of the Supplier during a Service Period does not meet a Service Requirement, Service Points shall accrue to the Supplier in respect of that Service Requirement as set out in the column titled “Service Points” in Schedule 2 *and Schedule 2A.*”

5. The following provisions shall be inserted into the Agreement as a new Clause 46:

“46 THIRD KING AIR

46.1 The Supplier shall carry out and complete the Third King Air Modification in accordance with the Project Plan in Annex A of Schedule 5A (Third King Air Solution) at its own cost and shall have no right to recover such costs from the Authority.

46.2 The Supplier shall provide the Third King Air Services.

46.3 Until 30 Jun 2022 and without prejudice to the Supplier’s obligation in Clause 47, the Supplier may deliver the Third King Air Services using the Interim Panther as described in Schedule 5A (Third King Air Solution) and which must be a different Panther to that utilized in the Surge Line of Tasking. During such period the Panther shall be:

46.3.1 painted in the Authority livery;

46.3.2 fitted with a FLIR380HD sensor turret; and

46.3.3 comply in all respects to the parts of Schedule 5A pertaining to the Interim Panther.

46.4 From no later than 1 July 2022, (subject to any UK CAA certification turnaround) the Supplier shall deliver the Third King Air Services using a Beechcraft King Air 200, painted in Authority livery and modified for maritime aerial reconnaissance in accordance with Schedule 5A (Third King Air Solution).

Such Beechcraft King Air 200 will only be declared as being in service following an inspection by the Authority or its representative of the aircraft, its equipment and crew and once the Authority (in its reasonable opinion) is satisfied that the Supplier will be able to deliver the Third King Air Services using such Beechcraft King Air 200.

46.5 If the Supplier fails to ensure that the Beechcraft King Air 200 is declared as being in service by 1 July 2022, (subject to any UK CAA certification turnaround) the Authority may Deduct from each future invoice submitted by the Supplier in accordance with Clause 46.8 a rate of £730.27 per day until such time that the Beechcraft King Air 200 is declared as being in service.

46.6 The Parties agree that the Programme relating to the Third King Air Services shall be managed in accordance with Annex B of Schedule 5A (Third King Air Solution).

46.7 The Supplier shall ensure that the Third King Air Services comply with:

46.7.1 Schedule 2A (Third King Air Services);

46.7.2 Schedule 5A (Third King Air Solution); and

46.7.3 the provisions of this Agreement.

46.8 Subject to Clause 46.7 of this Agreement, in consideration of the Supplier providing the Third King Air Services, the Authority shall pay to the Supplier on a monthly basis in arrears within 30 days of receipt of a valid and undisputed invoice from the Supplier.

46.8.1 the Third King Air Standing Charge, the Third King Air Flying Hour Charges and the Surge Flying Hour Charges; and

46.8.2 all reasonably incurred and evidenced Project Expenses, less any Deductions.

46.9 Availability of the Third King Air Line of Tasking shall not be counted for the purpose of UR 1.1 in Schedule 2 (Services Description).

46.10 The aircraft for the Third King Air Line of Tasking shall at all times be fitted with the Authority's LEAP-M Pod and its associated sensors and equipment procured by the Authority in 2020, which shall include:

- 46.10.1 an Osprey 30 Radar;
- 46.10.2 a Wescam MX-15 HDi sensor turret;
- 46.10.3 Optimare IR/UV line scanner;
- 46.10.4 Cobham RT-7000 Multi Mission Radio;
- 46.10.5 Rhotheta SAR DF unit;
- 46.10.6 Avalex HD screen;
- 46.10.7 Mission computer with AIMS-ISR mission system;
- 46.10.8 Haivision video encoder and ethernet switch;
- 46.10.9 Cobham Aviator-SP sactom and PT-12 dialler;
- 46.10.10 Avalex HD video recorder;
- 46.10.11 mission power inverter;
- 46.10.12 operator seats;
- 46.10.13 maritime survival equipment; and
- 46.10.14 LEAP-M Surveillance Pod and equipment racks.

46.11 *The Parties acknowledge that the Third King Air Line of Tasking is a 12-hour line of tasking. Such 12 hours shall be 08:00 until 20:00 unless directed otherwise by the Authority with not less than 7 days' notice.*"

6. The following provisions shall be inserted into the Agreement as a new Clause 47:

"47 SURGE LINE OF TASKING

47.1 The Supplier shall provide the Surge Line of Tasking free of charge (save for any Surge Flying Hour Charge). The Supplier shall use reasonable endeavors to ensure that the Surge Line of Tasking is Available to carry out Planned Tasks when required.

47.1.2 The continued provision of the Surge Line of Tasking shall be reviewed each Quarter by the Supplier and the Authority. If both the Supplier and the Authority agreed that the demand for surge hours has reduced below a sustainable level the Supplier shall provide a minimum of one month's notice for the withdrawal of the Surge Line of Tasking.

47.2 Any Availability of the Surge Line of Tasking shall not be counted for the purpose of UR 1.1 in Schedule 2 (Services Description).

47.3 The Supplier shall ensure that the PA31 Panther aircraft allocated to the Surge Line of Tasking are:

47.3.1 Fitted with a FLIR 380HD sensor turret; and

47.3.2 Painted in the Authority livery.

47.3.3 If the liveried Panther aircraft are not available the Supplier may provide a similarly equipped and mission-capable Navajo or Panther aircraft with the prior agreement of the Tasking Authority and/or Coordinating Authority.

7. The following amendments shall be made to the Schedules of the Agreement:

Annex A to this Change Authorisation Note shall be added as a new Annex A of Schedule 5A of the Agreement.

Annex B to this Change Authorisation Note shall be added as a new Schedule 2A of the Agreement.

Annex C to this Change Authorisation Note shall be added as a new Schedule 5A of the Agreement.

Schedule 5 (*Supplier Solution*) shall be amended as per the underlined and italicised wording set out in Annex D to this Change Authorisation Note.

Annex E to this Change Authorisation Note shall be added as a new Annex B of Schedule 5A of the Agreement.

Annex F to this Change Authorisation Note shall be added as a new annexure to the Aerial Surveillance Financial Model.

Adjustment to the Charges resulting from the Contract Change

The Parties agree that they shall each bear their own costs of preparing and/or negotiating this Change Authorisation Note.

