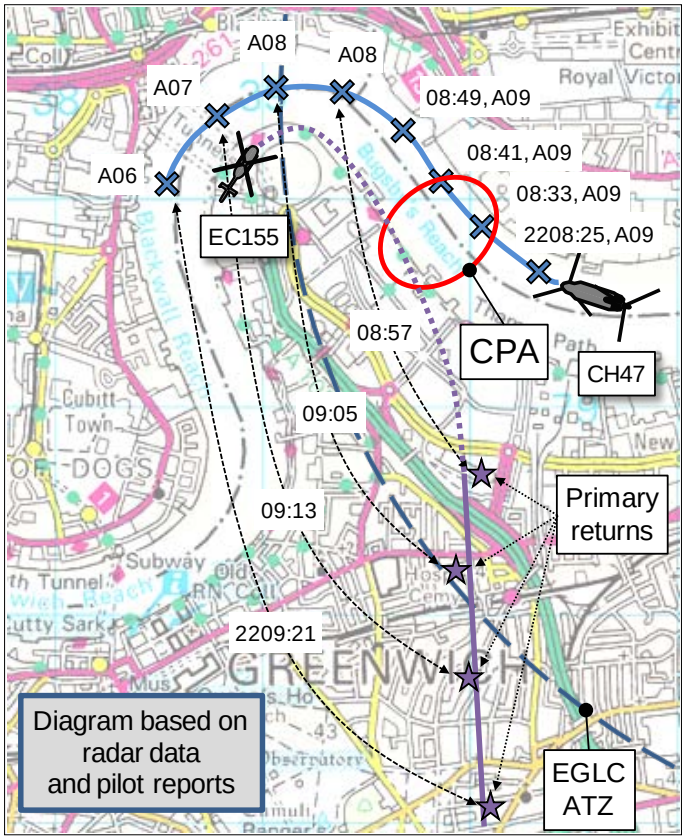
AIRPROX REPORT No 2012067

Date/Time:	21 May 2012 2209Z (Night)	
Position:	5130N 00000W (ivo O2 Arena - elev 15ft)	
Airspace:	LON CITY CTR (*Class: D*)	
	Reporting Ac	*Reported Ac*
Type:	Chinook	EC155
Operator:	HQ JHC	Civ Comm
Alt/FL:	1000ft QNH (1011hPa)	NR QNH (1018hPa)
Weather:	VMC HZBC	VMC CLNC
Visibility:	9km	>10km
Reported Separation:	200ft V/400m H	NK
Recorded Separation:	NR	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE CHINOOK PILOT reports transiting E to W on the H4 helicopter route, under SVFR, he thought, with a RCS from Heathrow Radar, whilst conducting a night training sortie. The dark green ac had red HISLs and flashing position lights selected on, along with SSR transponder Modes A, C and S with a discreet squawk. Whilst inside the London City CTR, heading 285° at 100kts and altitude 1000ft, he observed a helicopter in his 10 o'clock position passing down the L side of the ac. Avoiding action was not taken as the ac vectors were diverging. The crew assessed that the two ac came within 400m laterally and 200ft vertically of each other. No radio calls were heard from the other ac prior to the incident and, when questioned on RT, the Heathrow controller reported not seeing either a primary or secondary contact on radar. One crewman (Rear Crew) was using NVG at the time and both pilots and the other crewman were Reversionary Night Flying [visual lookout without the aid of NVG]. During a post-flight telephone debrief the Heathrow controller stated that the other helicopter was not observed on radar until it was clear of CAS, S of the Crystal Palace masts [approximately 5nm S of the O2 Arena].

THE EC155 PILOT reports departing from the O2 Arena HLS in a climbing R turn en-route to a private landing site SW of Newbury under SVFR. The ac was dark blue in colour with navigation lights, HISLs and 2 x manoeuvre landing lamps selected on. The SSR transponder was on with Modes A, C and S selected, as was the TCAS equipment, he thought. His employer had been contracted to operate the EC155 between the London O2 Arena and a private landing site near Newbury for the period 17-23 May 2012. On the evening of 21 May the ac was parked at the O2 Arena helipad. At 2155 the crew, and a number of other individuals in attendance, initially heard and then observed a Chinook helicopter following the River Thames on the H4 helicopter route. It passed the O2 arena from W to E at an estimated height of 1000ft with no navigation or anti-collision lights visible and appeared to clear en-route to the E. He stated this was lower than the expected 2000ft prescribed for the H4 route.

After loading the passengers onto the ac, and whilst still on the ground, the PNF attempted to contact London City [118.075 MHz]; the lack of response confirmed that the A/D was closed. After lifting into the hover, a number of unsuccessful attempts were made to speak to a number of ATSUs and contact was eventually established with London Director on climb out.

He stated that the weather in the vicinity of the O2 Arena was good and that, given the noise abatement requirement to take off before 2215, he departed at 2207. After a good look out and no indication of any traffic on TCAS, he carried out a helipad take-off on an initial NE heading, turning R to route E around the O2 Arena and along the River Thames. He climbed above the S bank mast of the newly constructed and poorly lit Olympic cable car, before settling on a S'ly heading to 'depart the ATZ'.

[UKAB Note(1): The Olympic Cable Car is also known as the 'Thames Cable Car' or 'Emirates Air Line'. The picture below shows the cable car, looking SW towards the O2 Arena, from the N bank of the Thames (Attribution: Nick Cooper at English Wikipedia).

