

Gatwick Airport Limited Airspace Office 2021 Quarter 4 Report

This report covers the period 1st October – 31st December 2021



Executive Summary

From the 1st October to 31st December 2021, there were 25,483 aircraft movements in total at Gatwick Airport, which is the busiest quarter since the onset of the pandemic. This promising surge saw the return of many airlines to the airport and the introduction of JetBlue, Scoot and Luxwing to name a few. The Airspace Office at Gatwick Airport continues to monitor aircraft performance and compliance with noise abatement procedures while the aviation industry rebuilds. This report contains detailed data, but allows me to present to you the key facts for the reporting quarter.

Departure track-keeping performance for the last quarter was 98.37%, an excellent figure considering many airlines have been unfamiliar with Gatwick's operating procedures through the pandemic. Although Route 4 presents operational issues due to the complexity of the route, compliance of 94.2% is considered an achievement. On 25th of February we removed the RNAV Standard Instrument Departure routes on Route 4, as required by the CAA; we are continuing to assess the track-keeping performance along the conventional routes with our industry partners.

Although Continuous Descent Operations (CDO) performance has decreased to 90.6% since Q3 2021, this is still an improvement on the Q4 2020. This continues to highlight the effect extended periods of reduced flying can have on operations, due to pilots and air traffic controllers being 'out of practice'. However, we have seen more aircraft returning to the skies in recent months which can be expected to have a positive effect on CDO performance.

The number of submitted complaints has increased to 2,223, which is a consecutive quarter increase, however the number of individual complainants decreased to 102; approximately 51% of the same number in Q4 2020. We are aware of the change in aircraft noise perception brought on by the long periods of empty skies and will do our utmost to keep our communities informed when traffic returns fully to Gatwick Airport.

We have also continued with our programme of airline engagement to drive continuous improvement in CDO, track keeping and safety. The Airspace Office, with the Head of Aerodrome Compliance, have had recent meetings with Wizz Air UK, Vueling, Turkish Airlines, Air Baltic and Air Arabia Maroc with meetings scheduled with our new airline starters in Q1 2022.

If you would like to know more about aircraft operations and noise, make a complaint about aircraft noise, or learn about the airspace around Gatwick, I would invite you to visit our [website](#). I would encourage you to visit our upgraded "Insightful" pages which now provide more precise overflight information tailored to your location. We have also added more material explaining aircraft noise, how we measure it and how it has changed in the past. As before, you find these pages under "[Noise Explained](#)".

Kind regards,

Lee Howes

Airspace & Environmental Performance Manager

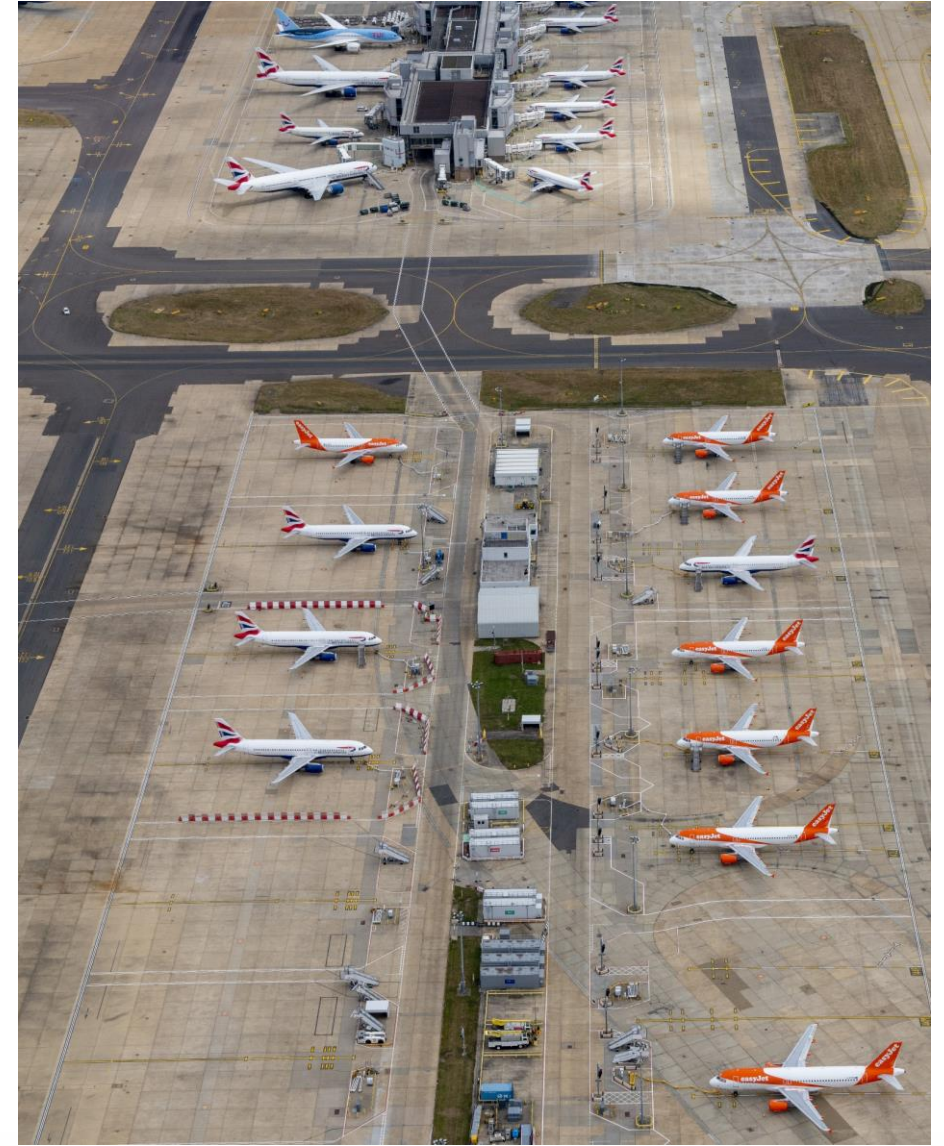


About This Report

This report is produced by the Gatwick Airport Airspace Office. This team is responsible for recording, investigating and responding to aircraft noise enquiries as well as monitoring airline compliance to noise mitigation measures as detailed in the UK Aeronautical Information Publication (AIP). This team also actively engages with the airlines to improve their adherence to the above noise mitigation measures and in addition manages the night-time restrictions on flying at Gatwick.

This report contains detailed data on aircraft activity at Gatwick including the adherence to the noise mitigation measures detailed in the UK AIP, an airline noise performance table, a report on night flying during the period, and an analysis of noise complaints received during the period.

Footnotes are explained in Annex B to provide insight into the regulatory basis of the reported figures.



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Performance Summary

Key Performance Indicators

This section details how the airport is performing in conjunction with its Key Performance Indicators (KPIs), the change in traffic numbers over the course of the year and provides information of the types of aircraft and airlines which operate at the airport. The KPIs are in line with the noise mitigation measures of the UK Aeronautical Information Publication (AIP). The “chapters” refer to the [noise standards](#) set out by the International Civil Aviation Organisation (ICAO).

A 15-year KPI table can be found in [Annex E](#) where comparisons to previous years can be made.

| KPIs | Q1 2021 | Q1 2021 vs Q1 2020 | Q2 2021 | Q2 2021 vs Q2 2020 | Q3 2021 | Q3 2021 vs Q3 2020 | Q4 2021 | Q4 2021 vs Q4 2020 |
|--|---------|--------------------|---------|--------------------|---------|--------------------|---------|--------------------|
| Total Aircraft Movements | 3,116 | ↓ -93.91% | 5,368 | ↑ 81.91% | 21,258 | ↑ 15.38% | 25,483 | ↑ 191.87% |
| Percentage of Chapter 14 aircraft | 69.60% | ↑ 5.90% | 65.94% | ↑ 31.07% | 59.60% | ↓ -10.58% | 54.15% | ↓ -16.68% |
| Percentage of Chapter 4 aircraft & above | 99.40% | ↑ 0.16% | 98.71% | ↑ 1.18% | 99.65% | ↑ 0.24% | 99.75% | ↑ 0.66% |
| Percentage of Chapter 3 & Below Aircraft | 0.60% | ↑ 0.48% | 0.36% | ↑ 0.01% | 0.12% | ↓ -0.02% | 0.07% | ↓ -0.24% |
| Continuous Descent Operations (CDO) compliance | 85.20% | ↓ -4.13% | 87.49% | ↑ 14.80% | 92.95% | ↑ 0.53% | 90.60% | ↑ 3.55% |
| Track Keeping Compliance | 98.90% | ↑ 0.28% | 97.65% | ↓ -0.28% | 98.02% | ↓ -0.43% | 98.37% | ↑ 0.50% |
| Total Noise Infringements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Noise Complaints Received | 382 | ↓ -88.79% | 535 | ↑ 40.56% | 1928 | ↓ -17.47% | 2223 | ↑ 292.06% |
| Individual complainants | 48 | ↓ -76.00% | 71 | ↓ -8.97% | 161 | ↓ -58.61% | 103 | ↓ -48.24% |
| Enquiry response performance target is 95% within 8 days | 99.74% | ↓ -0.24% | 100.00% | ↑ 0.30% | 99.87% | ↑ 20.72% | 100.00% | ↑ 14.93% |

Figure 1: Summary of KPIs



Airline Noise Performance Table

In order to drive continuous improvement and to help showcase airline performance in relation to noise, an Airline Noise Performance Table has been developed. In collaboration with airlines, Gatwick Airport Limited identified strategic and operational metrics which are being monitored and reported against.

QC/seat is the strategic metric in the performance table, whilst both Continuous Descent Operations (CDO) and Track-Keeping (TK) are operational metrics. The methodology for all three metrics is detailed on the following slide.