Signed for and on behalf of the Authority		Signed for and on behalf of the Supplier	
Signature:		Signature:	
<div style="border: 1px dashed black; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> <p>Personal Data</p> </div>		<div style="border: 1px dashed black; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> <p>Personal Data</p> </div>	
Name:	Name	Name:	Name
Position: Commercial & Programmes Director		Position: Director	
Date: 21.9.21		Date: 21.9.21	

Annex A

Annex A of Schedule 5A - Project Plan for Third King Air Modifications

Annex B

Schedule 2A: Third King Air Services

Services Description

UR No.	Service Requirement	Service Points
1.0A	Availability	
1.1A	The Supplier shall provide the Third King Air Line of Tasking	N/A
1.2A	The Supplier shall ensure that the Third King Air Line of Tasking and the System of such Third King Air Line of Tasking shall be Available to fly at least 365 hours per annum.	5 Service Points
1.3A	The Asset for the Third King Air Line of Tasking shall at all times be fitted with the Authority's LEAP-M Pod and sensors procured by the Authority in 2020.	N/A
2.0A	Tasking	
2.1A	<p>The Supplier shall complete all Planned Tasks in accordance with the Programme for the Third King Air Line of Tasking. A Planned Tasks shall be regarded as not having been completed if:</p> <ul style="list-style-type: none"> • it is time and/or date critical and has not been completed when required; or • if not time or date critical, it has not been completed in the relevant month in accordance with the Programme. 	5 Service Points
2.2A	The Third King Air Line of Tasking shall be used exclusively for Planned Tasks unless otherwise directed by the Authority.	N/A

Annex C

Schedule 5A: Third King Air Solution

UR No	Service Requirement	Supplier Solution
1.1A	The Supplier shall provide the Third King Air Line of Tasking.	<p><u>Description</u></p> <p>From 1 October 2021 a third King Air and additional crew are resourced, which will provide a further ½ line of tasking each 24hr period – the default will be 0800-2000L but can be adjusted with more than 7 days’ notice (within 7 days best endeavors will be made). This additional King Air resource has been created to make better use of the Authority’s LEAP-M Pod and sensors procured in 2020. Whilst this King Air is being purchased and modified for the role, an interim service will be provided with a PA31 Panther aircraft:</p> <ul style="list-style-type: none"> • <i>Equipped with mission system;</i> • <i>Fitted with a FLIR 380HD sensor turret; and</i> • <i>Painted in the Authority livery.</i> <p>The liveried Panther aircraft will be used primarily, although the Supplier may deploy a non-liveried mission capable aircraft if neither of the liveried Panthers are available with the prior agreement of the Tasking Authority and/or Coordinating Authority.</p> <p>A surge capability will also be provided to offer additional resource for the MCA and its stakeholders. Navajo Panther aircraft will be employed in this role. These aircraft and crew are not resourced through a Standing Monthly Charge, just through an hourly rate, and accordingly there is no availability requirement. The intent of the Surge Capability is to offer another ½ line of tasking.</p> <p>The Third King Air line of tasking will be at the same readiness as the original line of tasking by day (45mins). The surge line of tasking will be at 45 mins readiness by day, and 120 mins by night. It is the Suppliers intention to make the surge line of tasking available every day to supplement the Third King Air; if this cannot be achieved the Authority will be notified.</p>

Removal of Third-Party Risk

High levels of availability and readiness will be achieved, in part, by the removal of third-party risk. 2 Excel has invested considerably over the past decade to bring the following capabilities in-house:

- Design and certification
- Production
- Maintenance
- Operations
- Ground support
- Training
- CAMO

The aircraft will be owned by 2 Excel, the staff will be employees not contractors, no sub-contracts will be let; the whole Service will be designed, built and delivered in-house.

Platform Description

All 3 King Airs will be modified with mission power and communications systems and be fully capable of delivering the requirement. Each day, one of the aircraft will be declared as the Primary for the original line of tasking. Another King Air will be declared for the additional ½ line of tasking. If no King Airs are available due to unscheduled maintenance, a Panther may be substituted with the agreement of the Authority.

Surveillance Capability

The aircraft for the Third King Air Line of Tasking shall be fitted with the Authority's LEAP-M Pod and its associated sensors and equipment procured by the Authority in 2020, which shall include:

- an Osprey 30 Radar;
- a Wescam MX-15 HDi sensor turret;
- Optimare IR/UV line scanner;
- Cobham RT-7000 Multi Mission Radio;
- Rhotheta SAR DF unit;
- Avalex HD screen;

- Mission computer with AIMS-ISR mission system;
- Haivision video encoder and ethernet switch;
- Cobham Aviator-SP sactom and PT-12 dialler;
- Avalex HD video recorder;
- mission power inverter;
- operator seats;
- maritime survival equipment; and
- LEAP-M Surveillance Pod and equipment racks.

If the Authority pod is not available, or for maintenance reasons, the Supplier may, with the agreement of the Authority, deploy its back-up LEAP-M Pod which does not have the line-scanner or radar fitted. This Pod has an HD EO/IR sensor turret installed.

Basing

DSA is a 24/7/365 international airport with excellent road and rail links. It has full IFR facilities and robust snow and ice clearing equipment and plans. Unlike similar airports in the UK, DSA is not subject to slot-time restrictions, enabling rapid response ops to take place without restriction.

Personnel

2 Excel would roster 2 crews each 24hr period, and 1 King Air crew each 12hr period for the additional ½ line of tasking. Panther crews will also be rostered for the surge capability. Sufficient crews will be employed and trained to cover unexpected absences such as sickness. The flight-crew would work to the Company’s existing approved FTL scheme. No changes are required for this contract. Accommodation will be provided close to the airport to minimise fatigue and ensure the most efficient use of crew.

Additional Ops and Ramp staff will be provided to ensure continuity of service 24/7/365.

An increase to the Company overhead will be made to cover the additional requirement on departments such as CAM, Compliance, admin, HR and other support functions.