]

On T/O the ac was squawking 7000 and had navigation lights, white flashing HISLs and both landing lamps switched on. Passing altitude 500ft [QNH 1018hPa], heading S and clear of the O2 Arena, the HISLs were switched to flashing red, and the manoeuvre landing lamps were switched off. He delayed initial contact with London Director whilst a RT conversation was overheard between a Chinook pilot and the ATSU, suggesting that he had been an involved in an Airprox incident with an unknown ac. Subsequent reporting by the Chinook pilot suggested that he was flying E to W towards Barnes in the opposite direction to the earlier Chinook observed departing to the E from helicopter route H4.

He informed the ATSU [London Radar controller] of his intention to depart S and to 'leave the ATZ' before heading W to the private site via the Ockham beacon. He reported that a similar routine had been adopted on the 3 previous evenings, and acknowledged by the ATSU, due to difficulties experienced whilst trying to establishing RT communication whilst on the ground at the O2 Arena. He flew clear of the London Zone and completed the flight as planned, whilst maintaining RT contact with London Director until final approach to the private landing site. He reported that the Chinook was not observed at any stage during the take-off procedure, either visually or on TCAS. As the task was to be repeated the following evening the ac commander spoke to the ATSU by telephone and confirmed that there were issues with RT communication from the O2 arena whilst on the ground. A squawk was issued, to be set on start-up for increased conspicuity with the ATSU until RT communication was established after T/O.

[UKAB Note(2): The H4 Helicopter Route exists between RP 'BARNES' at its W end and RP 'ISLE OF DOGS' at its E end and follows the course of the River Thames. RP 'ISLE OF DOGS' is in the

London City CTR, at a position just S of the Isle of Dogs on the junction of the E boundary of EGR160 and the River Thames, which is approximately 1½nm SSW of the O2 Arena. See Figure 1.]

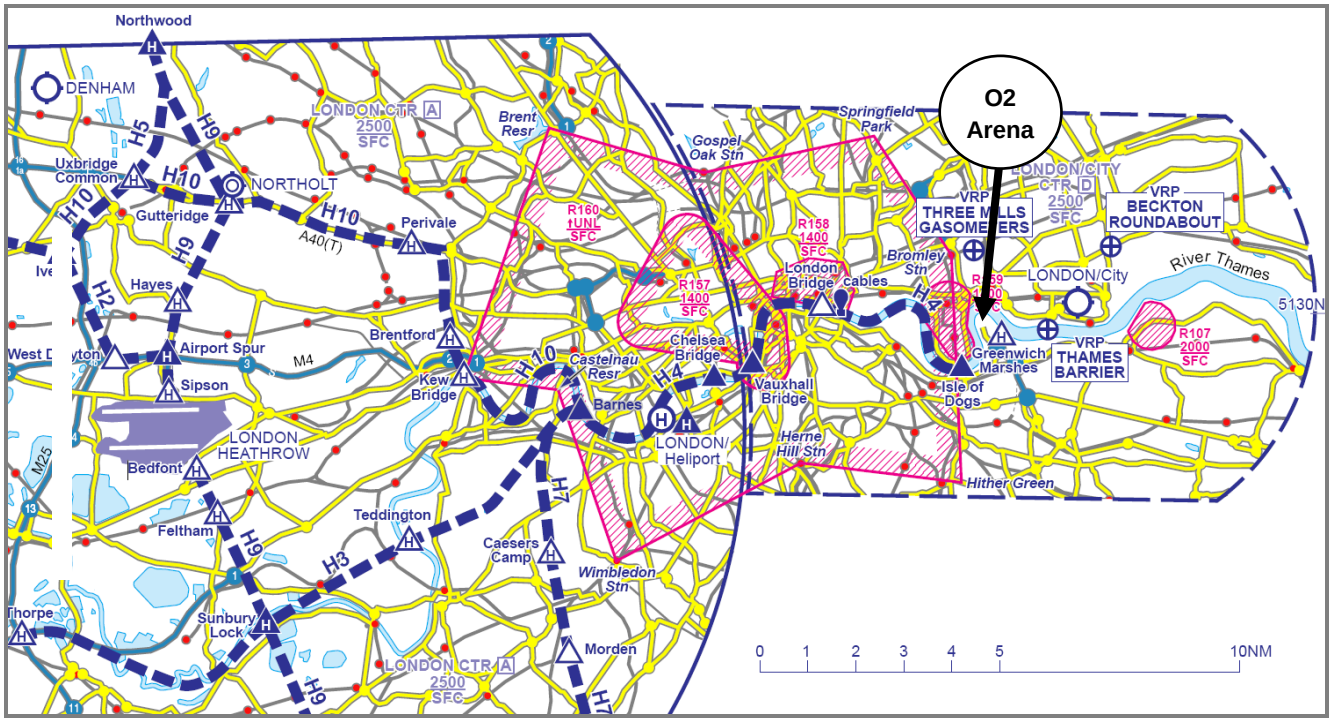


Figure 1: London CTR Helicopter Routes

The UK AIP EGLL AD 2.22 – FLIGHT PROCEDURES (AD 2-EGLL-1-20), para 9, 'Non-IFR Helicopter Flights in the London CTR', at sub-para (a), 'General Arrangements', sub-para (i) states:

