



JOINT NORTH ATLANTIC AIRSPACE STANDARD OPERATING PROCEDURES

- GANDER FSS (RADIO)**
- GANDER OCC**
- SHANNON FSS (SHANWICK RADIO)**
- PRESTWICK OCC (SHANWICK OCC)**

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**GANDER OCC (CZQX) AND SHANWICK OCC (EGGX)
STANDARD OPERATING PROCEDURES**

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1. PURPOSE

This Document establishes standard procedures for the control of the North Atlantic MNPS airspace by Gander OCC and Shanwick OCC including coordination and transfer of control of flights and delegation of airspace between the two units.

2. DESCRIPTION OF AIRSPACE AND PROCEDURES

The Gander and Shanwick OCC are each responsible for half of the north Atlantic MNPS airspace. Both OCAs have been divided into various sectors to optimise traffic management and controller workload.

sector	frequency	identifier	code
Gander Oceanic Clearance	128.450 / 135.450	CZQX_OC_CTR	OC
Gander FSS (Southern tracks)	12237.0 kHz (122.370)	CZQX_S_FSS	FSS-S
Gander FSS (Northern tracks)	12690.0 kHz (126.900)	CZQX_N_FSS	FSS-N
Gander FSS (Western airspace)	12710.0 kHz (127.100)	CZQX_W_FSS	FSS-W
Shanwick Oceanic Clearance	123.950 / 127.650	EGGX_OC_CTR	OCD
Shanwick FSS (Southern tracks)	12790.0 kHz (127.900)	EGGX_S_FSS	ORS
Shanwick FSS (Northern tracks)	12417.0 kHz (124.170)	EGGX_N_FSS	ORN

A diagram of the North Atlantic Airspace is found in attachment #2

3. OCEANIC CONTROL (OCC) PROCEDURES

3.1 Description of the position

The OCC position is responsible for maintaining required separation within the Oceanic Control area by using the position reports relayed by FSS. OCC shall also approve/deny all requests for altitude and/or speed changes as relayed by FSS.

The OCC controller shall use OCMS as sole reference for oceanic control. IvAc shall only be used to communicate via text to other pilots and controllers.

The OCC shall process and approve all oceanic clearances. ORCA may be used in lieu of voice. ORCA procedures are located in section 7.

There are two (2) Oceanic Control Centres. One located in Gander and one Located in Prestwick. See sections 5 and 6 respectively for unit-specific procedures.

3.2 Oceanic clearance

Flights planned through Oceanic airspace must obtain a separate Oceanic Clearance. The request is made between 30 and 45 minutes prior to the ETA of the Oceanic entry point. It is the responsibility of the Oceanic Controller ensure that all aircraft enter oceanic airspace properly spaced and remain spaced throughout the crossing.

3.2 Phraseology

- PILOT: "Gander Clearance, Air Canada 871 request oceanic clearance."
- ATC: "Air Canada 871, Gander, Go ahead"
- PILOT: "Air Canada 871, Request London Heathrow via NAT X-Ray (or complete random routing) at FL360 and mach 0.84 estimate NOVEP 2340z"
- ATC: " Air Canada 871 cleared to London Heathrow via track X-Ray (or complete random routing), Expect FL370, Mach .84, cross NOVEP at time 2347z. Readback with TMI"
- PILOT: "Air Canada 871 cleared Heathrow via direct NOVEP, NAT X-Ray, FL370, Mach .84, cross NOVEP at time 2347z and the TMI 233"
- ATC: "Readback correct, return to last control"

Note: a time limitation is only given if the aircraft's ETA at the NAT needs to be altered. In the above example ACA871 was cleared via the requested route via the requested route. If this isn't the case the route would be modified. (It's a good idea to let the pilot know if this is the case before issuing the clearance so you won't have to repeat it because the pilot wasn't properly prepared.

Before issuing clearance the controller shall insert the flight into ORCA and confirm positive spacing exists and will be maintained throughout the crossing.

It is the OCC controller's responsibility to co-ordinate routing and/or altitude changes with domestic units. Actual clearance to change course and/or altitude will always be given by the domestic unit. It is not necessary to pass entry times as the domestic units have a dedicated monitor.