Company Structure and Management

		The Service will be managed and delivered using 2 Excel's existing framework. As an AOC holder, and Part SPO operator, 2 Excel has all overhead functions required to ensure the successful delivery of this Contract. Customer liaison, contract management, CAMO staff and other support personnel are all located at DSA.
1.2A	The Supplier shall ensure that the Third King Air Line of Tasking and the System of such Third King Air Line of Tasking shall be Available to fly at least 365 hours per annum.	The flying task will be agreed by the Supplier and Tasking Authority on a monthly basis, and progress towards the annual achievement monitored. The aim of both parties is to manage the flying hour consumption over each year. When more hours are required to meet the monthly task, these will be provided as 'surge hours' in order to conserve the Third King Air annual allowance.
1.3A	the Asset for the Third King Air Line of Tasking shall at all times be fitted with the Authority's LEAP-M Pod and sensors procured by the Authority in 2020.	The Authority's pod will be fitted to the Third King Air. If the Authority pod is not available, or for maintenance reasons, the Supplier may, with the agreement of the Authority, deploy its back-up LEAP-M Pod which does not have the line-scanner or radar fitted. This Pod has an HD EO/IR sensor turret installed.
2.0A	Tasking	
2.1A	The Supplier shall complete all Planned Tasks in accordance with the Programme for the	Achievement of the Programme will be monitored and reported, and factors outside of the Supplier's control such as adverse weather will be considered and agreed with the Authority.

	<p>Third King Air Line of Tasking. A Planned Tasks shall be regarded as not having been completed if:</p> <ul style="list-style-type: none"> • it is time and/or date critical and has not been completed when required; or • if not time or date critical, it has not been completed in the relevant month in accordance with the Programme. 	
<p>2.2A</p>	<p>The Third King Air Line of Tasking shall be used exclusively for Planned Tasks unless otherwise directed by the Authority.</p>	<p>The Third King Air Line of Tasking can be used for reactive tasking with the agreement of the Authority, and any effect on Planned Tasks shall be considered when evaluating the achievement of requirement 2.1A.</p>

Annex D

Amendments to Schedule 5

UR No	Service Requirement	Supplier Solution
2.6	The Supplier shall ensure that the System shall be airborne and in transit to each Accepted Unplanned Task within 120 minutes of notification by the Tasking Authority between 22:01 and 07:59 local time.	<p>The flight-crew for the Third King Air Line of Tasking shall be able to dispatch within 60 mins of notification by the Authority between 22:01 and 07:59 local time.</p> <p><u><i>The Panther Surge Line of Tasking will be on a 120 mins readiness state at night.</i></u></p>
3.3	The Supplier shall ensure that the System detects targets and areas of interest anywhere in the UK EEZ within 150 minutes of take-off.	<p>The King Air 200 has a Radius of Action of 632 nautical miles (nm) and a maximum continues cruise of 260kts True Airspeed. From our Main Operating Base (MOB) at Doncaster Sheffield Airport the aircraft can fly to any point within the EEZ within 150 minutes of take-off.</p> <p><u>Interim Panther and Surge Line of Tasking</u></p> <p><u><i>The Panther has a Radius of Action of 450 nautical miles (nm) and a maximum continues cruise of 180kts True Airspeed. From our Main Operating Base (MOB) at Doncaster Sheffield Airport the aircraft can fly to any point within the EEZ within 180 minutes of take-off and use the sensors to detect targets of interest When the aircraft and sensor performance are combined the System can achieve coverage of the furthest point in the EEZ from our MOB within 104 minutes.</i></u></p>
3.4	The Supplier shall ensure that the System remains on scene once transit to area of interest	<p>The King Air 200 has a Max Useable Fuel of 3645lbs, and a loiter burn rate of 500 lbs/hr. Even if the area of interest is at the furthest point of the EEZ from our MOB the System can remain on scene in excess of 120 minutes.</p> <p><u>Interim Panther and Surge Line of Tasking</u></p>

	is complete for a minimum of 120 minutes	<u>The Panther has a Max Useable Fuel of 650Litres, and a loiter burn rate of 90L/hr. The System can remain on scene in excess of 120 minutes.</u>
3.5	The Supplier shall ensure that the System operates in all UK weather conditions.	The <u>Panther</u> , King Air 200, and LEAP surveillance pod are certified and approved to operate Day or night in all UK weather conditions, including known icing conditions.
3.6	The Supplier shall ensure that the System operates day or night in Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) conditions with no restrictions.	The <u>Panther and</u> King Air 200 are certified and approved to operate day or night in both VFR and IFR conditions. 2 Excel is certified and approved for VFR and IFR operations.
3.9	The Supplier shall ensure that the System overlays the area covered by all sensors upon the aircraft track.	Sensor footprint overlays are one of the core features of AIMS. The system will display these on the aircraft in real-time, and over the satellite link (<u>King Air only</u>) to the AIMS ground-station in the ARCC or deployed location.
3.10	The Supplier shall ensure that the System detects, categorizes and tracks up to two target vessels in all light and weather conditions and makes available the information to the	<p>The primary sensors of 2 Excel's System are all class leading capabilities, a theme that runs throughout this description of mission system capability:</p> <p>The WESCAM MX-15HDi EO/IR sensor turret is a high-end military surveillance system, as good as any currently in-service in the UK. Leonardo's Osprey is their newest Active Electronic Scanned Array (AESA) radar and is the most capable and complete surveillance radar for land, sea and air applications available today. It is the primary sensor for maritime surveillance and paired with the MX-15 provides a formidable capability.</p>

	<p>Authority in near real time.</p>	<p>The Osprey radar's Maritime Surveillance mode is optimised for long range maritime detection and tracking of up to 1000 targets out to 200nm. The radar operates in the X-Band which is optimised for maritime, long range performance in all light and weather conditions. The LEAP-MP which forms part of the System was created by 2 Excel specifically for Leonardo's X-band radars and therefore generates maximum performance from the sensor.</p> <p>Near real time updates are via the Aviator-SP broadband satellite communication system which is fully integrated with the AIMS mission management software.</p> <p><u>Note – the Panther aircraft are fitted with FLIR380HD sensor turrets and do not have a radar or satcom data capability.</u></p> <p><u>Note – the third Pod will be fitted with a FLIR380HD sensor turret and will not have a radar fitted.</u></p> <p><u>Note – the Panther aircraft do not have a near-real time datalink capability.</u></p>
<p>3.11</p>	<p>The Supplier shall ensure that the System detects and categorizes up to two static Targets; on land, on sea and in air, in all light and weather conditions and makes available the information to the Authority in near real time.</p>	<p>The Osprey 30 Radar capability is derived from the extensive capabilities of Leonardo's Overland (PicoSAR), Maritime (SeaSpray) and Air (Vixen) radars. The radar in combination with the HD EO/IR sensor and other mission system sensors can detect and categorise up to 1000 targets. The Osprey radar performance is robust in all light and weather conditions and information can be made available to the Authority via AIMS and BLOS comms.</p> <p>On Land</p> <ul style="list-style-type: none"> • Ground Imaging (SpotSAR & StripSAR) <p>SpotSAR and StripSAR</p> <p>Spotlight (Spot) SAR is used to generate a high-resolution image centred at an Operator-designated location. A number of SpotSAR resolutions are provided by the Osprey Radar – 0.15m, 0.3m and 1.0m – thus providing high detail and image clarity to the Operator of the selected area.</p> <p>StripSAR imaging generates a continuous rolling wide area strip map of a selected range swath. StripSAR is typically used when little a-priori knowledge of target position is available e.g. in a search scenario where a search pattern is usually adopted to search a wide geographical area. The Osprey Radar provides a number of StripSAR resolutions – 1m, 3m and 10m</p>