> 'Non-IFR helicopter flying in the London CTR is normally restricted to flight at or below specified altitudes along defined routes. …'

At sub-para (b), 'Procedures for flight along Helicopter Routes', sub-para (iii) states:

> 'Maximum route altitudes are shown in column 3 at paragraph 11 [2000ft for route H4 between RP 'ISLE OF DOGS' and RP 'VAUXHALL BRIDGE' which is 3.5nm due W and on the boundary of the London CTR]. ATC will refer to these altitudes as 'Standard Operating Altitudes' when issuing clearances. Pilots may fly at altitudes below the maximum route altitude except for between Perivale and Chiswick Bridge on H10 where the maximum published altitude must be flown accurately. ATC may restrict aircraft to altitudes below the published route maximum as necessary to provide separation from other aircraft.'

At sub-para (c), 'Noise', sub-para (i) states:

> '… [Pilots] are reminded that there is no relaxation from the need to comply with Rule 5 of the Rules of the Air Regulations 2007, which precludes flight closer than 500 ft to any person, vessel, vehicle or structure.'

UK AIP EGLC AD 2.17 – ATS AIRSPACE (AD 2-EGLC-1-5) states that the London/City ATS Airspace (CTR, CTA and ATZ) is active H24 and that, outside the hours of Heathrow Radar and Thames Radar, the controlling authority is Heathrow Director.

UK AIP EGLC AD 2.20 – LOCAL TRAFFIC REGULATIONS (AD 2-EGLC-1-7) para 5, 'Helicopter Operations', at sub-para (b) states:

> 'See EGLL AD 2.22 for details of helicopter procedures within the CTR.'

UK AIP EGLL AD 2.22 – FLIGHT PROCEDURES (AD 2-EGLL-1-20), para 9, 'Non-IFR Helicopter Flights in the London CTR', at sub-para (d), 'Air Traffic Control Clearance', sub-paras (i) and (ii) state:

> 'During the hours of operation of Heathrow Radar, pilots must obtain a Special VFR clearance. Heathrow Radar provides a service to transit aircraft operating in the London and London City Control Zones. …'
>
> 'Outside the hours of operation of Heathrow Radar, clearance for Special VFR flights within the London CTR must be obtained from Thames Radar. Outside the hours of operation of Heathrow Radar and Thames Radar, clearance must be obtained from Heathrow Director (LTCC).'

Unlike the AIP entry for the London CTR, the AIP entry for the London CTR does not explicitly provide telephone contact details for out of hours helicopter operations within the London City CTR but it does state that the London City ATS airspace is active H24 and that the out of hours controlling authority is Heathrow Director. The relevant London CTR entry is as follows:

> UK AIP EGLL AD 2.22 – FLIGHT PROCEDURES (AD 2-EGLL-1-21) para 10, 'Helicopter Landings and Departures to/from sites within the London Control Zone', refers to procedures designed to ensure separation, avoid excessive airborne holding and reduce delays. Sub-para (b), sub-para (ii), states:
>
> > 2. Before departure the pilot must contact ATC on the ground. If two-way contact with ATC cannot be established on the ground either directly or via relay from other aircraft, the pilot must remain on the ground and contact Group Supervisor Airports (number provided) to agree an exact departure time and initial altitude with the controllers concerned in order that separation can be ensured.

THE SWANWICK CONTROLLER reports he took over the LL APC position at 2205 with one helicopter on frequency [the subject Chinook] flying 'helicopter routes through the zones'. At about 2208, shortly after he had sat down and as he was arranging his workspace, the pilot of the Chinook, then passing W of the Isle of Dogs on helicopter route H4, he thought, reported that a Dauphin helicopter had passed down his L side. He saw that there were no primary or secondary radar contacts and asked the Chinook pilot to repeat his message. He then informed him of the 'lack of radar contact'. As the Chinook pilot was explaining the sighting and suspected track of the other helicopter, a primary only contact appeared slightly SE of the Isle of Dogs, tracking S and travelling fairly fast. He informed the Chinook pilot that he could now see a contact and then called over the Group Supervisor. The primary CAIT then activated on his radar.

[UKAB Note(3): The Controlled Airspace Infringement Tool (CAIT) is an automatic radar display system that highlights primary and secondary contacts that may be infringing CAS.]

The Chinook pilot reported that he would be filing an Airprox. Very soon after that the EC155 pilot called on frequency. The controller was expecting him to lift from the O2 Arena at 2230 so issued him a squawk code in an attempt to identify him. The squawk code did not appear on radar so he asked the EC155 pilot to report his position. He replied that he was E of the Crystal Palace masts which indicated that his was the ac previously identified as a Dauphin.

The EC155 pilot's position report placed him outside CAS and he requested a BS. As no squawk was showing on radar the controller informed him of this and requested he stop squawk. Immediately thereafter the squawk code appeared, so he told him to disregard the previous request, asked for his destination and issued a BS. The Chinook pilot then asked if the controller wanted to take details of the Airprox immediately; the Chinook pilot was given a local phone number and requested to call after landing. The Controller asked the EC155 pilot why he had not contacted him prior to departure or in the low hover. The pilot stated that he had not been able to make contact in the low hover. He

informed the pilot of the requirement to obtain a clearance to operate inside CAS to which he responded that he operated 'in and out all the time' and had never had an issue.