Airlines with more than ten movements per week during Q4 2021 are included in the ranking. Carriers with a base at Gatwick are highlighted in **bold**.

| Rank by ATMs | Airline name | Total movements | QC/Seat | Rank (QC) | CDO performance | Rank (CDO) | TK performance | Rank (TK) |
|--------------|------------------------|-----------------|----------------|-----------|-----------------|------------|----------------|-----------|
| 1 | EasyJet | 15,102 | 0.00163 | 3 | 94.48% | 3 | 99.03% | 12 |
| 2 | Ryanair | 1,684 | 0.00265 | 10 | 98.09% | 2 | 99.64% | 10 |
| 3 | TUI Airways | 1,566 | 0.00218 | 6 | 91.51% | 4 | 99.65% | 9 |
| 4 | British Airways | 1,250 | 0.00315 | 12 | 89.34% | 6 | 98.50% | 14 |
| 5 | Norwegian | 980 | 0.00361 | 14 | 87.70% | 7 | 100.00% | 1 |
| 6 | Vueling | 840 | 0.00190 | 4 | 83.37% | 9 | 100.00% | 1 |
| 7 | Aurigny | 616 | 0.00247 | 8 | 98.37% | 1 | 99.67% | 8 |
| 8 | Aer Lingus | 506 | 0.00214 | 5 | 74.21% | 11 | 100.00% | 1 |
| 9 | TAP Portugal | 474 | 0.00229 | 7 | 77.64% | 10 | 100.00% | 1 |
| 10 | Turkish Airlines | 384 | 0.00263 | 9 | 84.82% | 8 | 100.00% | 1 |
| 11 | Air Europa | 338 | 0.00318 | 13 | 64.50% | 12 | 99.41% | 11 |
| 12 | Air Baltic | 330 | 0.00155 | 2 | 90.30% | 5 | 100.00% | 1 |
| 13 | JetBlue | 158 | 0.00092 | 1 | 21.52% | 14 | 98.73% | 13 |
| 14 | Ukraine International | 148 | 0.00290 | 11 | 63.51% | 13 | 100.00% | 1 |

Airlines are ranked by the number of movements. The ranking within each metric is presented.

Figure 2: Q4 2021 Airline Noise Performance Table

The COVID-19 pandemic continues to impact the aviation industry in an unprecedented manner. The uncertainty of changing rules has kept travel demand low however, and hence there are fewer airlines shown on the table than would be expected in a typical year.



Airline Noise Performance Table – Methodology Statement

This page describes the methodology used to calculate the three metrics that form the Airline Noise Performance Table (ANPT) and explains some of the key terms.

Airlines with CDO or track keeping performance in the red or amber range will be considered as priority for engagement and we will work with them to improve their operational performance.

Noise Quota Count (QC) per Seat

This metric assesses the average Quota Count (QC) per seat per flight. Individual aircraft have a defined QC value for arrival and departure, which is dependent on noise performance of the aircraft. The QC value is determined by the Effective Perceived Noise Level (EPNdB) stated on its noise certificate and may be affected by the type of engines used, certified Maximum Take-Off Weight (MTOW) and any applicable noise modifications (e.g. landing gear plugs for B787). QC/seat is a strategic metric as it can only improve in the longer term when airlines change their fleet mix, introduce newer aircraft types, or modify existing aircraft to reduce their noise impact.

Airlines operating modern and quieter aircraft will have a lower QC/seat score. For example, a typical A320 has a QC value of 0.25 for arrival and 0.5 for departure and a typical number of seats would be around 180, although this may vary between airlines. Therefore, an A320 would normally have an average QC/seat score $= (0.25 + 0.5) / (180 * 2) = \mathbf{0.00208}$, as each rotation of the aircraft requires one arrival and one departure. For comparison, an A320 NEO would typically have an arrival and departure QC equal to 0.125, which reflects the fact that it is much quieter than its predecessors within A320 family, but the number of seats is roughly the same. An A320 NEO's QC/seat score would therefore be $= (0.125 + 0.125) / (180 * 2) = \mathbf{0.00069}$.

Continuous Descent Operations (CDO) Performance

CDO performance is the first operational metric in the ANPT and relates to the vertical profiles flown during arrival. CDO performance is equal to the proportion of arrivals that meet the criteria for CDO, i.e., no level segment longer than 2.5 nautical miles below the altitude of 7,000ft. Continuous descent approaches reduce the noise impact because they require lower engine thrust and the aircraft stays higher for longer. The airport-wide CDO performance is also presented separately in this report.

RAG definition: **Green** $\geq 85\%$ **70% \leq Amber $< 85\%$** **Red $< 70\%$**

Track Keeping (TK) Performance

Track keeping performance is the second operational metric in the ANPT and applies to the lateral departure track. All departures are required to stay within the Noise Preferential Routes (NPRs) defined by the Department for Transport to avoid more densely populated areas. Track keeping performance is equal to the proportion of departures that stay within the NPRs until they reach an altitude of 3,000ft or 4,000ft depending on the route. Note that the Route 4 NPR has been excluded from the ANPT statistics for the time being due to the more challenging flyability and its inclusion would unfairly penalise airlines with higher proportion of Route 4 departures. Track keeping performance at airport level is also presented separately in this report.

RAG definition: **Green** $\geq 95\%$ **90% \leq Amber $< 95\%$** **Red $< 90\%$**



Airport and Runway Statistics

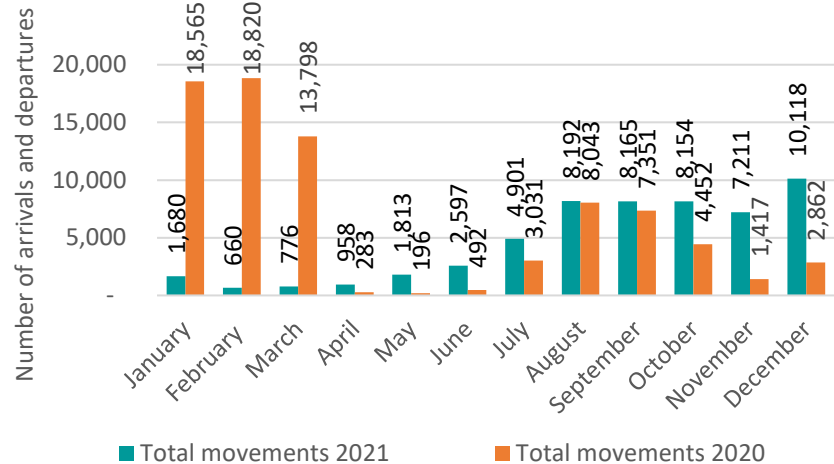


Figure 3: Comparison of number of arrivals and departures of this and previous year

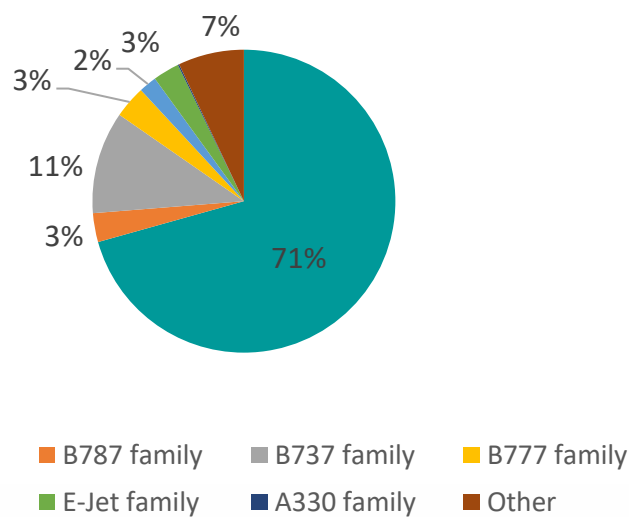


Figure 5: Aircraft fleet mix in 2021

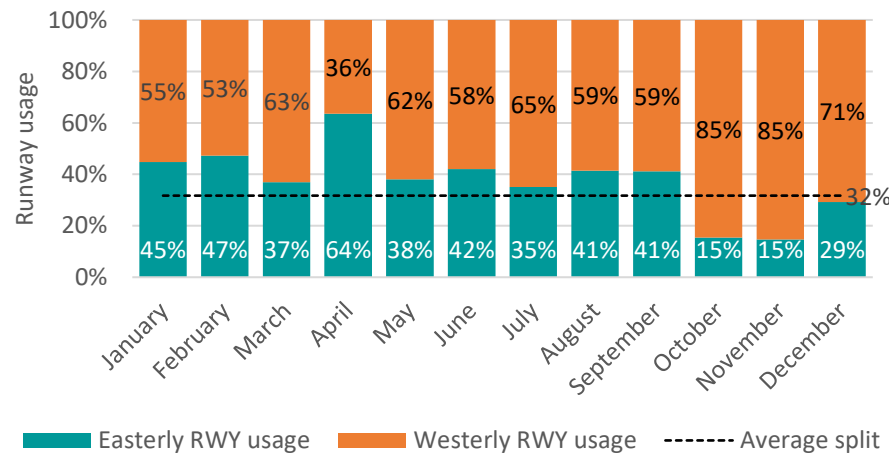


Figure 4: Comparison of easterly and westerly runway usage

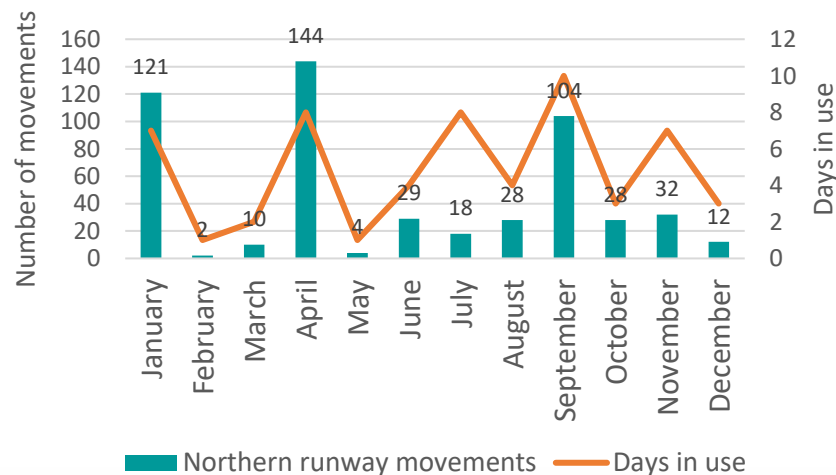


Figure 6: Northern runway usage

The number of total movements (Figure 3) in Q4 2021 shows improved performance compared to the same period in 2020. December 2021 had the highest number of movements since the pandemic began in March 2020.

Figure 5 shows the mix of aircraft types at Gatwick Airport and closely reflects the fleets of the home carriers: easyJet (Airbus A320 family), TUI Airways (Boeing 787/737), British Airways (Boeing 777).

The high number of northern runway movements in January, April and September reflects maintenance activity on the main runway.