3.3 Minimum separation

Procedural separation must be applied at all times.

3.3.1 **VERTICAL**

Minimum vertical separation within MNPS airspace is 1,000 feet up to and including FL410, and 2,000 feet above that.

Supersonic flights require 4,000 feet vertical separation from all other traffic if no other form of separation exists. This applies at any level for aircraft at supersonic speeds.

3.3.2 **LATERAL**

Minimum lateral separation is sixty (60) Nautical Miles.

Parallel tracks which are spaced apart by one (1) degree, and which change latitude by no more than two (2) degrees over a longitude of ten (10) degrees are deemed to be separated.

Example: tracks from 52N20W to 54N30W and 53N20W to 55N30W are separated. 55N10W to 58N20W and 56N10W to 59N20W are not separated. NAT tracks are normally defined so that they do not change latitude by more than 2 degrees for each 10 degrees longitude difference thereby ensuring separation.

3.3.3 **LONGITUDINAL**

Minimum longitudinal separation for aircraft on the same track is ten (10) minutes flying time.

Example: an aircraft passing 57N20W at FL360 must not be followed by another at the same level on the same track until ten minutes have elapsed after the first one passed that point.

Aircraft on crossing tracks at the same level must be fifteen (15) minutes apart at the point where their tracks cross.

3.3.4 **SPEED DIFFERENCES**

Aircraft with different speeds on the same track/FL will gradually get closer or further apart. It is imperative to monitor this change of spacing closely for loss of separation.

When calculating initial spacing use the following formula:

Slow followed by fast: Add one (1) minute to the standard for every increase of 0.01 Mach number of the second aircraft.

Example: M0.80 followed by M0.84 requires FOURTEEN minutes at ocean entry same track same level.

Fast followed by slow. Subtract one (1) minute from the standard for every decrease of 0.02 Mach number of the second aircraft. The minimum is 5 minutes at Oceanic entry.

Example: M0.84 followed by M0.80 requires a minimum of EIGHT minutes separation at ocean entry same track same level.

If two aircraft at different speeds are entering Oceanic Airspace at the same point but following tracks which will be separated by no less than sixty (60) nautical miles, or ten (10) degrees of longitude after entry the increase above is not required. The reduction above may still be applied.

If this situation occurs inside Oceanic Airspace (as opposed to at entry) then they are considered to be on crossing tracks and the fifteen (15) minute rule applies. There is no reduction to the fifteen minute rule for fast followed by slow on crossing tracks.

3.3.5 **OPPOSITE DIRECTION**

The following is included in order to determine the separation requirement for aircraft wishing to climb/descend through the level of another aircraft opposite direction, whether on the same track or crossing tracks opposite direction.

Vertical separation must be established by a position calculated to be thirty (30) minutes flying time before the position/time at which it is estimated that they will pass one another, and must continue to exist until 30 minutes after they are estimated to have passed. If it can be positively established that they have passed, by both having reported passing the same Oceanic Reporting Point then the separation may be reduced to 10 minutes after they are known to have passed each other.

Example: Two aircraft, (a) routing 55N10W 56N20W 57N30W (b) routing 56N30W 56N20W 56N10W. (a) estimates 56N20W at 1234 and 57N30W at 1304, (b) estimates 56N30W at 1224 and 56N20W at 1254. Inspection and calculation indicates that they will both be approximately one third of the way from 20W to 30W (or two thirds of the way from 30W to 20W) at approximately the same time (1244) so vertical separation must exist from 1214 until 1314. Once (b) has reported past 20W the pass will have been established and one or other may climb/descend through the other aircraft's level after 1304 (ten minutes after they are known to have passed).

3.4 **Communication with aircraft**

Communication with aircraft over the North Atlantic shall be made by relay through the FSS stations. See sections 5 and 6 for Gander and Shanwick intercom procedures.

4. **OCEANIC RADIO (FSS) PROCEDURES**

4.1 **Description of the position**

The FSS position is responsible for relaying communications between the OCC and aircraft over the North Atlantic, as well as entering position updates into the OCMS. FSS may be required to relay Oceanic Clearances when aircraft are outside Gander OCC VHF coverage.