[UKAB Note(4): The London City Airport METARs were reported as follows:
METAR EGLC 212150Z AUTO 30007KT 8000 OVC014/// 14/12 Q1010
METAR EGLC 212220Z AUTO 31005KT 7000 BKN012/// 14/12 Q1010]

[UKAB Note (5): The Rules of the Air Regulations 2007 (as amended), Section 6 (Visual Flight Rules), Rule 29 (VFR flight plan and air traffic control clearance in Class B, Class C or Class D airspace) states:

(1) Subject to rule 31, before an aircraft flies within Class B, Class C or Class D airspace during the notified hours of watch of the appropriate air traffic control unit, the commander of the aircraft shall

(a) cause to be communicated to the appropriate air traffic control unit a flight plan which complies with paragraphs (2) and (3) (as appropriate); and

(b) obtain an air traffic control clearance to fly within that airspace.

...]

ATSI reports an Airprox was reported by the pilot of a Boeing Chinook HC.3 (CH47) on Monday 21 May 2012 at approximately 2210 UTC when he came into proximity with a Eurocopter EC155 in the vicinity of the O2 Arena at North Greenwich, London.

The CH47 was on an advanced training VFR night flying exercise and in communication with LTC Heathrow Approach on 119.725MHz.

The EC155 was on a CAT flight from the O2 Arena and was not in contact with an ATSU at the time of the incident. The EC155 pilot report stated that the EC155 was operating Special VFR.

The private helipad at the O2 Arena is situated within the London City CTR and is unlicensed. Figure 2 below shows the location of the O2 Arena helipad ('Private Helipad') and Crystal Palace Masts. The notified frequencies are also highlighted. The private helipad is sited 140 metres from the W boundary of the London City ATZ.

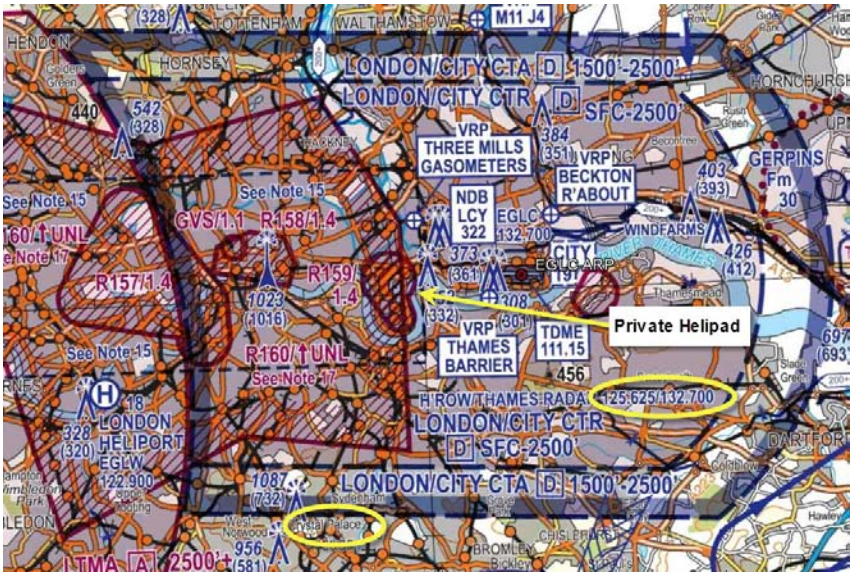


Figure 2: 1:250,000 VFR Chart

The LTC controller was providing combined Heathrow Approach and Heathrow SVFR services as "Heathrow Director" [119.725MHz]. There were no reported equipment unserviceabilities or communications or surveillance [radar] outages.

ATSI had access to reports from both pilots, the LTC controller's report, a transcript of frequency 119.725MHz, recordings of frequency 125.625MHz (Heathrow SVFR) and recorded area surveillance. Further information was also gained from a site visit to the O2 Arena and the CAA's Flight Operations Inspectorate (FOI) (Helicopters).

Meteorological information for London Heathrow was recorded as follows:

METAR COR EGLL 212150Z 32006KT 8000 SCT018 14/11 Q1011 NOSIG=

Sunset at the O2 Arena on 21 May 2012 was at 1955 UTC.

The EC155 pilot called LTC Heathrow SVFR [125.625MHz] at 1718 as he routed inbound North Greenwich from Newbury. Outside CAS, the EC155 pilot was under a BS. At 1726, as he entered the Class D airspace surrounding London City Airport, the service was changed to a RCS. The EC155 pilot was then transferred to London City ATC. He let down at the O2 Arena at 1728 and reported to London City ATC that his departure time would be, "*twenty two thirty tonight will you be closed?"* ATC responded, "*most likely*".

The CH47 pilot had been in communication with Heathrow Director since 2142:40 and was routeing from near London Heathrow Airport out to the E of London. RTF recordings indicated he was flying at altitude 1200ft *"due cloud.*", E'bound in the vicinity of the Isle of Dogs at 2158. The EC155 pilot reported 'hearing' a CH47 pass E'bound at 2155, when on the ground at the O2 Arena helipad, prior to departure. Radar recording showed the CH47 pass abeam the O2 Arena helipad at 2159:40, at altitude 1100ft.