Arrivals Statistics – Continuous Descent Operations¹

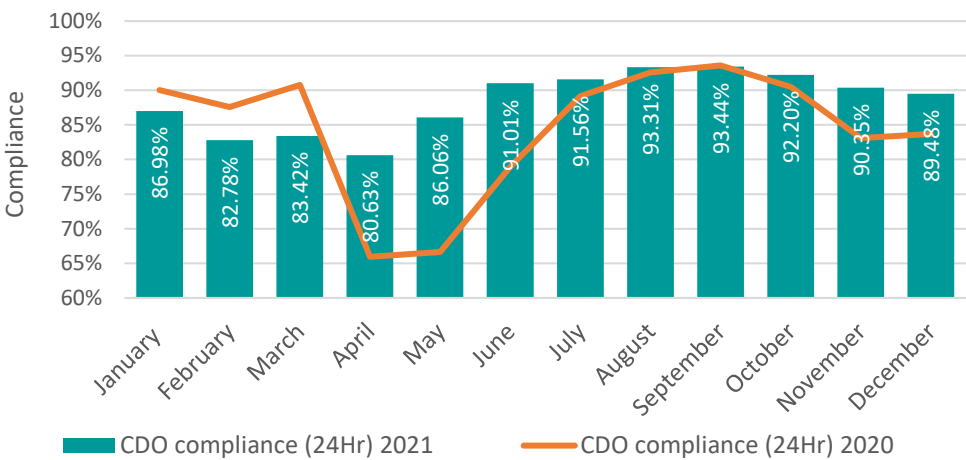


Figure 7: CDO compliance (24 hours)

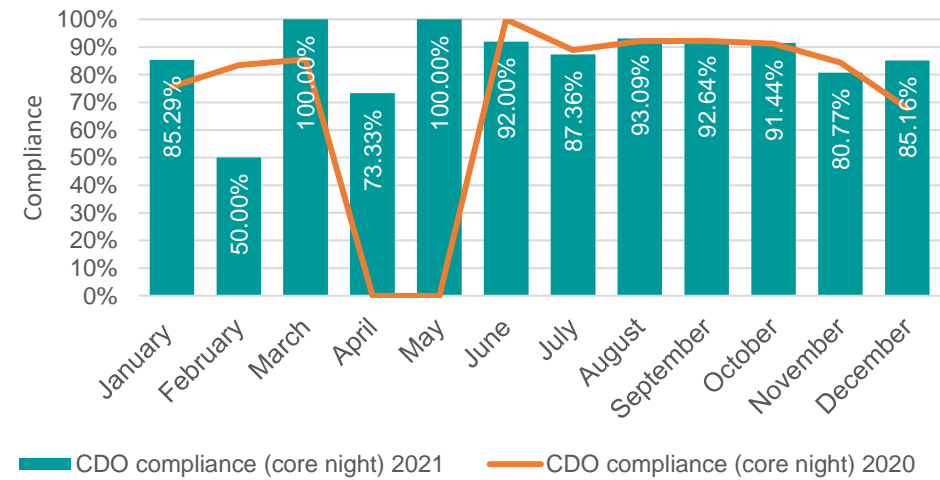


Figure 9: CDO compliance (Core Night Period)

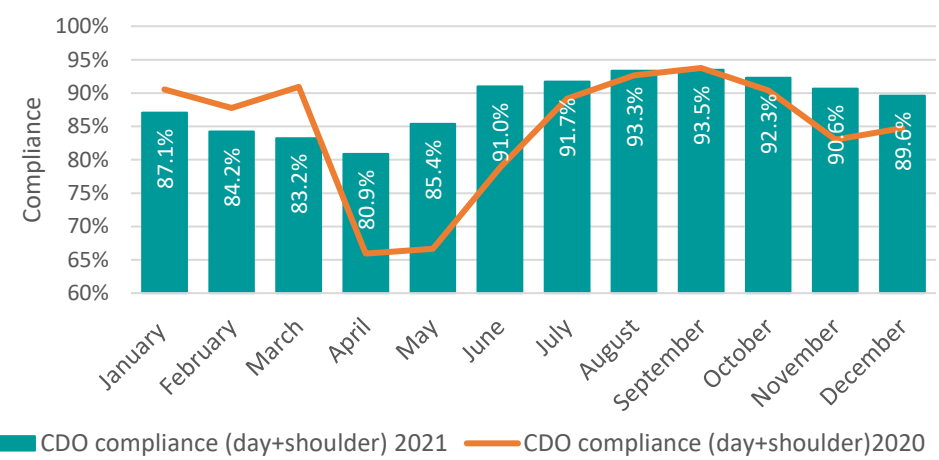


Figure 8: CDO compliance (Day & Shoulder periods)

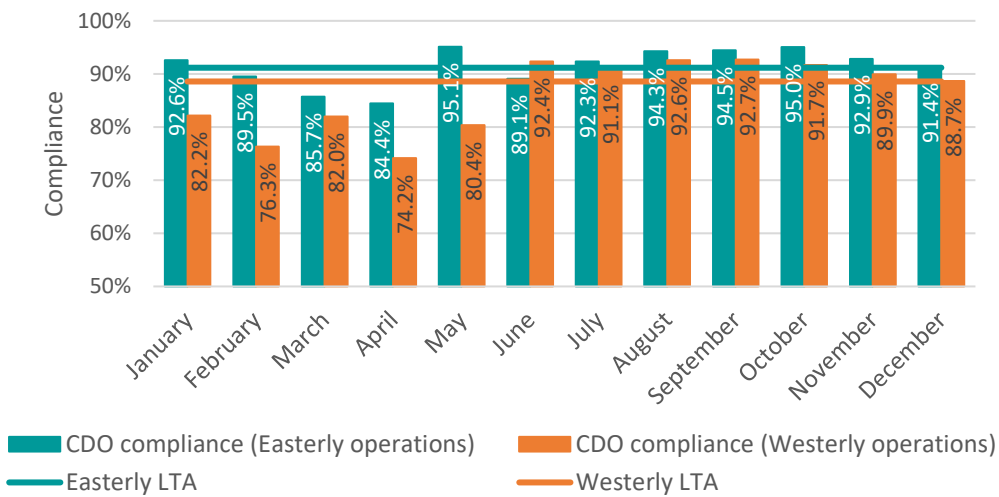


Figure 10: CDO compliance per runway

CDO compliance in Q4 2021 maintained more consistent values of at least 90%, reflecting the more regular movement schedules into the airport.

In November, a number of airlines commenced operations for the first time into Gatwick, including a number of operators returning for the first time since the onset of the pandemic. This could explain the slightly lower levels of CDO compliance in this month, as crews continue to re-establish their familiarity with airport operations.

The Airspace Office intends to engage with these new and returning airlines in the new year to improve performance.



Arrivals Statistics – Go-Arounds

A go-around is a procedure adopted when an arriving aircraft on final approach aborts landing by applying take-off power and climbing away from the airport. It is a standard safety procedure to be followed by the flight crew in the event of an aircraft being unable to land. The procedure is published so that ATC and the pilots can anticipate where the aircraft will fly following the decision to go around.

The standard missed approach procedure applicable to Gatwick Airport requires to climb straight ahead to 3,000ft, then, on passing 2,000ft or 1DME (Distance Measuring Equipment), whichever is later, turn heading 180. This may or may not result in aircraft overflying the town of Crawley or outlying areas. The number and reasons for go-arounds are routinely discussed at FLOPSC meetings as they are performed to avoid potentially unsafe situations and maintain a safe separation between aircraft.

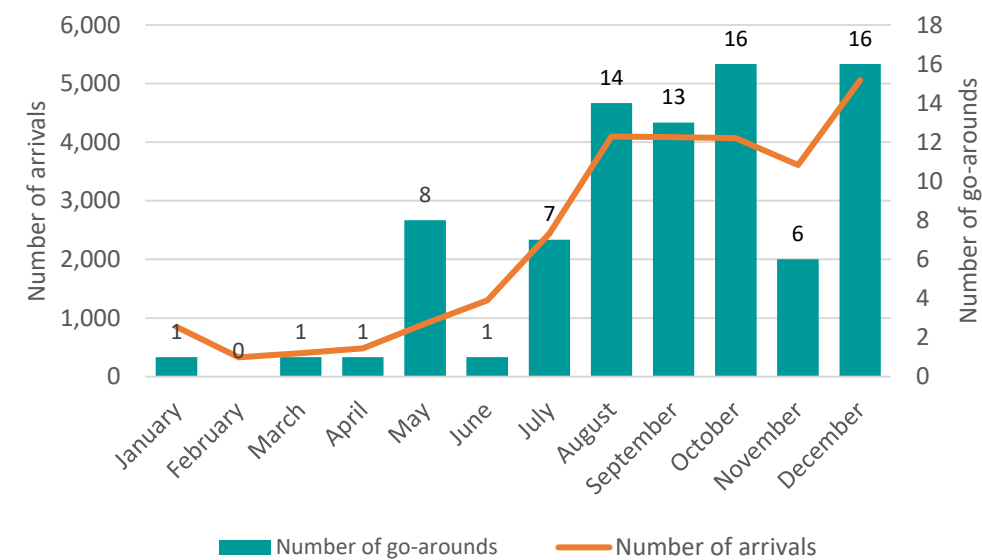


Figure 11: Number of arrivals and go-arounds

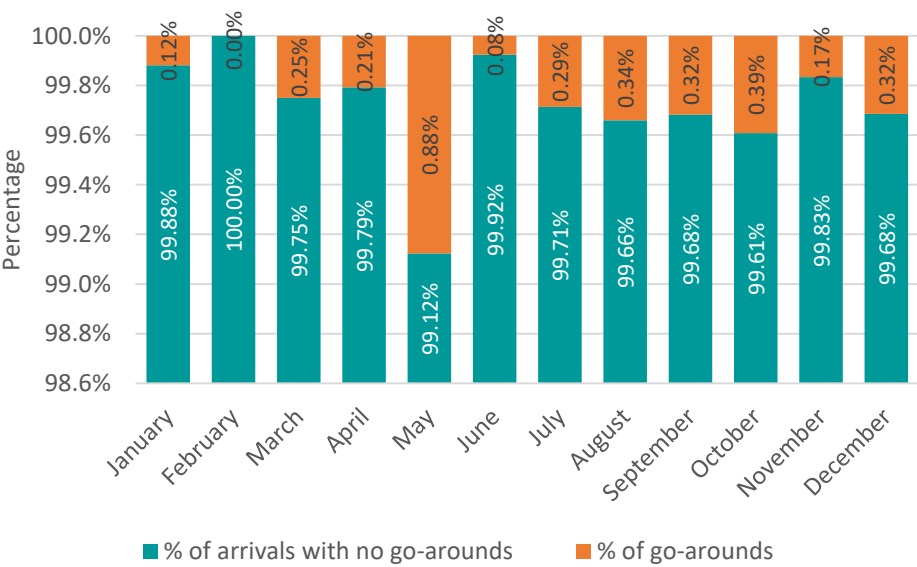


Figure 12: Ratio of go-arounds



Arrivals Statistics – Go-Arounds

The causes for go-arounds are recorded by controllers in the ATC Tower and provide an insight into the operational situations causing them to happen. The top three reasons in Figure 13 (left) are runway occupancy, weather (e.g. wind shear) and unstable approaches. As an occupied runway may be caused by a range of conditions, the root causes are broken down in Figure 13 (right).