		<p>On Sea</p> <ul style="list-style-type: none"> • Maritime Small Target Detection <p>Small Target Detection</p> <p>One of the great challenges in maritime surveillance is the detection of small targets in high clutter. The Osprey Radar uses electronic beam steering and coherent processing to provide exceptional small target detection capability in high sea states and from high altitude.</p> <ul style="list-style-type: none"> • ISAR / Range Profiling <p>The Osprey Radar is provided with an ISAR mode. With a nominated track of interest, the Radar will form either a 2-dimensional ISAR image or a 1-dimensional High Resolution Range (HRR) profile. Both outputs can be used to provide key dimensions and shape profiles of the target to aid target classification.</p> <p>In Air</p> <ul style="list-style-type: none"> • Air-to-Air Intercept <p>An Air-to-Air Intercept mode is provided in the Osprey Radar that permits the Operator to detect and track multiple airborne targets.</p> <p>The Air-to-Air Intercept mode has a maximum instrumented range of 50 nm. Track While Scan (TWS) and Single Target Tracking (STT) schemes are available to choose between wide area detection and tracking of multiple airborne targets (TWS) or alternatively high accuracy, fast update tracking performance against a single target of interest (STT).</p> <ul style="list-style-type: none"> • Probability of detection is calculated by comparing the RCS of the target (a predictor of detection range) with the rate of search (calculated from maximum predicted detection range and speed) and endurance of the aircraft. If the entire search volume can be covered within the endurance limit of the aircraft then a high PD (>0.7) will be achieved. <p><i>King Air with Third Pod, Interim Panther and Surge Line of Tasking</i></p>
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		<p><i>The Third Pod, Interim Panther and Surge Line of Tasking will not be equipped with radar therefore cannot meet this user requirement when in use. When in use, these aircraft will meet an alternative requirement:</i></p> <p><i>“The Supplier shall ensure that the System detects, categorises and tracks moving Targets; on land, on sea and in air, in all light and weather conditions”.</i></p> <p><i>Targets will be detected and categorized using the FLIR380HD sensor turret, which has TV, IR and low-light EO sensors. The sensors are effective in all light conditions, clear of cloud and significant precipitation in the air.</i></p> <p><u><i>Note – the third Pod will be fitted with a FLIR380HD sensor turret and will not have a radar fitted.</i></u></p>
3.12	<p>The Supplier shall ensure that the System detects, categorises and tracks up to two moving Targets; on land, on sea and in air, in all light and weather conditions and makes available the information to the Authority in near real time.</p>	<p>The System is as per 3.11 with the addition of the following moving target specific additions.</p> <ul style="list-style-type: none"> • Ground Moving Target Indication (GMTI) <p>The radar can contribute to the System overland picture by employing the GMTI mode to detect moving land objects down to very low Minimum Detectable Velocities (MDV). If these objects (people, cars, trucks etc) are detected then they can be automatically tracked in isolation in a rural environment (up to 1000 targets for Osprey). The radar will categorise speed and size of target based on aspect (RCS). Additionally, the radar can take very high resolution ‘pictures’ both as single images or with a moving picture of points of interest on the ground using the SAR imaging modes.</p> • Maritime Moving Target Indication (TI) <p>The Osprey Radar has a coherent Maritime MTI mode that provides “go-fast” target detection over the sea. The geo-referenced target detections are overlaid on the MMS. In this mode, detection</p>

		<p>performance is provided out to 50 nm. The target detections can be optionally output in STANAG 4607 format (for military End Users).</p> <ul style="list-style-type: none"> • Probability of detection is calculated by comparing the RCS of the target (a predictor of detection range) with the rate of search (calculated from maximum predicted detection range and speed) and endurance of the aircraft. If the entire search volume can be covered within the endurance limit of the aircraft then a high PD (>0.7) will be achieved. <p><u>King Air with Third Pod, Interim Panther and Surge Line of Tasking</u></p> <p><u>The Third Pod, Interim Panther and Surge Line of Tasking will not be equipped with radar therefore cannot meet this user requirement when in use. When in use, these aircraft will meet an alternative requirement:</u></p> <p><u>“The Supplier shall ensure that the System detects, categorises and tracks moving Targets; on land, on sea and in air, in all light and weather conditions”.</u></p> <p><u>Targets will be detected and categorized using the FLIR380HD sensor turret, which has TV, IR and low-light EO sensors. The sensors are effective in all light conditions, clear of cloud and significant precipitation in the air.</u></p> <p><u>Note – the Panther aircraft do not have a near-real time datalink capability but will relay target information near-real time where required to the Tasking Authority, Coordinating Authority and partner organisations by voice over satellite and VHF communications.</u></p>
3.13	The Supplier shall ensure that the System detects and localises thermal variances and provides a report to the Authority, with imagery, identifying hot spots on board a casualty vessel or the extent of Oil / chemical product spills.	<p>The aircraft will be installed with an L-3/WESCAM MX-15HDi, a high-performance airborne surveillance system.</p> <p>The MX-15HDi features a high-performance gimbal and associated 4-axis stabilisation for excellent long-range/high magnification performance. With high quality optics, this results in industry leading target detection, recognition and identification ranges for a 15” class turret. A built-in Inertial Measurement Unit (IMU), mounted directly to the optical bench, provides for highly accurate target localisation of targets. The system also features advanced image processing for real-time image enhancement on all sensors, including high-performance haze penetration and improved feature recognition and Identification</p>