Upto three flight service specialists may work Gander FSS. The area of coverage for each sector will depend on actual traffic, and shall be decided by the FSS supervisor (S sector) Typically N and S serve traffic from 30W to 50W, and W from 50W onwards.

4.2 **Radio Frequencies**

All communications take place HF frequencies. As the current pilot/controller software doesn't support HF frequencies a modified decimal system has been arranged where the frequency 12237 kHz is entered as 122.37 in IvAc. Phaseology for the said frequency remains "one two two three seven kilohertz"

4.3 **SELCAL**

SELCAL shall be used whenever aircraft are equipped. On initial call-up SELCAL should be verified. Subsequent communications shall always be initiated with a SELCAL signal.

To transmit a SELCAL signal enter **.selcal [callsign]** in the IvAc comm. box and transmit. If the SELCAL check fails the aircraft should be advised to monitor the frequency continuously.

4.4 Position reports

Aircraft will transmit position reports to Gander FSS at each waypoint along their route, or every 45 minutes, whichever is shorter. Upon receiving the report Gander FSS shall enter the estimate as well as any remarks/requests into the OCMS flight strip

4.4 Phraseology

- PILOT: "Shanwick Radio, Air Canada's 871 position."
- FSS: "Air Canada 871, Shanwick Radio, Pass your mrsssg"
- PILOT: "Air Canada 871, passed NOVEP 2347z, FL360, mach 0.84 estimate 51N 50W 0021z, 53N 40W next"
- FSS: " Air Canada 871, passed NOVEP 2347z, FL360, mach 0.84 estimate 51N 50W 0021z, 53N 40W next"
- PILOT: "Readback correct"
- FSS: "Shanwick Radio"

If any portion of the aircraft's transmission is unreadable, or if parts are omitted reconfirm with the aircraft before reading back the position report.

4.5 Relay of requests and clearances

Aircraft will make all requests on FSS frequencies. These shall be relayed to the OCC controller:

- By entering the request in the remarks field of the flight strip: **RMK/REQ F350 1334z**
- When more urgent, or if no reply received within five (5) minutes via intercom. See sections 5 and 6 for local intercom procedures.

5. GANDER-SPECIFIC PROCEDURES

5.1 Communication

Aircraft When issuing instructions or clearances always preface with "ATC clears" or "ATC instructs" as appropriate. Refer to the Canadian Phraseology guide, section 8, for complete intercom procedures.

5.2 Consolidation of sectors

When staffing or traffic don't warrant the sectors shall be consolidated as follows:

3 Controllers: FSS-N, FSS-S and OC shall be open. FSS-W shall be split between N and S FSS.

2 Controllers: FSS-S and OC shall be open. FSS-W and FSS-N shall be delegated to FSS-S.

1 Controller: FSS-S shall be open. FSS-W and FSS-N shall be delegated to FSS-S. In addition FSS-S shall assume the duties of OC.

6. SHANWICK-SPECIFIC PROCEDURES

6.1 ORCA system

Aircraft requesting Oceanic clearance via ORCA (see paragraph 7) are **not** required to contact Shanwick on RTF.

6.2 Clearance

Flights routing via RATSU do not require OCA clearance from Shanwick, and should not contact Shanwick Clearance Delivery. Aircraft are required to request clearance from Reykjavik OACC.

6.3 Airspace Allocation

Sections of the Shanwick FIR are allocated to Shannon ACC and Brest ACC. The areas are designated SOTA (Shannon Oceanic Transition Area) and BOTA (Brest Oceanic Transition Area), respectively (see Attachment #2). Aircraft within these sectors are handled by the relevant domestic ATC authority.

6.4 Bandboxing

When staffing or traffic don't warrant the sectors shall be consolidated as follows:

2 Controllers: FSS-S and OC shall be open. FSS-N shall be delegated to FSS-S.

1 Controller: FSS-S shall be open. FSS-N shall be delegated to FSS-S. In addition FSS-S shall assume the duties of OC.

7. DATALINK ROUTE CLEARANCE AUTHORISATION

7.1 Overview

Aircraft Communication Addressing and Reporting System (ACARS) equipped aircraft may request and receive their Oceanic clearance via datalink, utilising the Oceanic Route Clearance Authorisation system (ORCA). This system should not be used by aircraft within 30 minutes of entry to Oceanic airspace; RTF should then be used.