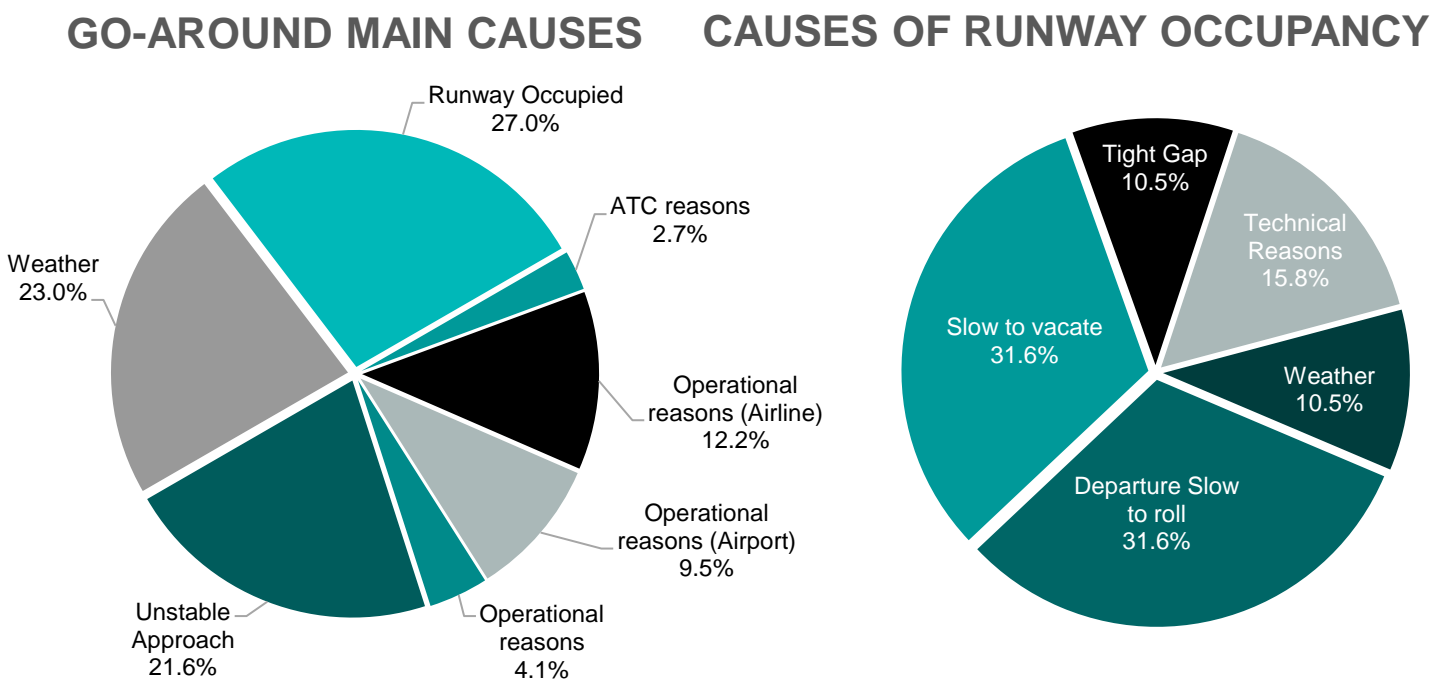


Figure 13: Reasons for go-arounds in 2021

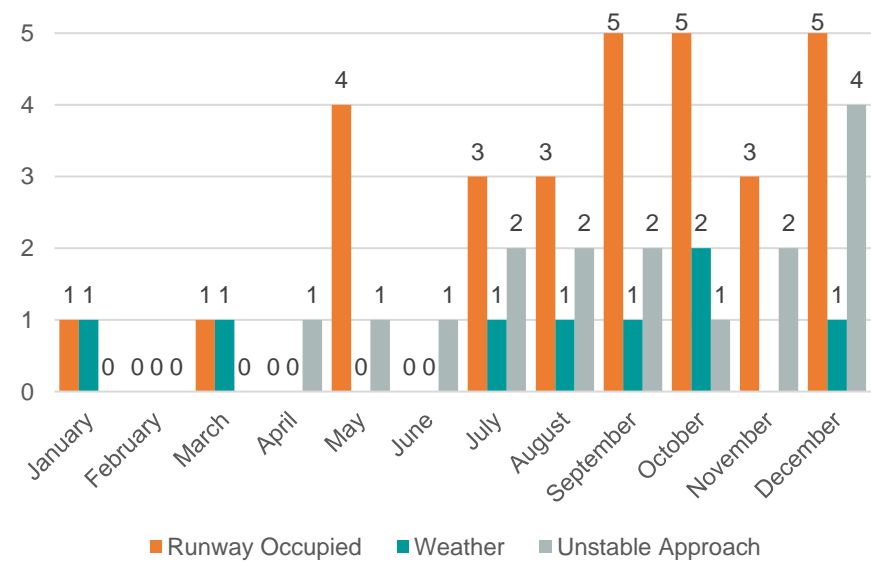


Figure 14: Ratio of main reasons for go-arounds per month



Arrivals Statistics – Joining Point

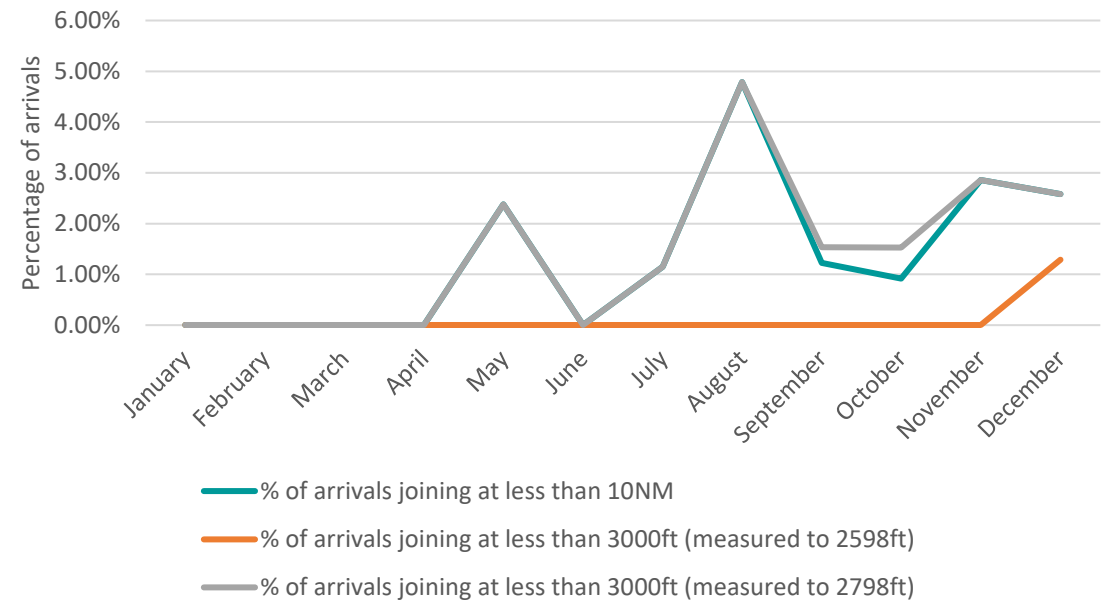


Figure 15: Night time joining point violations?

As per the [AIP rule](#), aircraft shall not join the ILS at less than 10NM from touchdown or below 3,000ft at night. Figure 15 shows the percentage of arrivals violating this rule.

During the day, the DfT noise abatement procedures stipulate that arrivals shall not descend below 2,000ft before intercepting the ILS glidepath; this equates to 6.1NM from touchdown. We continually monitor this for conformance and infringements are followed up with the airline and NATS for feedback on the event to prevent future infringements. Helicopters and calibration flights are excluded from this requirement. For detail on the monitoring of the arrivals swathe see [Annex C](#).

Joining point distance is measured from the approximate touchdown point abeam the Precision Approach Path Indicator (PAPI) lights. Joining point altitude is assessed through the noise & track keeping system, see [Annex B Note 2](#).