The Southend Wx was passed to the CH47 pilot at 2202:00 and the deteriorating Wx conditions forced him to abandon the E'bound flight. At 2203:40 the CH47 pilot received approval from the Heathrow Director to return W'bound through the helicopter lanes. The CH47 pilot had reached the E extremity of the London City CTR before turning back. He stated that the next call to Heathrow Director would be at London Bridge.

Helicopter Route H4 commences at the Isle of Dogs and follows the River Thames upstream, passing London Bridge. Between these two points the AIP notifies that the maximum operating altitude is 2000ft on the London Heathrow QNH.

A handover of Heathrow Director controller took place at approximately 2205. There were no transmissions on 119.725MHz between 2205 and 2208:40; except at 2205:49 when a split-second open microphone is heard on the recording.

Starting at 2208:40, the following exchange between the CH47 pilot and Heathrow Director took place:

CH47: "…*looks like a Dauphin's just passed down our left hand side*"
LL APC: "*What has sorry*"
CH47: "*Erm helicopter just passed down our left-hand side er running east*"
LL APC: "*Okay nothing seen on radar at all actually"*; "*I've not even got a primary contact there*"
CH47: "*Really he's just we're just north of the dome now and he's probably about a mile in our six o'clock running east down the river*"
LL APC: (2209:00) "*Okay…*"

At 2209:29, Heathrow Director informed the CH47 pilot, "*He's* [the EC155] *just started painting now.*" [The first position indication symbol of the EC155 appeared at 2208:57, 1.76nm from the London City ARP.]

The EC155 pilot called Heathrow Director at 2210:00 and the following details were passed, "*we're an E C 155 got airborne from the O two tracking southbound at one thousand feet request a Basic*

Service we're routeing towards the Ockham initially now to near Newbury." Heathrow Director instructed the EC155 pilot to squawk 7047 and at 2211:00 requested him to say again his position, which was given as, "*two or three miles east of the er Crystal Palace mast.*"

The EC155 pilot was asked to confirm that squawk 7047 was set as, at 2211:20, Heathrow Director informed the EC155, "*there's nothing showing on radar only a primary target…"* However, this was immediately followed-up with, "*it's just popped up now actually…*".

At 2212:40 a BS was agreed between Heathrow Director and the EC155 pilot. At this time the CH47 pilot also reported at London Bridge from where he was given onward clearance without further incident.

At 2213:00 the following exchange took place between the Heathrow Director and the EC155 pilot:

LL APC: "*Can you just er explain why you didn't call for lift* (2213:00) *er when you were in a low hover please*"
EC155: "*Well we couldn't get through to you in the low hover we did try*"
LL APC: "*Okay thanks just you passed pretty close to a … Chinook that was flying down H four at the time*"
EC155: "*Er yes we saw him er eastbound b- as we were starting up*"
LL APC: "*Thanks you are obliged to er to received* (2213:20) *a clearance before you enter the control zone*"
EC155: "*Okay … we've been lifting out of there every night we've not been able to get you on the ground*"
LL APC: "*… I don't know why that would be and I couldn't see you even painting on radar until you were well south of the river there*"

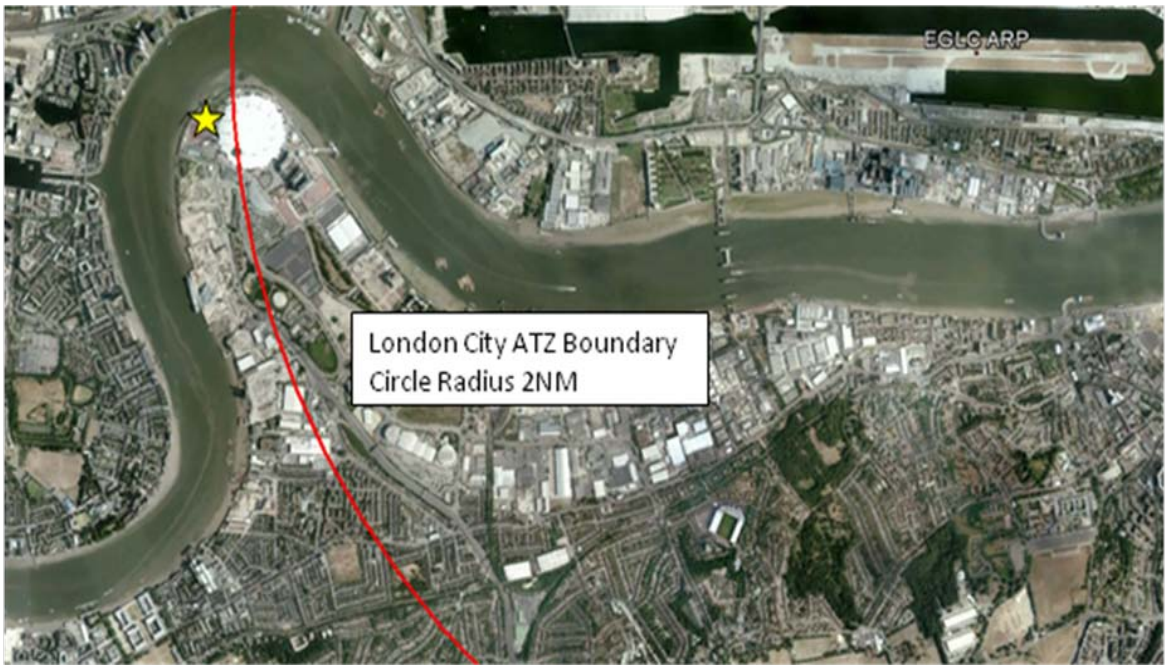
At 2226 Heathrow Director terminated service to the EC155 pilot and he reported changing to London Information.