	<p>The system's integrated advanced multi-mode video tracker provides for robust target tracking overland or sea, supported by intelligent break-lock/coast functionality to ensure rapid re-acquisition.</p> <p>The main sensor in the MX-15HDi is a Mid-Wave IR (MWIR – 3 to 5 μm) Thermal Imaging (TI) camera, which is capable of long-range hot spot detection and high-resolution imaging of persons and objects</p> <p>The mission equipment also includes an IR/UV Line Scanner, which incorporates a Long Wave IR (LWIR – 8 to 12 μm) camera, optimised to detect and map thermal variances on the sea surface (<i>not in the third LEAP-M Pod</i>).</p> <p><u>King Air with Third Pod, Interim Panther and Surge Line of Tasking</u></p> <p><u>The Third King Air, Interim Panther and Panther aircraft allocated to the Surge Line of Tasking will be fitted with a FLIR 380HD EO-IR turret, a high-performance airborne surveillance system. The FLIR 380HD features a high-performance gimbal and associated 4-axis stabilisation for excellent long-range/high magnification performance. With high quality optics, this results in industry leading target detection, recognition and identification ranges for a 15" class turret. A built-in Inertial Measurement Unit (IMU), mounted directly to the optical bench, provides for highly accurate target localisation of targets. The system also features advanced image processing for real-time image enhancement on all sensors, including high performance haze penetration and improved feature recognition and Identification</u></p> <p><u>The system's integrated advanced multi-mode video tracker provides for robust target tracking overland or sea, supported by intelligent breaklock/coast functionality to ensure rapid re-acquisition. The main sensor is a Mid-Wave IR (MWIR – 3 to 5 μm) Thermal Imaging (TI) camera, which is capable of long-range hot spot detection and high-resolution imaging of persons and objects.</u></p> <p><u>Also refer to Response 3.18.</u></p>
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<p>3.14</p>	<p>The Supplier shall ensure that the System identifies and homes on up to two transponders and emergency emitters (including AIS, Aircraft Transponders, PLB, SARTs, EPIRB, VMS) and makes available the information to the Authority in near real time.</p> <p><i>(King Air only)</i></p>	<p>Compliance of this requirement will be achieved through integration of sensors procured specifically for the purpose of homing and tracking, in addition to comprehensive integration of the System's other major surveillance sensors (Turret and Radar).</p> <p>The MMS will combine inputs from the Osprey 30 radar to integrate AIS for the identification and tracking of multiple transponders and incorporates a Beacon Detection mode for Search and Rescue Transponders (SART).</p> <p>The RHOTHETA RT-600 is a SAR DF specific system capable of capturing and indicating directions to any source of an emergency signal on VHF, UHF, all nineteen 406 MHz COSPAS-SARSAT frequencies, and all 88 maritime channels. The RT-600 can be extended by additional frequency bands to cover a frequency range from 118 to 470 MHz at its full stage of extension.</p> <p>The aircraft will be installed with a Traffic Collision Avoidance System (TCAS) to provide for airborne Situational Awareness (SA) and homing of aircraft transponders. This can be combined with the Osprey's Air to Air mode to enhance the in-air capabilities.</p> <p>VMS will be accessed using the BLOS SATCOM.</p> <p><u>Interim Panther and Surge Line of Tasking</u></p> <p><u>The aircraft will be equipped with AIS, fully integrated with the Mission System, enabling sensor handover and video and data recording. The system cannot home onto emergency transponders however.</u></p>
<p>3.15</p>	<p>The Supplier shall ensure that the System captures video and still high definition (HD) imagery in all light levels at all stages of flight.</p>	<p>The MX-15HDi Electro-Optic Turret, incorporates High Definition (HD) IR and EO sensors. The TI features a 1280 x 1024 pixel cooled MWIR sensor; a HD (1920 x 1080) continuous zoom colour camera is supported by a narrow field HD (1920 x 1080) spotter camera.</p> <p>Fields of view for the sensors:</p> <ul style="list-style-type: none"> • TI 35.5° to 1.2°

	<p>Images/videos shall be date time, and position stamped in accordance with PACE and disclosure principles for evidential purposes. Such imagery shall identify vessels via PLN (Port Letter Numbers) or name as displayed on the side (specified in EC Regulation 1381/1987 Annex 2). Data provided shall be fully compliant with EU Inspire directive. Positional information (of target and capture system) shall comply with WGS84 standard and provide Latitude, Longitude and date/time stamp for position fix of the target.</p>	<ul style="list-style-type: none"> • Daylight Zoom 31.2° to 1.8° • Daylight Spotter 1.1° to 0.43° <p>These fields of view facilitate operator Situational Awareness (SA) and the ability to discern fine detail, such as vessel lettering at typical (mission specific) stand-off ranges.</p> <p>Video overlay shows time, own ship position and target position (in WGS84 format, selectable), which may be continuously recorded to various hard media utilising an Avalex Recorder.</p> <p>The mission system will incorporate an Avalex multi-channel HD DVR, capable of video recording in accordance with PACE requirements.</p> <p>HD stills images will be captured utilising a stabilised DSLR camera with time/date and GPS position overlay, with data captured on built-in Secure Digital (SD) Card Format. Image intensifying (SOFRADIR-EC) lens attachments would facilitate image capture under low light conditions.</p> <p><i><u>Note – the Panther aircraft and the third LEAP-M Pod will have the FLIR380HD camera fitted¹.</u></i></p> <p><u>King Air with Third Pod, Interim Panther and Surge Line of Tasking</u></p> <p><i><u>The Third King Air, Interim Panther and primary Panther aircraft allocated to the Surge Line of Tasking will be fitted with a FLIR380 HD EO-IR turret, a high-performance airborne surveillance system. The FLIR 380HD Electro-Optic Turret, incorporates High Definition (HD) IR and EO sensors. The TI features a 1280 x 1024 pixel cooled MWIR sensor; a HD (1920 x 1080) continuous zoom colour camera is supported by a narrow field HD (1920 x 1080) spotter camera.</u></i></p> <p><u>Fields of view for the sensors:</u></p> <ul style="list-style-type: none"> • <u>TI 35.5° to 1.2°</u> • <u>Daylight Zoom 31.2° to 1.8°</u> • <u>Daylight Spotter 1.1° to 0.43°</u>
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¹ As above