7.2 Usage

Aircraft will request clearance using the web-based FMC, following the included instructions. When a clearance request is made a flight-strip will appear in the Pending bay on the ORCA ATC page. The flight should be checked for conflict with the aircraft in the relevant FL/Track section on the Cleared bay. If required, the FL, ETA or track can be changed before clearing the aircraft. Alternatively, ATC can request negotiation with the flight by pressing the DENY button. The pilot will then receive a message requesting radio contact.

Aircraft in the Cleared bay can have their details changed by clicking on the callsign.

8. INTER-UNIT AND DOMESTIC CO-ORDINATION

8.1 Oceanic transfer points

Transfer of communications to and from domestic units shall occur at the following points:

Montreal ACC (CZUL)

→ **BZ:** MUSVA - KAGLY - BERUS - IKMAN - TANTI - GRIBS

→ **FG:** VIMLA - MINBO - TAPLU - PEPKI - KENDRI - VIBDI

Gander ACC (CZQX)

→ **FX:** MOATT - PRAWN - PORGY - LOACH - SCROD - OYSTR

→ **GN:** CARPE - HECKK - CRONO - 51/50 - 50/50 - 49/50 - 48/50 - 47/50 - 46/50 - 45/50

Scottish ACC (EGPX)

RATSU - ATSIX - BALIX - ERAKA - GOMUP - MIMKU - NIBOG

Shannon ACC (EISN)

MASIT - KORIB - DOGAL - MALOT - LIMRI - DINIM - SOMAX - BEDRA - OMOKO - LASNO

Brest ACC (LFRR)

ETIKI - SEPAL - SIVIR

Madrid ACC (LECM)

BEGAS - DIXIS - BERUX - PITAX - PASAS

8.2 Gander FSS ↔ Montreal ACC

- 8.2.1 Normally Oceanic clearances for flights entering north of MOATT shall be relayed through, or directly issued by the Montreal ACC. The duty clearance controller for eastbound flights shall confirm with the appropriate Montreal sector. If the Montreal controller issues the oceanic clearance directly the controller shall enter the flight into ORCA.
If clearances are being relayed refer to section 8 of the Canadian Phraseology guide for intercom clearance phraseology.
- 8.2.2 Montreal ACC shall transfer flights to Gander FSS no less than 2 minutes prior to crossing the entry fix. Before transfer Montreal ACC shall ensure aircraft is at Flight Level, and Mach speed specified in the oceanic clearance, and shall cross the entry fix at the time specified.
- 8.2.3 Gander FSS shall transfer flights to Montreal ACC no later than the oceanic transfer point, and **leave the flight in OCMS**. Once the flight is identified, and no less than 15nm from the oceanic exit fix Montreal ACC shall remove the flight from OCMS

8.2.3 Phraseology

- Position report at waypoint preceding exit fix
- PILOT: "Readback correct Speedbird 94"
- ATC: "Speedbird 94, contact Montreal Centre **at (or crossing)** VIBDI on 126.5
- PILOT: "At VIBDI contact Montreal 126.5, Speedbird 94"

8.3 Gander FSS ↔ Gander ACC

- 8.3.1 All oceanic clearances shall be issued by Gander OCC by voice or via ORCA. If voice communication is required Gander ACC (or Moncton if the aircraft is still in the Moncton FIR) shall release aircraft to Oceanic clearance frequency when convenient.
- 8.3.2 Gander ACC shall transfer flights to Gander FSS no less than 2 minutes prior to crossing the entry fix. Before transfer Gander ACC shall ensure aircraft is at Flight Level, and Mach speed specified in the oceanic clearance, and shall cross the entry fix at the time specified.
- 8.3.3 Gander FSS shall transfer flights to Gander ACC no later than the oceanic transfer point, and **leave the flight in OCMS**. Once the flight is identified, and no less than 15nm from the oceanic exit fix Gander ACC shall remove the flight from OCMS