Analysis

The London City CTR is notified as Class D airspace H24 from surface to altitude 2500ft. The London City ATZ is notified as Class D airspace H24 from surface to 2000ft aal. The notified operational hours of London City ATC are until 2130, Sunday to Friday. Radar services for London City airspace are notified in UK AIP AD 2-EGLC-1-5 (17 Nov 11) as:

Service Designation	Callsign	Channel MHz	Hours of Operation (summer)
RAD	Thames Radar	132.700	0530 - 2100
	Heathrow Radar	125.625	0600 - 1930
	Heathrow Director	119.725	2130 - 0530
	City Radar	128.025	As directed by ATC

Additionally, a note in the ATS Airspace notification instructs pilots that 'Outside the hours of Heathrow Radar and Thames Radar the controlling authority is Heathrow Director'. The notified Local Traffic Regulations state that AIP EGLL AD 2.22 should be consulted for details of helicopter procedures within the CTR. The diagram below shows the boundary of the London City ATZ in relation to the helipad (denoted by the yellow star):



Upon lifting from the helipad the EC155 pilot was within Class D airspace. Given the time of the lift the controlling authority for the airspace was Heathrow Director [119.725MHz]. However, it was noted that this option is not depicted on the 1:250,000 VFR chart graphic at Figure 2.

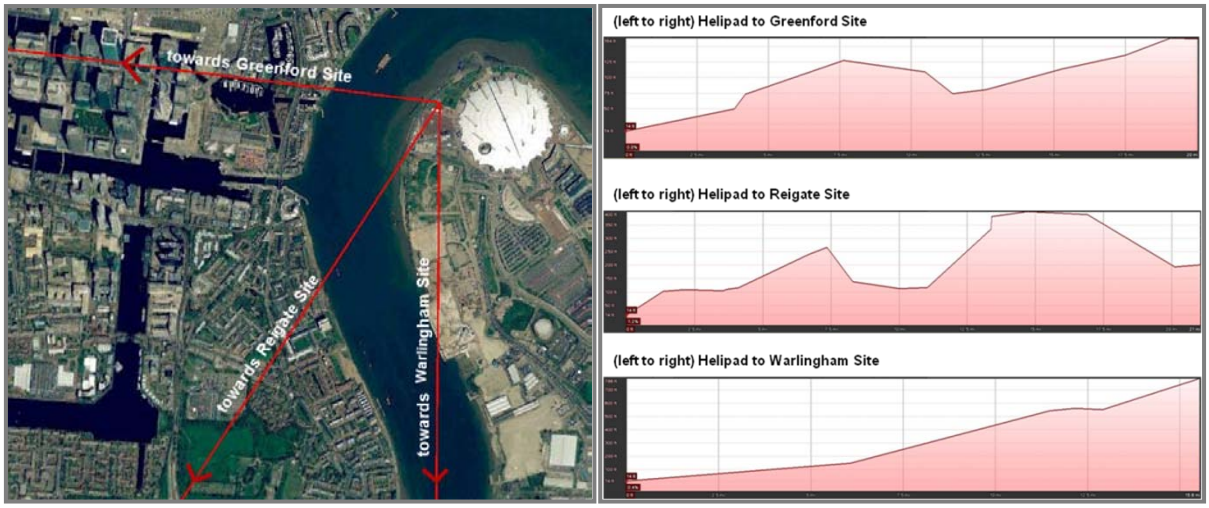
No SVFR clearance was issued to the EC155 prior to or during its transit of the London City ATZ or CTR.

The O2 Arena operators require full and comprehensive documentary submissions to be made to them in advance of any helicopter movement at their helipad; this includes appropriate insurance evidence, risk assessment, operating plan and a site visit by the helicopter operator prior to the movement. ATSI are aware that the EC155 operator complied with all the requirements for permission to use the O2 Arena helipad.

The CAA's FOI (Helicopters) reports that the operator has a long-term permission for self approval of operations in congested areas. The CAA is provided with a monthly usage report to monitor such operations.

Under the circumstances of this event it was impossible for the LTC Heathrow Director to provide any form of separation or warning to either ac.

The diagram below shows the relative directions of the receiver sites for 119.725MHz and 125.625MHz and indicative elevation profiles, which commence at the helipad location and terminate at the specified Receiver site (site location data supplied by ANSP):



RTF frequency 119.725MHz (LL APC N) is transmitted/received at sites near Warlingham and Greenford. RTF frequency 125.625MHz (LL SVFR) is transmitted/received at sites near Reigate and Greenford.

ATSI conducted a basic RTF test at ground level on the helipad at North Greenwich using a hand-held scanner. It was found that, on 119.725MHz, only ac transmission could be heard. Transmissions made by ATC were detected only as a high pitched pulse and were indistinguishable. Both ATC and ac transmissions were heard on 125.625MHz.

The 3 indicative ground elevation profiles would appear to indicate that only Warlingham Site might have line of sight with the helipad; although the basic RTF test, which received ATC transmissions clearly on 125.625 would appear to indicate that the scanner detected at least one of the Reigate and/or Greenford transmitters.