Figure 16: Day time joining point violations



Arrivals Statistics – Overflight³

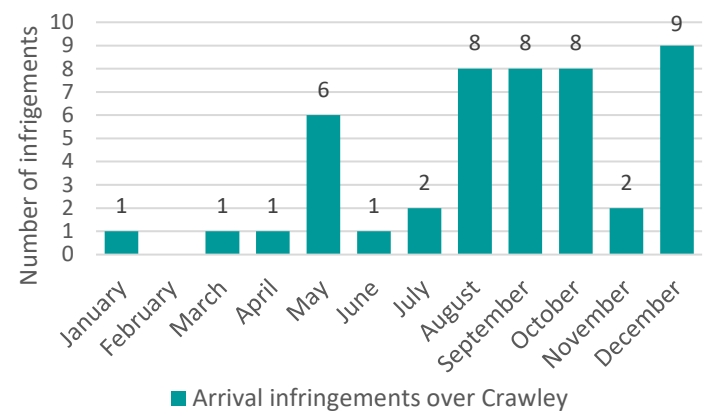


Figure 17: Arrival infringements over Crawley

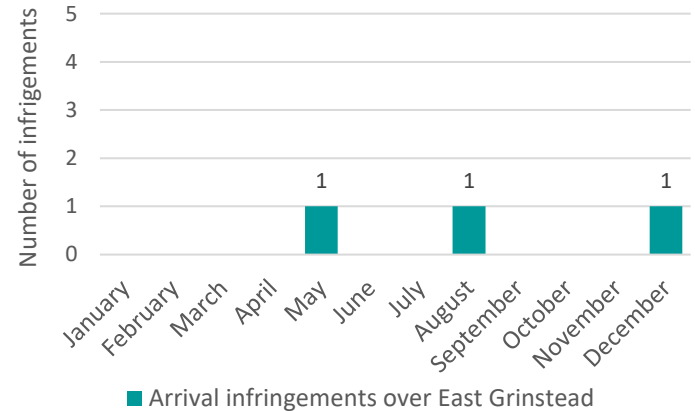


Figure 18: Arrival infringements over East Grinstead

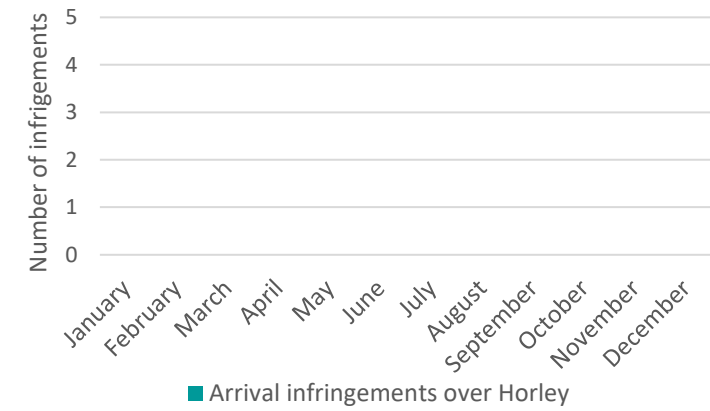


Figure 19: Arrival infringements over Horley

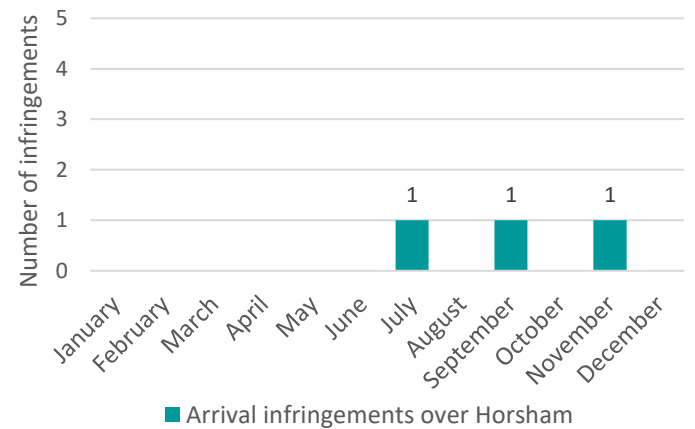


Figure 20: Arrival infringements over Horsham

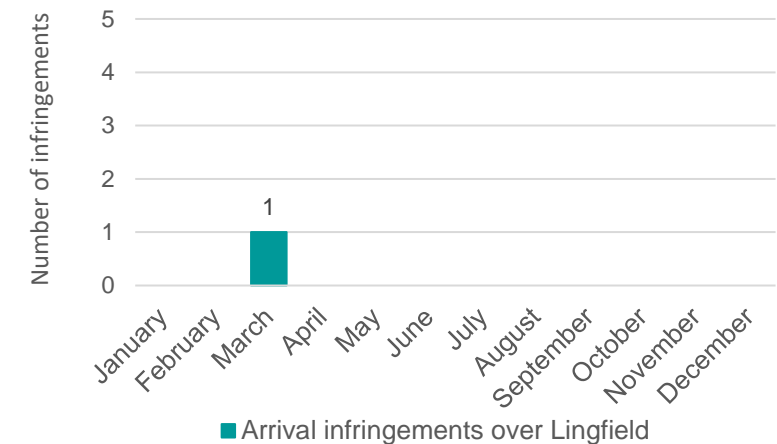


Figure 21: Arrival infringements over Lingfield

The Gatwick [AIP](#) does not allow arriving aircraft to pass over the congested areas of Crawley, East Grinstead, Horley or Horsham below the altitude of 3,000ft or Lingfield below 2,000ft.

The infringements shown in Figure 17, 18 & 20 were all caused by go-arounds.

The Lingfield infringement in Figure 21 for March 2021 was caused by pilot error. There have been no infringements since.



Departure Statistics – Track Keeping

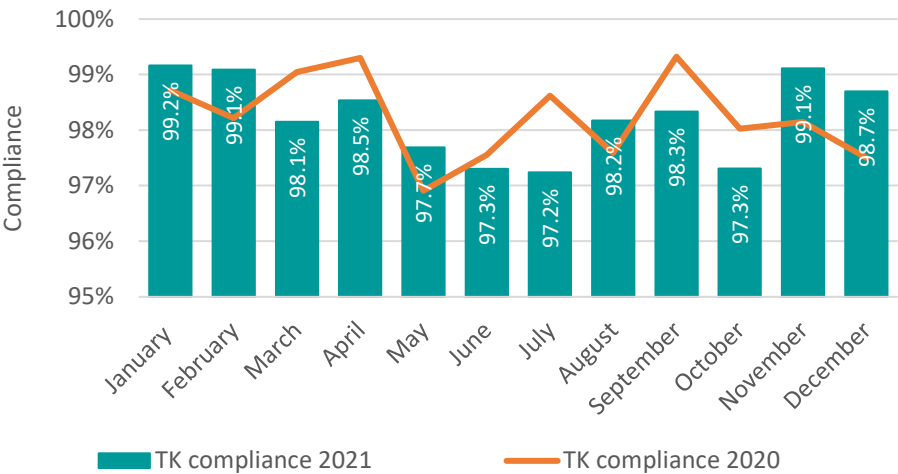


Figure 22: TK compliance (24 hours)

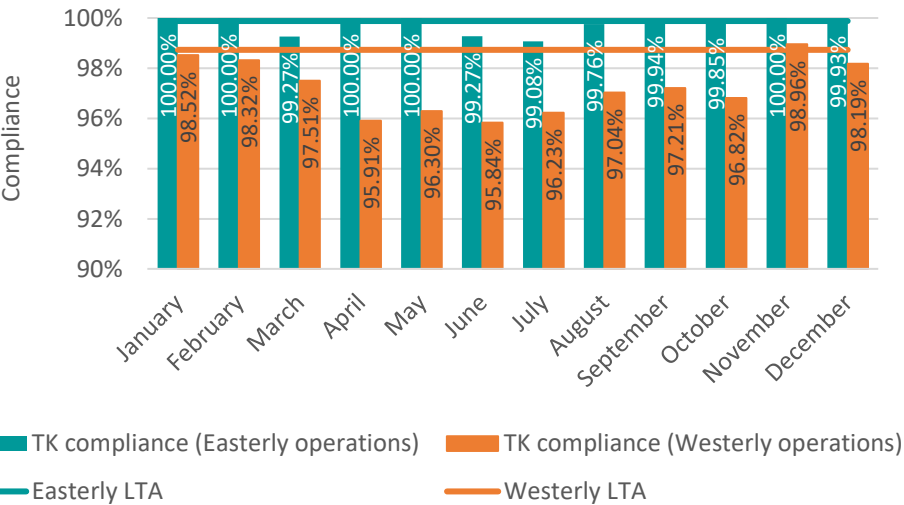


Figure 23: TK compliance per runway

Figure 22 shows that in the later months of Q4 2021, track keeping compliance returned to the same excellent levels experienced in January and February, despite the airport operating the most operations since the onset of the pandemic. Furthermore, this is an improvement for November and December on the same period in 2020. The month of October experienced 110 track violations, which typically is indicative of frequent weather avoidance.

Figure 23 shows that easterly track keeping once again surpassed westerly operations in Q4 2021. This is due to a known issue with Route 4 track keeping and therefore a larger share of westerly operations (as in May to September) may affect overall track keeping conformance.