8.3.3 Phraseology

- Position report at waypoint preceding exit fix
- PILOT: "Readback correct Air Canada 865"
- ATC: "Air Canada 865, contact Gander Centre **at (or crossing)** 51 North, 50 West on 124.17"
- PILOT: "At 51N50W contact Gander 124.17, Air Canada 865"

8.4 Gander FSS ↔ Shanwick FSS

- 8.4.1 Estimates for 30W **do not** have to be exchanged unless specifically requested by either controller.
- 8.4.2 All flights shall be transferred at 30W. Upon reporting 20W/40W the aircraft shall be instructed to make next report on the new frequency. There shall be no further communication unless required. **Ensure that pilots understand that they are to contact the new frequency only upon reaching 30W, not immediately.**

8.4.3 Phraseology

- *Position report at 20W / 40W*
- PILOT: "Readback correct Speedbird 94"
- ATC: "Speedbird 94, Report crossing 30 West to Gander Radio on frequency one two two three seven kilohertz (12237 kHz)"

- 8.4.4 When only one oceanic sector is online – be it Shanwick, or Gander – this sector shall issue all oceanic clearances and, traffic conditions permitting, provide full separation and radio services to aircraft within both the Gander and Shanwick OCAs.

- 8.4.4 Note:** When 8.4.4 is applicable **all** aircraft within **both** the Shanwick and Gander OCAs **must** contact the active controller.

8.5 Shanwick FSS ↔ Scottish ACC

- 8.5.1 All oceanic clearances shall be issued by Shanwick OCC by voice or via ORCA. If voice communication is required Scottish ACC shall release aircraft to Oceanic clearance frequency when convenient.
- 8.5.2 Scottish ACC shall transfer flights to Shanwick FSS no less than 2 minutes prior to crossing the entry fix. Before transfer Scottish ACC shall ensure aircraft is at Flight Level, and Mach speed specified in the oceanic clearance, and shall cross the entry fix at the time specified.
- 8.5.3 Shanwick FSS shall transfer flights to Scottish ACC no later than the oceanic transfer point, and **leave the flight in OCMS**. Once the flight is identified, and no less than 15nm from the oceanic exit fix Scottish ACC shall remove the flight from OCMS.

8.6 Shanwick FSS ↔ Shannon ACC

- 8.6.1 All oceanic clearances shall be issued by Shanwick OCC by voice or via ORCA. If voice communication is required Scottish ACC shall release aircraft to Oceanic clearance frequency when convenient.
- 8.6.2 Shannon ACC shall transfer flights to Shanwick FSS no less than 2 minutes prior to crossing the entry fix. Before transfer Shannon ACC shall ensure aircraft is at Flight Level, and Mach speed specified in the oceanic clearance, and shall cross the entry fix at the time specified.
- 8.6.3 Shanwick FSS shall transfer flights to Scottish ACC no later than the oceanic transfer point, and **leave the flight in OCMS**. Once the flight is identified, and no less than 15nm from the oceanic exit fix Shannon ACC shall remove the flight from OCMS.

8.7 Shanwick FSS ↔ Brest ACC

- 8.7.1 All oceanic clearances shall be issued by Shanwick OCC by voice or via ORCA. If voice communication is required Scottish ACC shall release aircraft to Oceanic clearance frequency when convenient.
- 8.7.2 Brest ACC shall transfer flights to Shanwick FSS no less than 2 minutes prior to crossing the entry fix. Before transfer Brest ACC shall ensure aircraft is at Flight Level, and Mach speed specified in the oceanic clearance, and shall cross the entry fix at the time specified.
- 8.7.3 Shanwick FSS shall transfer flights to Scottish ACC no later than the oceanic transfer point, and **leave the flight in OCMS**. Once the flight is identified, and no less than 15nm from the oceanic exit fix Brest ACC shall remove the flight from OCMS.