		<p><u>These fields of view facilitate operator Situational Awareness (SA) and the ability to discern fine detail, such as vessel lettering at typical (mission specific) stand-off ranges. Video overlay shows time, own ship position and target position (in WGS84 format, selectable), which may be continuously recorded to various hard media.</u></p> <p><u>Refer to 3.16 for data recording.</u></p>
3.16	<p>The Supplier shall ensure that imagery captured shall be viewable in flight on board the aircraft and viewable in near real time on the Authority's tasking/coordination system. Such imagery shall identify vessels via PLN (Port Letter Numbers) or name as displayed on the side (specified in EC Regulation 1381/1987 Annex 2). Data provided shall be fully compliant with EU Inspire directive. Positional information (of target and capture system) shall comply with WGS84 standard and provide Latitude, Longitude and date/time stamp for position fix of the target.</p>	<p>The aircraft system operator will be provided with two high-brightness HD (1920 x 1080) monitors, capable of displaying all sensor outputs and matched to the MX-15 HDi native EO sensor resolution.</p> <p>Sensor output will be routed, by the operator, via the Mission Management System (MMS), to the multi-channel HD recorder and to the Aviator-SP satellite link (described in Section 5), where selected video streams can be sent to the Authority's tasking/coordination system. Frame rate and resolution will be selectable. Sensor video overlay will continuously display time and target position in the recorded and linked data streams.</p> <p><u>Note – the Panther aircraft do not have a near-real time datalink capability. Sensor Operators on board the Interim Panther and Panthers used to fulfil the Surge Line of Tasking will be provided a high-brightness HD (1920 x1080) monitor, capable of displaying all sensor outputs and matched to the FLIR 380HD native EO sensor resolution.</u></p>

<p>3.18</p>	<p>The Supplier shall ensure that the System detects and classifies Oil in all light levels by day and night and provides a report to the Authority classifying:</p> <ol style="list-style-type: none"> 1. by Daylight only, the Oil by type, thickness and coverage within an hour of finding the Oil; <p>by Night Time Hours, a report to the Authority of the location and coverage of the Oil within an hour of finding it</p>	<p>Detection and classification of Oil will be achieved using the full suite of onboard sensors; synthetic aperture radar, EO and MWIR cameras, and a LWIR and UV line-scanner. Crew-members will also be trained how to classify and quantify oil-spills visually, in accordance with Bonn Agreement protocols.</p> <p>By day the System will classify oil by type, thickness and coverage, within 1 hour of detection. By night, the sensor suite will be capable of detecting the location and coverage of the oil within 1 hour of detection.</p> <p><u>Detection</u></p> <p>If an accurate position of the spill can be provided, the System can rapidly detect the oil and commence surveillance. If the precise location is unknown, the System would use all its onboard sensors to locate the spill:</p> <p><u>Wide-area surveillance</u></p> <p>Initial detection would be achieved using the Leonardo Osprey 30 synthetic aperture radar (SAR); the use of SAR is a well-established method of detecting and quantifying oil-spills, and the Osprey is a brand new and very high-performance SAR. Interpretation of the SAR image is manual, with oil usually presenting a darker return than the surrounding surface. Once detected at range by SAR, the aircraft would position to overhead the spill to employ the narrow-area sensors.</p> <p><u>Narrow-area surveillance</u></p> <p>Accurate quantification of the spill is achieved using the WESCAM MX-15 sensors, and the Optimare IR/UV line-scanner:</p> <p>MX-15 Sensor Turret:</p> <p>The WESCAM MX-15 is an industry leading surveillance sensor turret, used extensively by military and other government users across the world. The daylight HD EO sensor image is displayed to the crew via AIMS-ISR on HD screens in the cabin. The Medium Wave Infra-Red (MWIR) sensor would be used in conjunction with the EO; in our experience MWIR is good for identifying thicker areas of pollution, and by combining these outputs through the mission software, highly accurate quantification is achieved. Using Bonn Agreement protocols, the crew would assess oil coverage and thickness</p>
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By day, the EO and MWIR sensors (by night MWIR only) would be used to trace the perimeter of the spill, which is automatically logged (drawn) onto the AIMS-ISR mapping system; the area of the spill can be quickly established and shared over the satcom with the ARCC in near real-time. The type of oil should be known due to location (e.g. associated with an oil platform – all mapped on AIMS-ISR) or ship, identified by AIS or onboard sensors.

Optimare IR/UV Line-scanner:

To achieve the best possible quantification of the spill, the System also includes an Optimare Long Wave Infra-red (LWIR) and UV sensor, manufactured by Aerodata. These sensors, which would be integrated with the AIMS-ISR mapping system, provide highly resolved mapping of very thin and thick oil layers on the water surface and create thermatic maps of the oil-spill scene (automated scene analysis). IR/UV line-scanners have been established as standard tools in airborne oil spill remote sensing, they are capable of simultaneously mapping the total extent of the oil spill (layer thickness > 0.01 µm) as well as areas of intermediate (2 to 70 µm) and large oil layer thickness (> 50 µm).

Mapping System and Mission Integration:

CarteNav AIMS-ISR is at the heart of the mission-system. For oil-spill surveillance, it provides a superb capability to map and quantify pollution. The crew would use camera boresight to draw a real-time virtual-reality perimeter around the oil-spill. Different perimeters are created around differing pollution areas, the volume of these areas is automatically calculated, then by using the Bonn Agreement classifications, thickness and quantity is calculated.

An AIMS-ISR software licence would also be provided for the Authority, and over the satellite link Authority personnel would be able to observe the mission in near-real-time. Aircraft tracks, AIS contacts, radar imagery, spill perimeters, EO/IR snapshots, target locations, sensor footprints, and reports are all shared over the link, through AIMS. 2 Excel uses exactly this system on its existing oil-spill surveillance platform; the ability to datalink the mission in near real-time to clients on the ground has proven to be an excellent capability, enhancing situational awareness in ops rooms as well as on the aircraft.

Note – the Panther aircraft and third LEAP-M Pod have a limited capability to perform this UR as they are only equipped with a sensor turret:

King Air with Third Pod, Interim Panther and Surge Line of Tasking

By day the System will classify oil by type, thickness and coverage, within 1 hour of detection. By night, the sensor suite will be capable of detecting the location and coverage of the oil within 1 hour of detection.

Detection

If an accurate position of the spill can be provided, the System can rapidly detect the oil and commence surveillance. If the precise location is unknown, the System would use all its onboard sensors to locate the spill.

Narrow-area surveillance

Accurate quantification of the spill is achieved using the FLIR 380HD sensors. The FLIR 380HD is an industry leading surveillance sensor turret, used extensively by military and other government users across the world. The daylight HD EO sensor image is displayed to the crew via AIMS-ISR on HD screens in the cabin. The Medium Wave Infra-Red (MWIR) sensor would be used in conjunction with the EO; in our experience MWIR is good for identifying thicker areas of pollution, and by combining these outputs through the mission software, highly accurate quantification is achieved. Using Bonn Agreement protocols, the crew would assess oil coverage and thickness.