Departure Statistics – Track Keeping in 2021

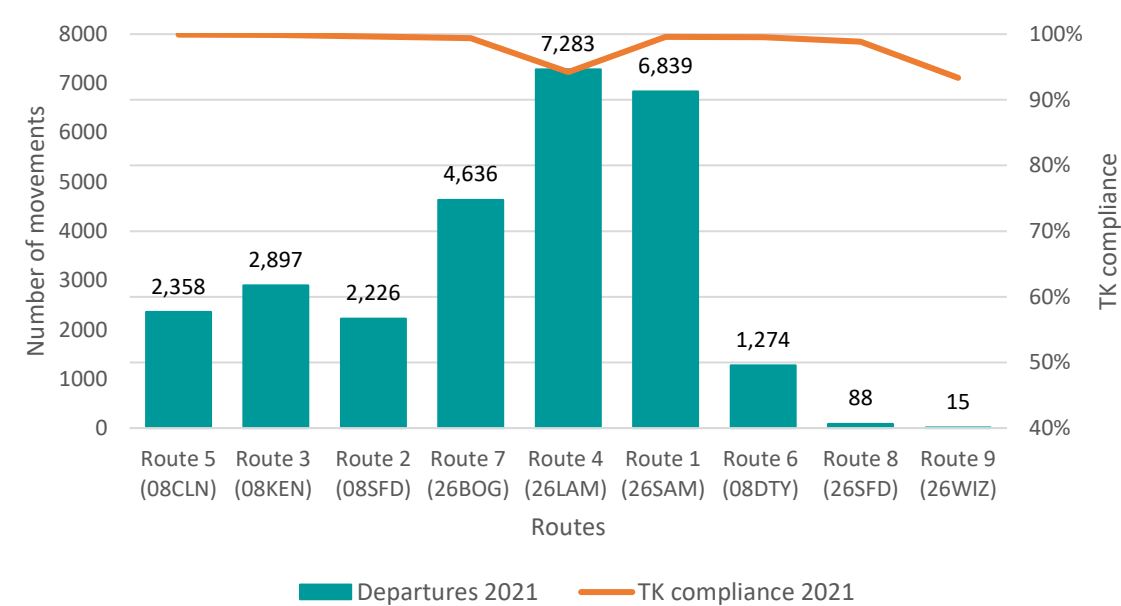


Figure 24: Track keeping and route usage

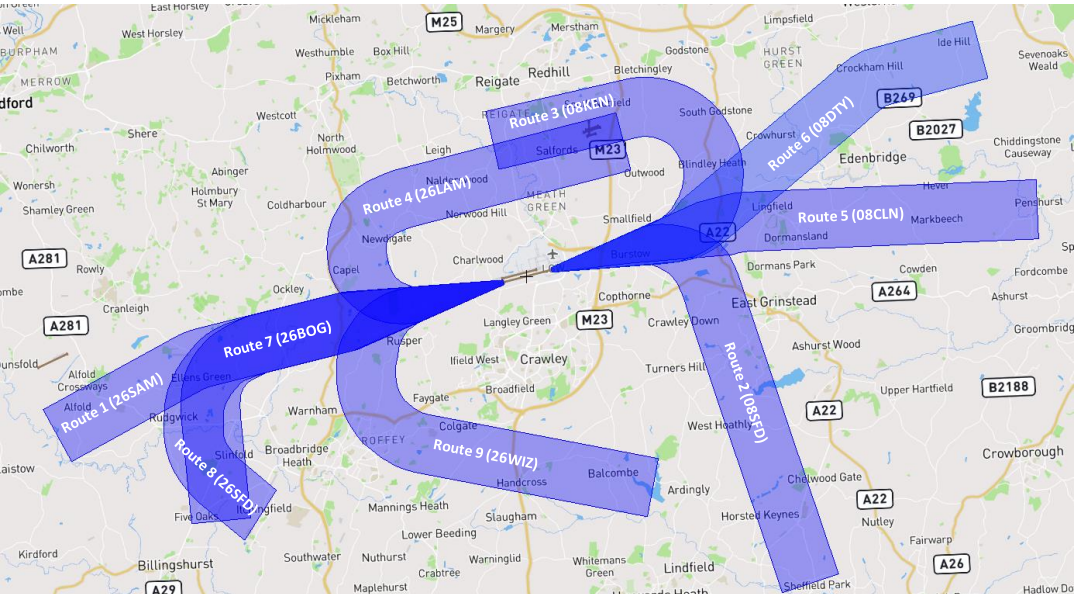


Figure 25: Noise Preferential Routes for departures

Figure 24 shows that the most frequently utilised routes during 2021 were 26LAM / Route 4, 26SAM / Route 1 and 26BOG / Route 7. Track keeping was above 98% for all routes, except Route 4 (94.2%) and Route 9 (93.3%), although no violation on Route 9 has occurred since August 2021.

Figure 25 shows a map of all nine noise preferential routes for departures in use at Gatwick Airport. The table to the right lists the altitudes up to which aircraft are required to stay within the conformance monitoring swathe of the respective noise preferential route. Once above the minimum vectoring altitude, air traffic control may give them vectors to direct them onto a more direct path towards their destination.

| Route | Minimum vectoring altitude |
|-----------------|----------------------------|
| Route 1 (26SAM) | 3,000 ft |
| Route 2 (08SFD) | 4,000 ft |
| Route 3 (08KEN) | 3,000 ft |
| Route 4 (26LAM) | 4,000 ft |
| Route 5 (08CLN) | 3,000 ft |
| Route 6 (08DTY) | 3,000 ft |
| Route 7 (26BOG) | 4,000 ft |
| Route 8 (26SFD) | 3,000 ft |
| Route 9 (26WIZ) | 4,000 ft |



Departure Statistics – Noise, Climb and Overflight

There have been no departure noise infringements during 2020 or 2021.

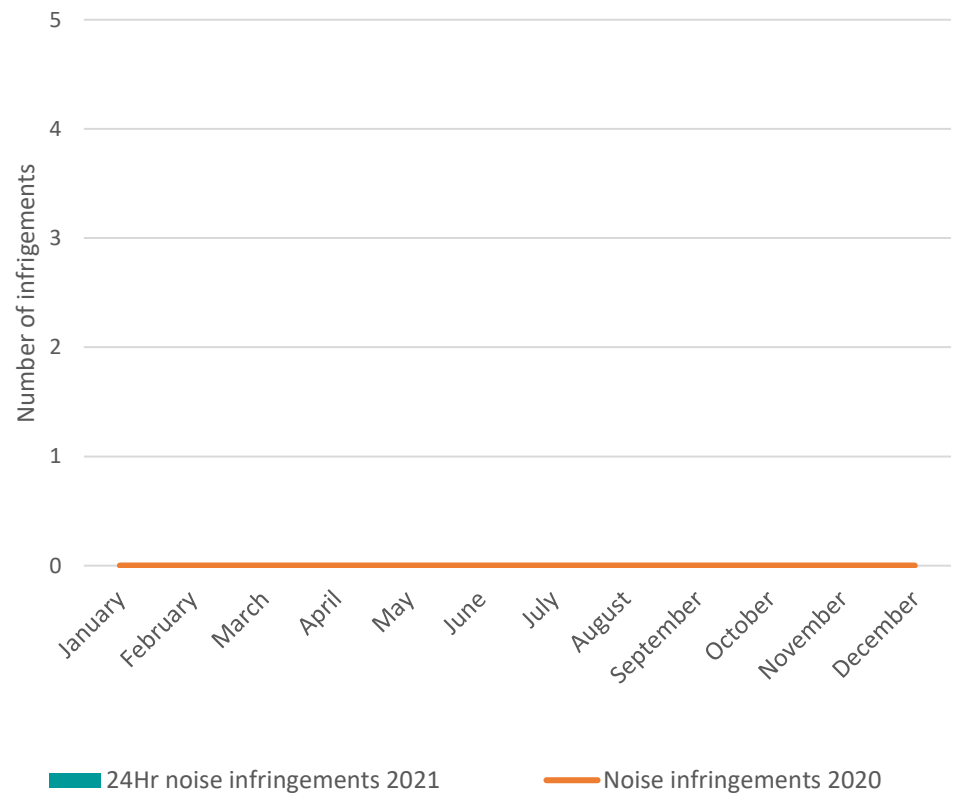


Figure 26: H24 noise infringements⁶



Departure Statistics – Noise, Climb and Overflight

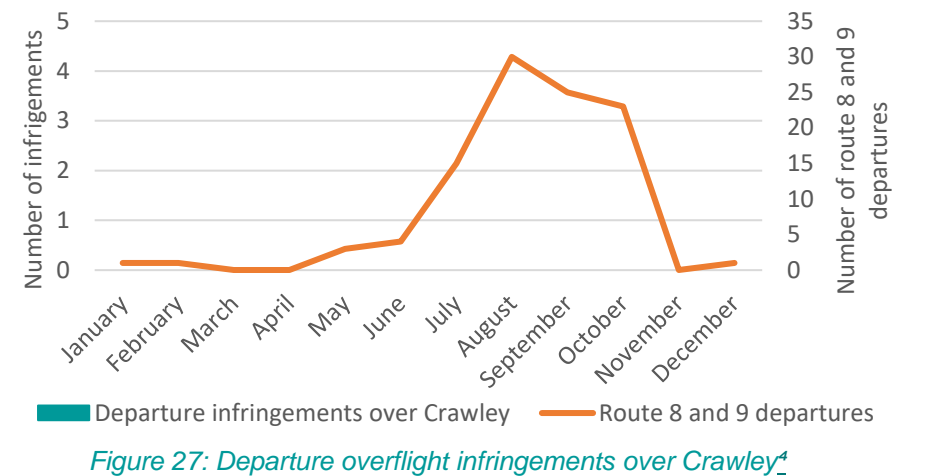
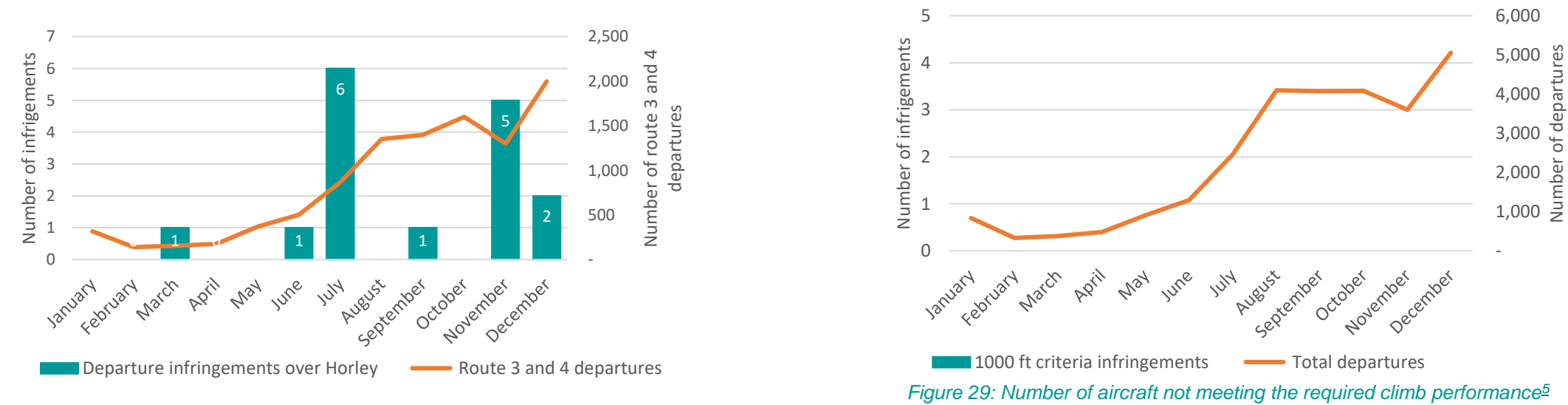
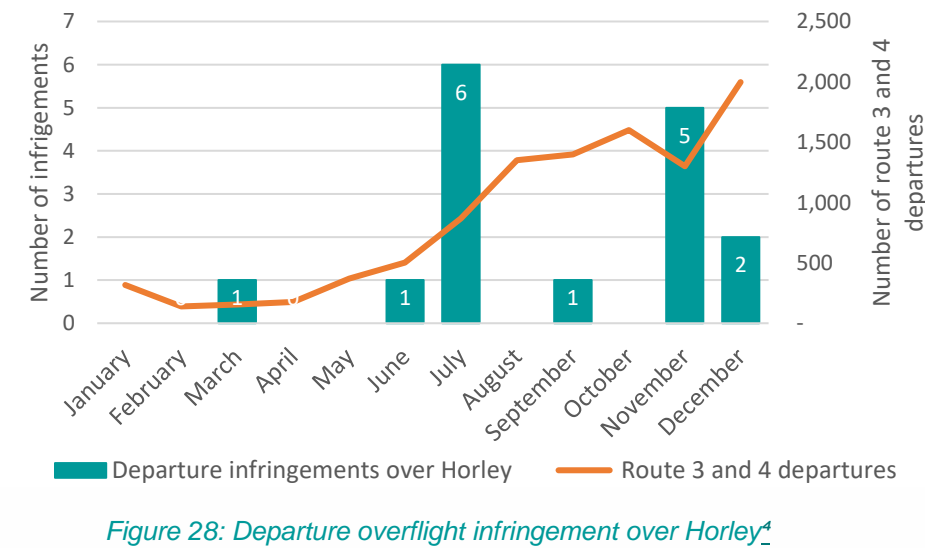


Figure 27 shows that no departures overflow Crawley during Q4, nor during the entirety of 2021.