CAA and ANSP Communications experts were asked for their opinion on the RTF coverage at the helipad and reported that a helicopter, even in a low hover at 300ft, would almost certainly be in an area of low signal strength from all three transmitters. The RTF conditions also indicated a possibility of an ac succumbing to multicarrier effect if the ac's equipment was susceptible, i.e. the ac's equipment would mute the presence of a good signal whenever the RTF was interpreted as high level noise below a certain aerial signal strength.

The EC155 pilot cited problems in contacting Heathrow Director on previous nights; therefore, ATSI analysed the RTF and surveillance recordings for 18, 19 and 20 May with the following results: (Note: On each night the subject flight was flown by the same airframe. On 18 and 19 May the EC155 flight was flown by a different numerical designator of the same operator. The flight on the 20 May was flown by the same numerical designator as the 21 May.) The first 36sec of each night's recorded surveillance is plotted in Figure 3 below.

On 18 May 2012 a first call was made to Heathrow Director at 2221:24 without successfully establishing two-way communication. Two-way communication was established on 119.725MHz at 2223:09 and the first position indication symbol of the EC155 was seen at 2223:53: bearing 202° at 0.24nm from the helipad, at 500ft. The EC155 pilot then flew along the river towards the Isle of Dogs Reporting Point climbing to 1500ft. [EGLC met: SCT014/// BKN020/// BKN026///].

On 19 May 2012, two-way communication was established with Heathrow Director on first call at 2221:33. The EC155 appeared as a primary position indication symbol at 2221:41: bearing 100° at 0.38nm from the helipad. The ac was in the vicinity of the cable car crossing at North Greenwich (elev. 300ft approx). The EC155 pilot continued SW and at 2222:01 Mode C level reporting was detected at altitude 900ft (bearing 147° from the helipad at 0.51nm). The EC155 pilot continued

towards the river, climbing to 1600ft, again towards RP Isle of Dogs. [EGLC met: BKN012/// BKN028///]. RTF indicates that the ac's destination on 18 and 19 May was a site near Denham.

On 20 May 2012, the EC155's position indication symbol appeared at 700ft, bearing 144° at 0.92nm from the helipad at 2201:29. The ac climbed slowly on a S'ly track to 900ft. Two-way communication was established with Heathrow director at 2202:10, in excess of 2nm S of the helipad. The EC155 pilot had attempted to call on 125.625MHz at 2159:26 and 2200:24. [EGLC met: OVC012///].

On 21 May 2012, the EC155 appeared as a primary position indication symbol at 2208:57 bearing 144° at 1.06nm from the helipad. The ac continued on a S'ly track and no Mode C was detected until 2211:25. Two-way communication was established with Heathrow Director at 2210:00 and the EC155 pilot left the confines of the London City CTR at 2210:15. [EGLC met: BKN012///].

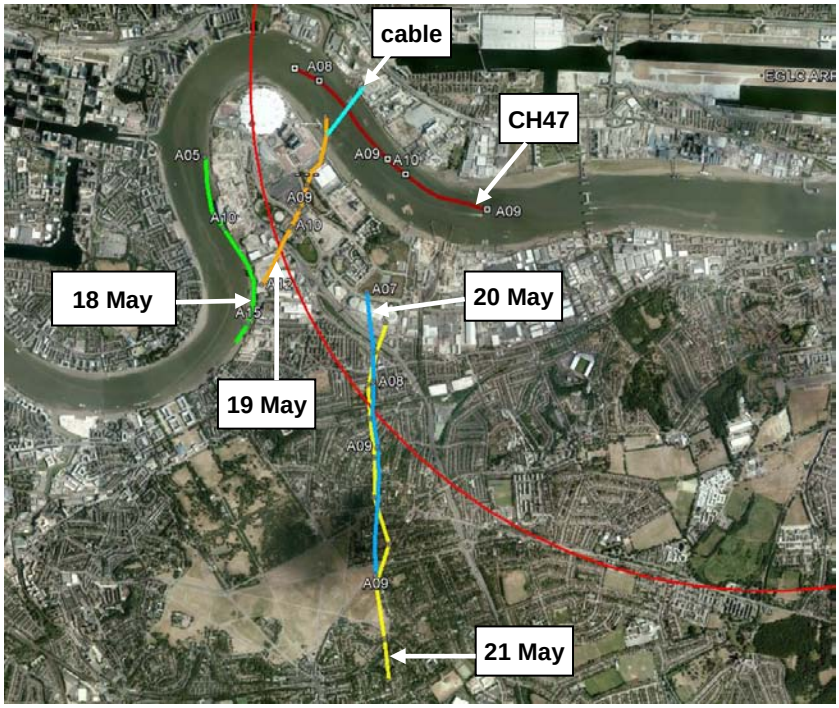


Figure 3: EC155 flight paths on 18, 19, 20 and 21 May together with plot of CH47 flight path

No MORs were submitted by the EC155 operator concerning the reported problems on previous nights' operations.

The theoretical base of primary and secondary surveillance coverage in the vicinity of the O2 Arena is approximately 200ft.

Based on the above information: two-way communication should be able to be established between a helicopter departing the O2 Arena and Heathrow Director when the ac departs immediately SW. On 18 May, communication was established beneath 500ft. On the other 3 nights it is likely that the ac departed initially to the N, around and above the O2 Arena and cable car, and then set course to the Isle of Dogs/S'bound accordingly. In the area to the SE of the O2 Arena it appears that surveillance coverage is compromised at low level but as per the flight on 19 May, RTF communications can be established somewhere below 900ft altitude.