By day, the EO and MWIR sensors (by night MWIR only) would be used to trace the perimeter of the spill, which is automatically logged (drawn) onto the AIMS-ISR mapping system; the area of the spill can be quickly established and reported to the ARCC.

Mapping System and Mission Integration:

CarteNav AIMS-ISR is at the heart of the mission-system. For oil-spill surveillance, it provides a superb capability to map and quantify pollution. The crew would use camera boresight to draw a real-time virtual-reality perimeter around the oil-spill. Different perimeters are created around differing pollution areas, the volume of these areas is automatically calculated, then by using the Bonn Agreement classifications, thickness and quantity is calculated.

3.19	<p>The Supplier shall ensure that the System detects and classifies any Pollutants (other than Oil) in all light levels, by Daylight and Night Time Hours, and provides a report to the Authority classifying the Pollutant(s) by physical nature and coverage within an hour of finding the Pollutant(s).</p>	<p>Unspecified pollutants will be detected utilising SAR <i>(if fitted)</i> and EO/IR sensors, supported by visual identification where practicable.</p> <p>Once detected the line-scanner <i>(if fitted)</i> will also be used to survey the pollution.</p> <p>The Mission Management system incorporates automatic compilation/reporting function, which facilitates near real-time transmission via the satcom, if time critical, or onward dissemination post-sortie.</p>
3.20	<p>The Supplier shall ensure that the System detects the presence of Oil (beyond a sheen) and Pollutants within the search area at least at the sea surface coverage rate per hour specified in the Supplier's Solution.</p>	<p>The sea-surface coverage rate depends on the sensor used (radar, turret or line-scanner). Of these, the most restrictive is the Optimare IR/UV line scanner. The OEM recommends operations at 1000ft AMSL with a sensor FOV of 90 degrees; therefore, a sea surface coverage rate of 60nm²/hr can be achieved by the System when employed in that role. Greater rates can be achieved by increasing the altitude for the UV/IR LS (the OEM permits operation up to 15,000ft AMSL) augmented with the core radar and EO/IR turret. In other roles where the IR/UV line scanner is not required significantly larger sea surface coverage rates can be achieved utilising the radar and EO/IR sensors.</p> <p><u><i>Note – the Panther aircraft and third LEAP-M Pod have a limited capability to perform this UR as they are only equipped with a sensor turret. They will achieve the sea-surface coverage rate using the EO/IR sensors.</i></u></p>
3.24	<p>The Supplier shall ensure that the System safely deploys items from the aircraft in flight, including:</p> <ol style="list-style-type: none"> 1. a first aid kit; 	<p>2 Excel will install a 6.5" drop tube through the rear empennage of the aircraft. This system will deploy a custom made, free-fall air deployable survival pack, containing a first-aid kit, communication device, and position marker.</p> <p><u><i>Note – Panther aircraft do not have this capability.</i></u></p>

	<p>2. a communication device; and</p> <p>3. method of marking position from the aircraft to the surface in support of the mission</p>	
4.1	<p>The Supplier shall ensure that assets engaged in the delivery of this capability shall be immediately visibly identifiable and include HMCG branding as per Appendix A and OGD branding.</p>	<p>Both aircraft will be painted in the Authority livery, and additional OGD branding.</p> <p><u>Note – while primary Panther aircraft allocated to the Surge Line of Tasking will be liveried, aircraft from the wider fleet used to fulfil the Surge Line of Tasking when the primary aircraft are unavailable may not be.</u></p>
5.1	<p>The Supplier shall ensure that the System shall communicate by voice LOS and BLOS allowing communications between:</p> <ul style="list-style-type: none"> • the Tasking Authority; • the Co-Ordinating Authority; 	<p>2 Excel’s communications solution for the System consists broadly of 3 elements; capable and reliable aircraft systems, a state-of-the-art tactical multi-channel software defined radio and an aviation specific Inmarsat SATCOM paired with a range topping High Gain Antenna (HGA).</p> <p>Aircraft communications will be augmented with a PS Engineering PAC 45 audio controller which will allow for flexible, configurable communications (transmit and receive) for all crew members.</p> <p>For operational LOS communications, the aircraft will be fitted with a Cobham RT-7000 multi-channel radio.</p> <p>The RT-7000 The unit covers the VHF/UHF frequencies between 29.7 MHz and 960MHz. For the initial installation, the standard Wideband Transceiver Module (WTM) will be installed but additional encrypted capabilities can be added for communications with other third parties.</p>

<ul style="list-style-type: none"> • other air vehicles; • Air Traffic Services <p>surface vessels and installations;</p> <ul style="list-style-type: none"> • emergency responders; • military assets; • ground assets; • persons in distress or potential <p>distress equipped with mobile phones;</p> <ul style="list-style-type: none"> • Linking communications between <p>the Co-Ordinating Authority and</p> <p>vessels/aircraft/assets; and</p> <ul style="list-style-type: none"> • any other third parties as required <p>by the Authority.</p>	<p>Additional radios may also be connected via the associated SAL-7000 connection unit to provide for:</p> <ul style="list-style-type: none"> • PRC-117 • LMR • Cellular • Satcom • Tetra <p>SAT-SAT and SAT-GSM Full voice capability is also available through the associated PTA-100 dialler and integrated with the aircraft audio control system.</p> <p>BLOS voice and data will be via a dual-channel Cobham AVIATOR-SP SATCOM. Data is via Inmarsat and includes in-flight access to the Internet, email, voice-calls as well as video streaming, video conferencing and aerial surveillance. Background data rates are of up to 432kbps per channel which can be achieved with the specified HGA.</p> <p><u>Note – the Panther aircraft are equipped with satcom voice and marine band radio for tactical comms. 2Excel’s communications solution for the Panther aircraft consists broadly of 3 elements; capable and reliable aircraft systems, a marine-band VHF radio and fully installed satphone. Aircraft communications will be augmented with a PS Engineering PAC 45 audio controller which will allow for flexible, configurable communications (transmit and receive) for all crew members.</u></p>
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<p>Supplier shall ensure that the</p> <p>System shall communicate</p> <p>by voice LOS and BLOS</p> <p>allowing communications between:</p> <ul style="list-style-type: none"> • the Tasking Authority; • the Co-Ordinating Authority; • other air vehicles; • Air Traffic Services <p>The Supplier shall ensure that the System shall communicate</p> <p>by voice LOS and BLOS allowing</p> <p>communications between:</p> <ul style="list-style-type: none"> • the Tasking Authority; • the Co-Ordinating Authority; 	
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	<ul style="list-style-type: none"> • other air vehicles; • Air Traffic Services; 	
5.2	<p>The Supplier shall ensure that the System shall communicate LOS and BLOS securely by voice to facilitate safe operation and conduct of the Task allowing communications between:</p> <ul style="list-style-type: none"> • the Co-Ordinating Authority; • other air vehicles; • Emergency responders; and • Equipped surface vessels 	<p>Through a combination of aircraft, tactical and SATCOM capabilities the System can communicate securely by voice to all the specified users by any crew member. The exact method of communication will vary depending on the receiving unit's capability.</p> <p>Secure LOS comms are via the RT-7000 and can be configured with multiple encryption types.</p> <p>Encryption:</p> <ul style="list-style-type: none"> • FIPS 140-2, Level 2/3 • P25 AES & DES • Analogue DES, DES-XL, DVP • P25 OTAR • Multi-key <p>The System achieve secure BLOS capability through the AVIATOR-SP SATCOM.</p> <p><u><i>Note – the Panther aircraft are equipped with satcom voice and marine band radio for tactical comms, and are not capable of secure comms in their current configuration.</i></u></p>
5.3	<p>The Supplier shall ensure that the System sends and receives digital information including images, documents and video in near real time LOS and BLOS with:</p>	<p>Digital information including images, documents and video will all be managed via the Mission Management System (MMS). Information generated by onboard sensors can be transmitted and digital information by off board sources received via the AVIATOR-SP Satcom system in Near Real Time (NRT).</p> <p><u><i>Note – Panther aircraft do not have this capability except for the Spidertracks text facility (an Iridium service).</i></u></p>