Figure 28 shows the number of Horley overflights in Q4 was approximately the same as that in Q3. Although the Airspace Office have continued their work with NATS to reduce the number of overflights of the town, the return of some carriers who have not operated from Gatwick for a prolonged period, the introduction of some completely new carriers and deviations due to weather may explain why this has continued to occur.

Figure 29 shows that there have been no 1,000ft departure noise infringements in Q4, nor the whole of 2021.



Night Operations – Summer Season

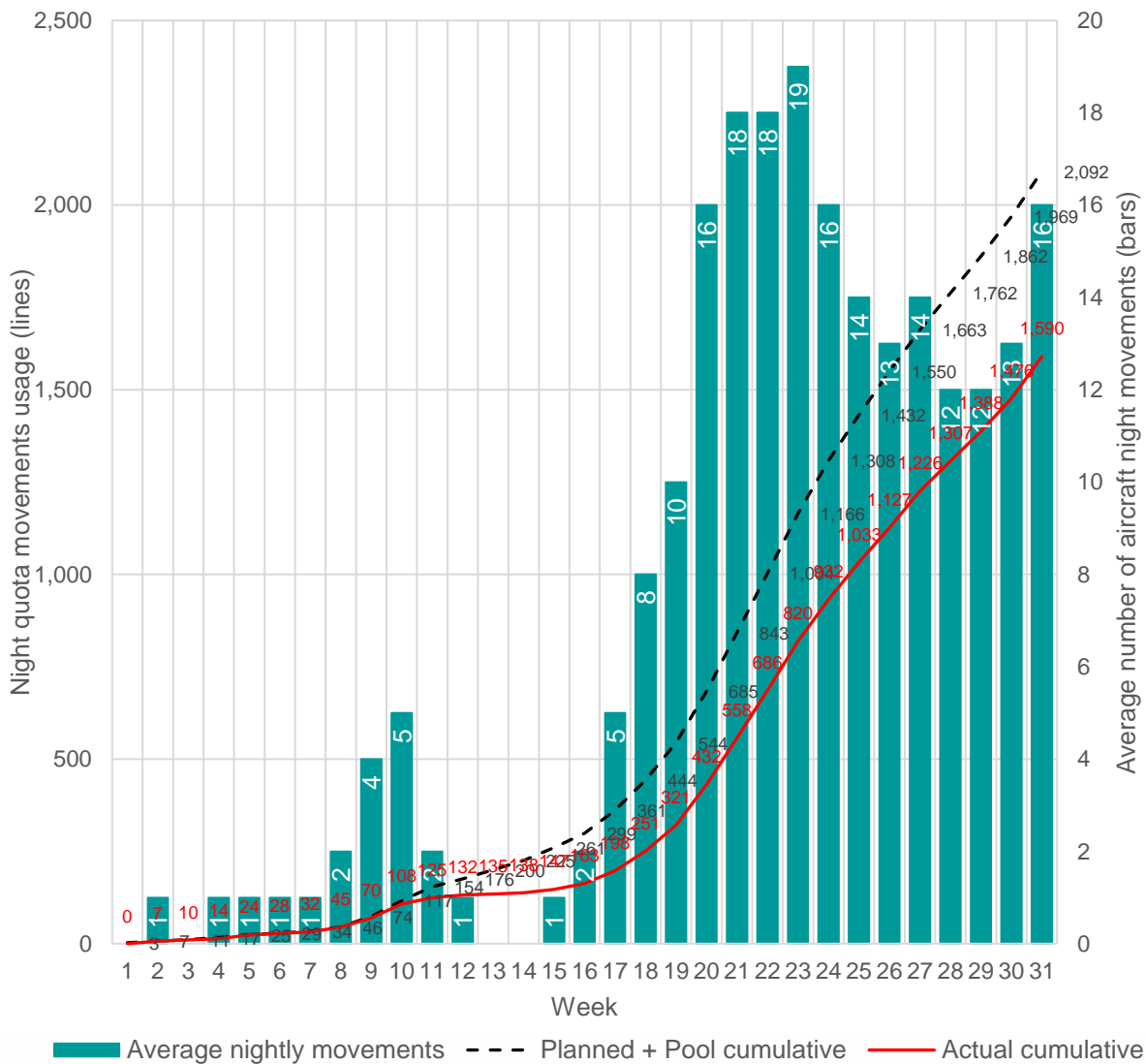


Figure 30: Night flight movements in summer

The Summer 2021 season began on 28th March 2021 (0100hrs local) and ended on 31st October 2021 (0159hrs local). Figure 30 depicts the planned and actual usage of the night flight movement quota for the whole summer season.

Figure 31 provides a breakdown of the flights either avoiding the night quota period or using unplanned quota usage (dispensed or non-dispensed). “Avoided” includes flights which had been scheduled to operate during night quota period but operated during the day or shoulder period.

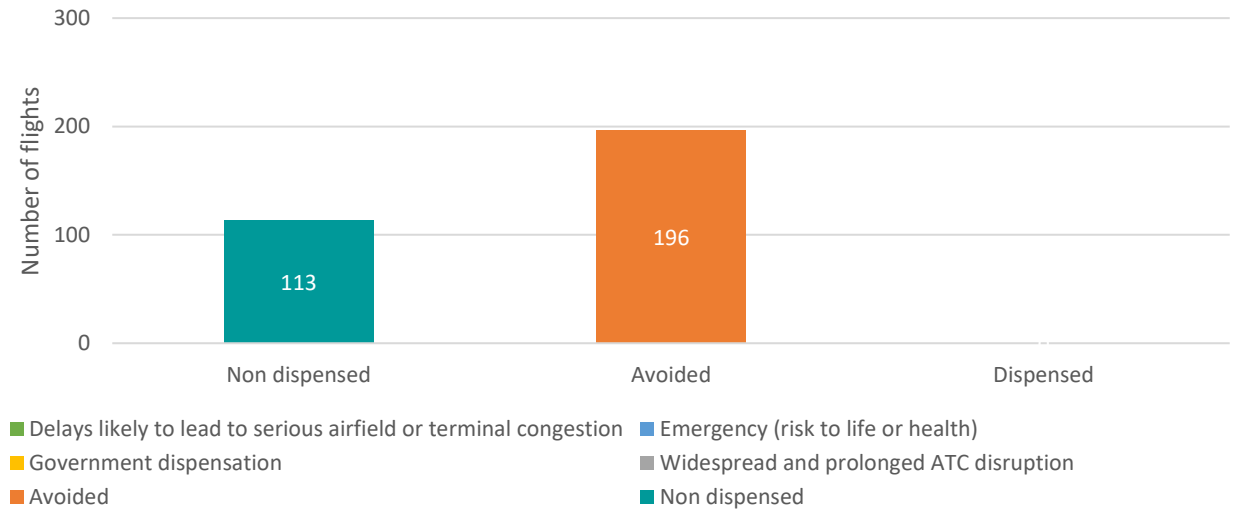


Figure 31: Number of non-dispensed, avoided and dispensed flights



Night Operations – Winter Season

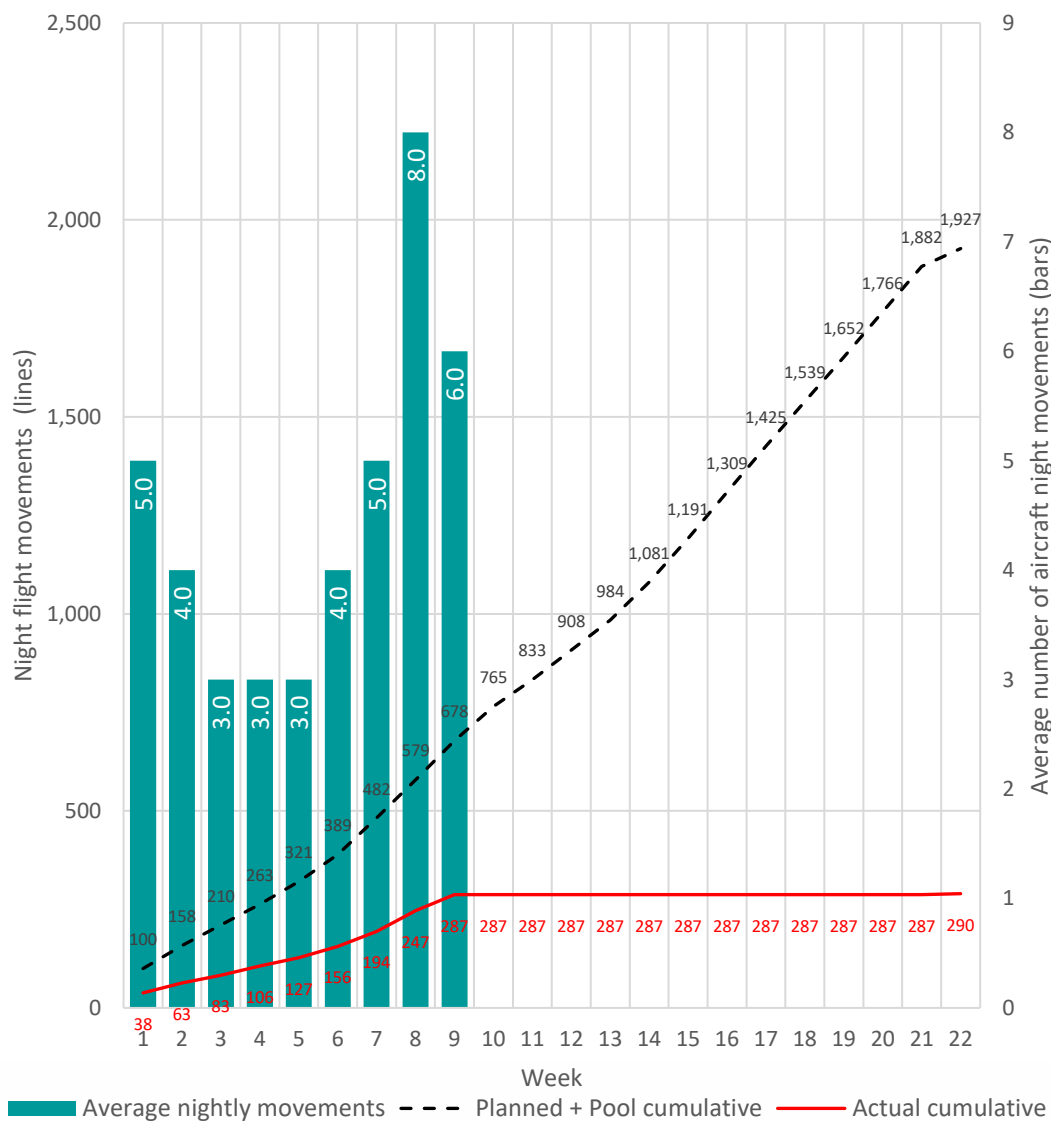


Figure 32: Night flight movements in winter

The Winter 2021/2022 season began on 31st October 2020 (0200hrs local) and will end on 27th March 2022 (0059hrs local). Figure 32 depicts the planned and actual usage of the night flight movement and quota limit for the winter season so far.