8.8 Shanwick/Gander FSS ↔ Santa Maria/New York FSS

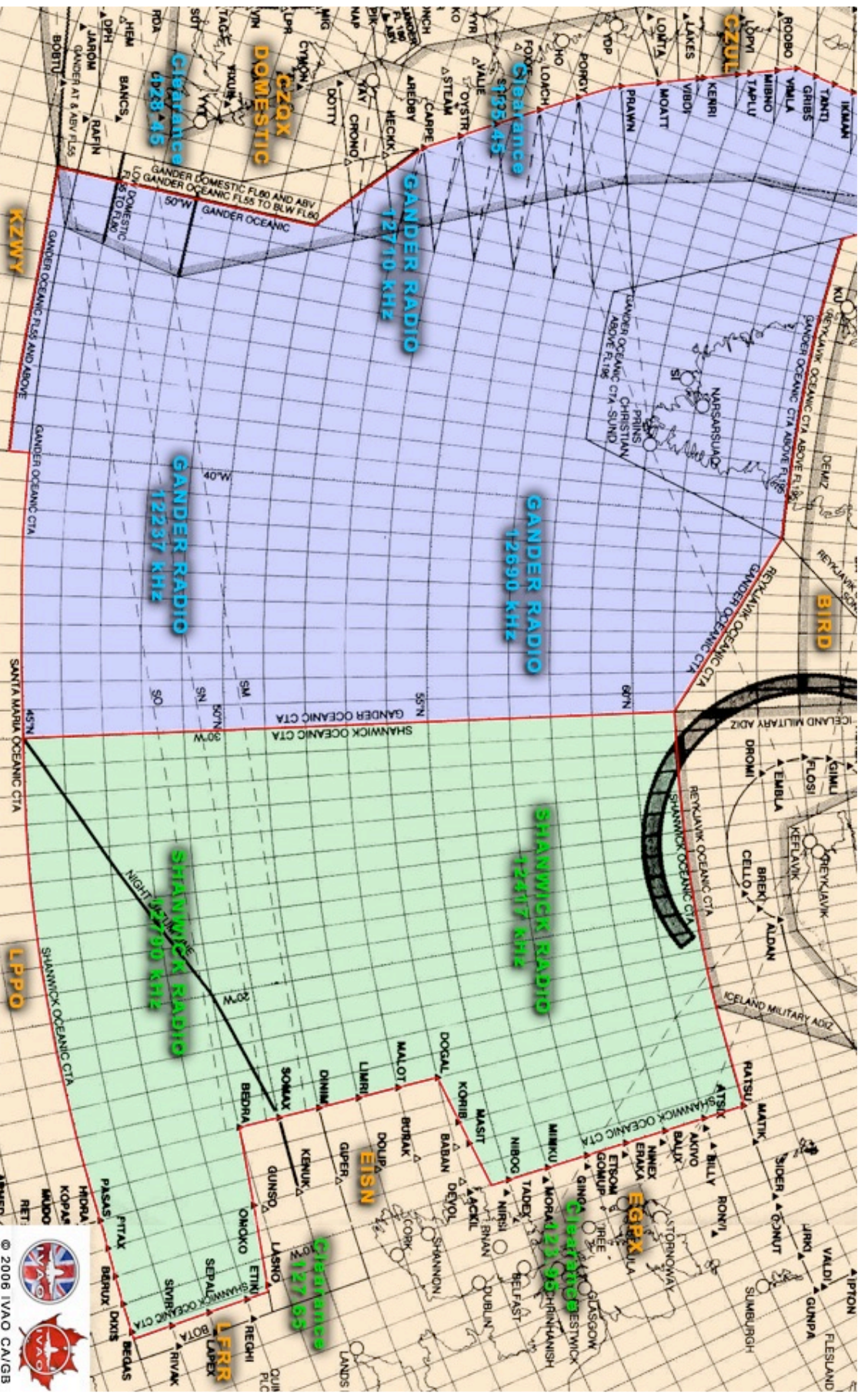
- 8.8.1 All transfers shall be co-ordinated through intercom at least 15 minutes prior to hand off.
- 8.8.2 Transfer of communications and control shall occur at 45.00N

9. ANNEXES

ANNEX 1 – OCMS manual

ANNEX 2 – North Atlantic airspace diagram

ATTACHMENT #1



ATTACHMENT #2
 GANDER AND SHANWICK AIRSPACE