	<ul style="list-style-type: none"> • the Tasking Authority and the Co-Ordinating Authority; • other air vehicles; • Air Traffic Services; • surface vessels and installations; • emergency responders; • military assets; • ground assets; • persons in distress or potential distress equipped with mobile phones; and • any other third parties as required by the Authority. 	
5.4	<p>The Supplier shall ensure that the System sends and receives secure digital information including images, documents and video in near real time LOS and BLOS with:</p>	<p>The System can send and receive secure digital information via the MMS and dedicated BLOS SATCOM link.</p> <p>The Cobham AVIATOR-SP will facilitate the transmission and receipt of data.</p> <p>The system utilises a Virtual Private Network (VPN) over the Satcom bearer. 2 Excel has considerable experience using the 'LogMeIn – Hamachi VPN'. This service is a secure system using AES 256-bit encryption, AIMS-ISR mission data, images, documents and video can be passed via this system.</p>

	<ul style="list-style-type: none"> • the Co-Ordinating Authority; • other air vehicles; • emergency responders; and • Border Force cutters 	<p><u>Note – Panther aircraft do not have this capability.</u></p>
5.5	<p>The Supplier shall ensure that the System provides concurrent voice and data communications with one voice and one data channel. The Supplier shall ensure that safe aircraft operations shall remain unaffected by this requirement.</p>	<p>The System incorporates concurrent voice and data communications.</p> <p>The suite of aircraft, tactical and SATCOM communications integrated through the PAC45 allows for simultaneous and independent transmit and receive for all crew members. There are two data channels available through the AVIATOR-SP BLOS SATCOMS.</p> <p>Aircraft safety is paramount, and every element of the System will be airworthy and 100% compliant with the relevant regulations, including thorough EMI/EMC testing.</p> <p><u>Note – Panther aircraft incorporate concurrent voice and data communications – the only data communications are through the Spidertracks text facility. The suite of aircraft, tactical and SATCOM communications integrated through the PAC45 allows for simultaneous and independent transmit and receive for all crew members. Aircraft safety is paramount, and every element of the System will be airworthy and 100% compliant with the relevant regulations, including thorough EMI/EMC testing.</u></p>

Annex E

Annex B to Schedule 5A - Coordination of Third King Air Line of Tasking and Surge Line of Tasking

1. The Third King Air Line of Tasking shall be available to the Authority for up to a maximum of 365 flying hours per annum.
2. The Third King Air Line of Tasking shall be utilised for Planned Tasks only unless otherwise directed by the Authority.
3. The number of flying hours the Third King Air Line of Tasking shall undertake in any month shall be agreed by the Authority and the Supplier no later than 10 days prior to that and shall be allocated according to:
 - a. The Authority and its stakeholder's projected demand;
 - b. Forecast maintenance; and
 - c. Remaining flying hours of the 365 total,

("Agreed Monthly Flying Hours")
4. The allocation of flights to stakeholder Tasks using the Third King Air Line of Tasking shall be done in-month at the weekly flypro planning meeting but shall not exceed the number of Third King Air Line of Tasking flying hours allocated for that month.
5. Should a stakeholder not wish to be subject to the normal flypro booking and allocation process, or the annual flying hours or monthly allocation of hours be exceeded, this shall trigger the Surge Line of Tasking.
6. The Surge Line of Tasking shall only be utilised for one or more of the following reasons
 - a. after the Agreed Monthly Flying Hours have been exceeded;
 - b. if flights in addition to those programmed (in accordance with paragraph 4 above) in any month are required; or
 - c. after 365 hours per hours available for the Third King Air Line of Tasking in accordance with paragraph 1 above have been exceeded; or
 - d. if the Authority expressly requests it.

Annex F

Financial Model for Third King Air Services

Annual Cost Model		
Fixed Costs		
	Annualised Transition Costs	Sensitive & Irrelevant
Gross Wages	Wages	
Overhead		
Infrastructure	Office/hangar/crew hour	
Aircraft Insurance	Insurance	
Internal Training Costs	Training (inc. churn)	
Aircraft Maintenance	Maintenane	
Computer Licences	Data management/licences	
Satcom	Satcom airtime	
Finance		
Depreciation		
Total fixed costs		
Variable Costs		
Component Maintenance	Engine reserve/hr	
Aircraft Maintenance	Maintenance/hr	
Equipment Maintenance	Turrets, mission system/hr	
Aircraft Fuel	Fuel/hr	
Other DOCs	Landing fees/hr	
Total variable costs based on 365 hours/yr		
Fixed Income		
Monthly	Sensitive & Irrelevant	
Total		
Variable Income: S&I /hr)		
Total	Sensitive & Irrelevant	
Margin		