Figure 3 above shows that the CH47 pilot passed O/H the cable car at altitude 900ft. The cable itself and O2 Arena are notified as approximately 300ft elevation; therefore vertical distance between the EC155 and the CH47 was almost certainly less than 600ft. Lateral distance could not be established accurately.

Conclusion

The Airprox occurred when the EC155 flew into proximity with the CH47. Neither pilot was aware of the immediate presence of the other prior to the encounter.

The EC155 pilot commenced his flight without appropriate clearance from Heathrow Director. The Heathrow Director was unable to provide any form of separation between the flights or warning as no RTF communication had been established with the EC155 pilot and the EC155 was not depicted on the controller's situation display.

HQ JHC comments that the Chinook crew were operating in accordance with Air Navigation Order 49 (Flying machines at night), with the single exception of flashing navigation lights which is the SOP for Chinook helicopters. This is done to increase the conspicuity of the ac at night. Red HISLs are used when using NVD as white HISLs can provide significant distraction, (the rear crew were on NVD). They were flying in accordance with the requirements for flight in CAS at night at a cleared height as directed by Heathrow radar (2000ft was not possible due to weather) and had obtained clearance to operate in CAS. The crew were properly authorised for the flight in accordance with military aviation regulations. The London Helicopter Routes are used by military helicopters to enable expeditious transit across London, to save valuable flight time and to carry out essential pilot training for non-handling pilot duties in a high workload environment.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, radar video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

Members agreed that the Chinook sortie was correctly authorised, that the crew were operating iaw the regulations for night flying in CAS, under an appropriate service from the correct ATS provider and with a clearance to do so and that they were properly conducting crew training. Members agreed that the Chinook crew were carrying out their duties in compliance with the regulations pertaining to helicopter flight in the London and London City CTRs. The Chinook is not fitted with an ACAS but the crew would expect to be alerted to, and separated from, other traffic by ATC. Although the crew had a responsibility to look out, the Board recognised their difficulty, in the absence of any traffic alert, of seeing the EC155 beneath them, against the background of cultural lighting, until it was passing down their LHS.

The Board then considered the actions of the EC155 crew in the context of the regulations pertaining to their flight. CAT helicopter pilot Members commented that it was common practice to lift to the hover in CAS in order to establish 2-way RT contact and that, whilst this practice was not within the letter of the law, it did not automatically compromise safety and was sometimes necessary in order for the flight to be accomplished. They added that safety of a flight that had not been previously coordinated could only be maintained by establishing contact before departing from the low hover. It was noted that there is no strict definition for 'low hover' but Members agreed that in this case the EC155 crew had departed early, without an ATC clearance, and was en-route before they established RT contact with ATC. If RT contact could not be achieved the EC155 crew was required to telephone the appropriate ATC agency to obtain a clearance before departure. The CAA Advisor confirmed that, in general, the requirement for an abbreviated flight plan could be fulfilled through RT in the low hover or by phone before lifting. ATC Members commented that the telephone contact number listed in the London Heathrow AIP entry, was routinely manned by a senior ATS assistant and was a fast and efficient way of facilitating a clearance with the Heathrow Controller.

Members noted that the AIP entry for London City Airport did not cover 'after hours' helicopter operations explicitly. The London City Class D airspace allowed day VFR operations which did not require ATC separation from IFR traffic. However, the EC155 flight was conducted at night and therefore, under the extant regulations, was required to operate either under IFR or SVFR, both of

which required ATC separation from other IFR or SVFR traffic. Consequently, whilst the EC155 crew was not best served by the AIP entry, Members unanimously agreed that they were operating inside Class D airspace at night and were therefore required, at the time of the Airprox, to obtain clearance before entering CAS. Members were unable to reach a conclusion as to why the EC155 crew did not receive a TCAS alert from the Chinook. It was suggested that this may have been due to the geometry of the incident but this issue could not be resolved. In the absence of cueing from TCAS or ATC, the Board recognised the difficulty the EC155 crew would have had in seeing the Chinook, concentrating as they were on their departure from the helipad and ensuring safe separation from the cable car. Taking all of these factors into account, the Board agreed unanimously that the cause of this Airprox was that the EC155 crew departed within the London City CTR without clearance and flew into conflict with the Chinook, which they did not see.

The Board noted that the helicopter operating company had conducted a formal risk assessment of the site and the operation as a whole. However, it did not appear to have included actions in the event of a lack of 2-way RT contact. Given that other company pilots were likely to have operated in a similar manner, the Board agreed to make a Safety Recommendation to the operator to review its procedures.

On the question of Risk, Board Members noted that the EC155 crew did not see the Chinook at all and the Chinook crew saw the EC155 passing down their LHS. Based on the Chinook crew's estimate of the separation Members were of the opinion that safety margins were much reduced below normal but that the EC155 pilot's choice of routeing above the S bank mast of the Olympic cable car provided a degree of lateral separation. On balance, the Board agreed that the safety of the ac involved had been compromised in these circumstances.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The EC155 crew departed within the London City CTR without clearance and flew into conflict with the Chinook, which they did not see.

Degree of Risk: B.

Recommendation: The EC155 operating company is recommended to review its procedures.