Figure 33 provides a breakdown of the flights either avoiding the night quota period or using unplanned quota usage (dispensed or non-dispensed) due to delayed arrivals or early departures. No dispensations have been applied in the winter season yet.

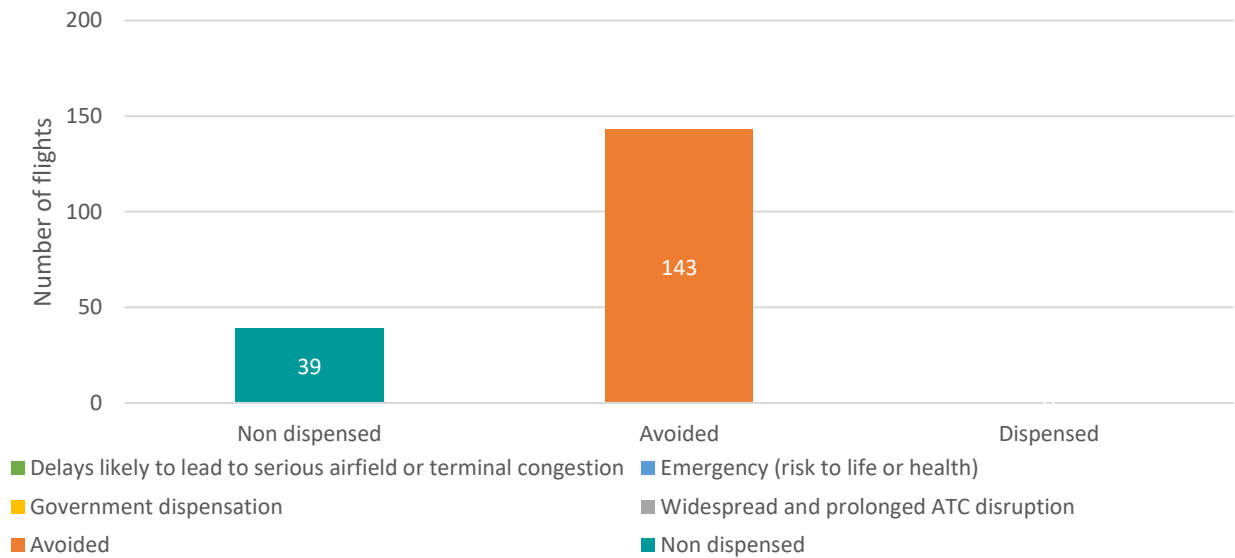


Figure 33: Number of non-dispensed, avoided and dispensed flights



Noise Monitoring

Like most airports, Gatwick has a local noise monitoring system, this consists of a number of 'monitoring stations'. Each station includes a microphone, recording device and transmitter to send the data back to our servers.

The monitor records noise from both aircraft and background sources such as road traffic, or the wind in the trees. The active monitoring of noise allows us to track aircraft noise levels, evaluate trends and make comparisons between the noise environments.

Noise monitoring is useful as it gives a better understanding of the levels of aircraft noise and how it may affect communities surrounding Gatwick Airport. It is especially important during trial periods where new routes or procedures may be under review.

The Gatwick Noise Monitoring Group (GNMG) is responsible for proposing the location of noise monitors and has an established process to follow.



Figure 34: Location of current and historical noise monitors and NPRs



Complaints

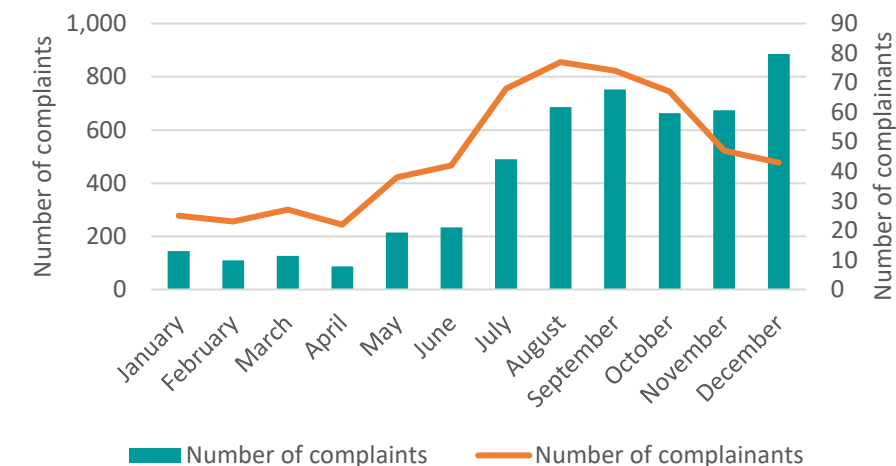


Figure 35: Number of complaints and complainants

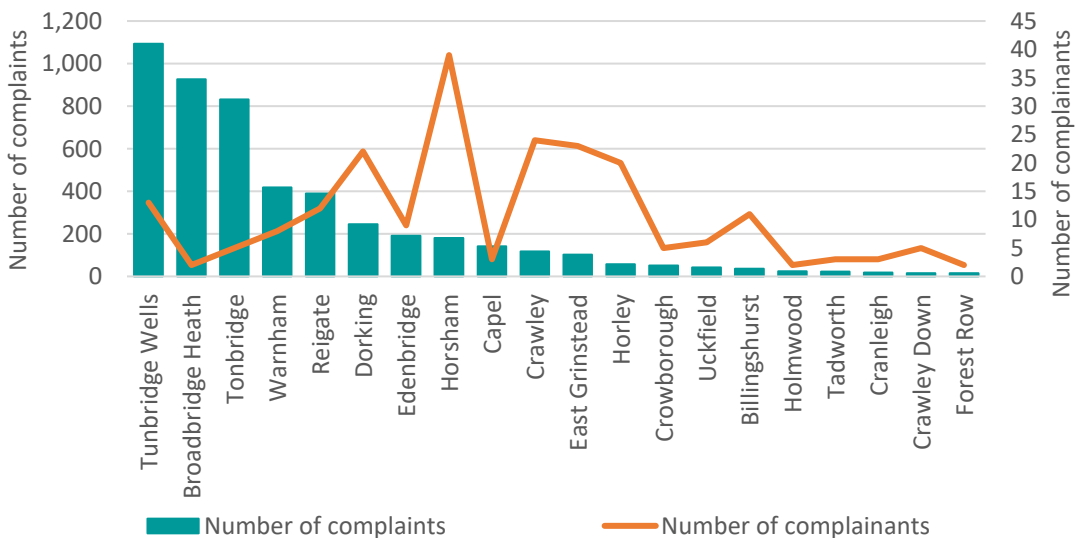


Figure 37: Areas with most complaints (whole year)

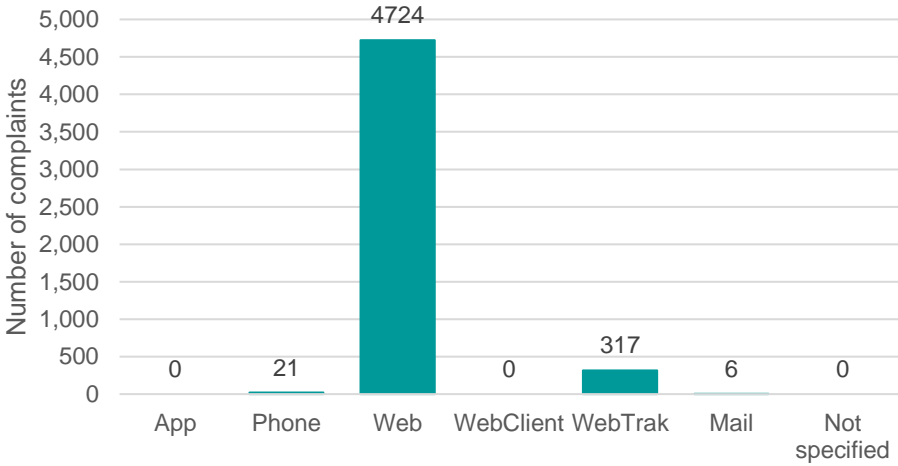


Figure 36: Complaints submission methods (whole year)

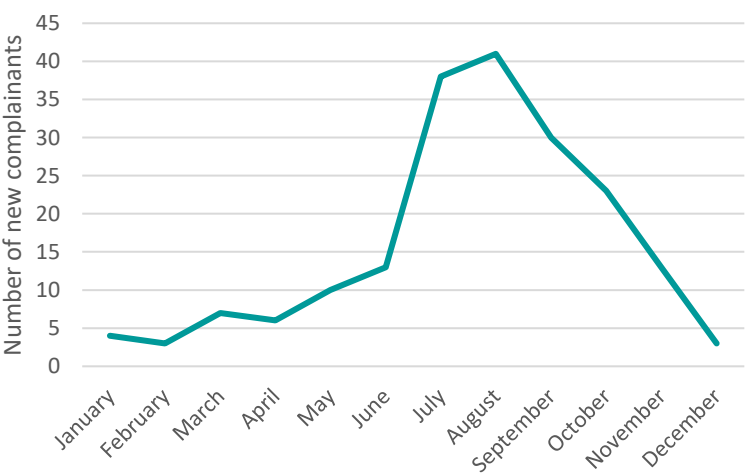


Figure 38: New complainants

December saw the largest number of noise complaints for 2021, as traffic levels reached their highest since March 2020. Although the number of complaints each month has remained as high as summer, the number of complainants has steadily reduced.

Figure 36 shows that almost all complaints are received via either the online web form, or through the use of WebTrak.

Figure 38 shows the number of new complainants per month who have not contacted the airport in the previous 12 months prior to that date.



Complaints

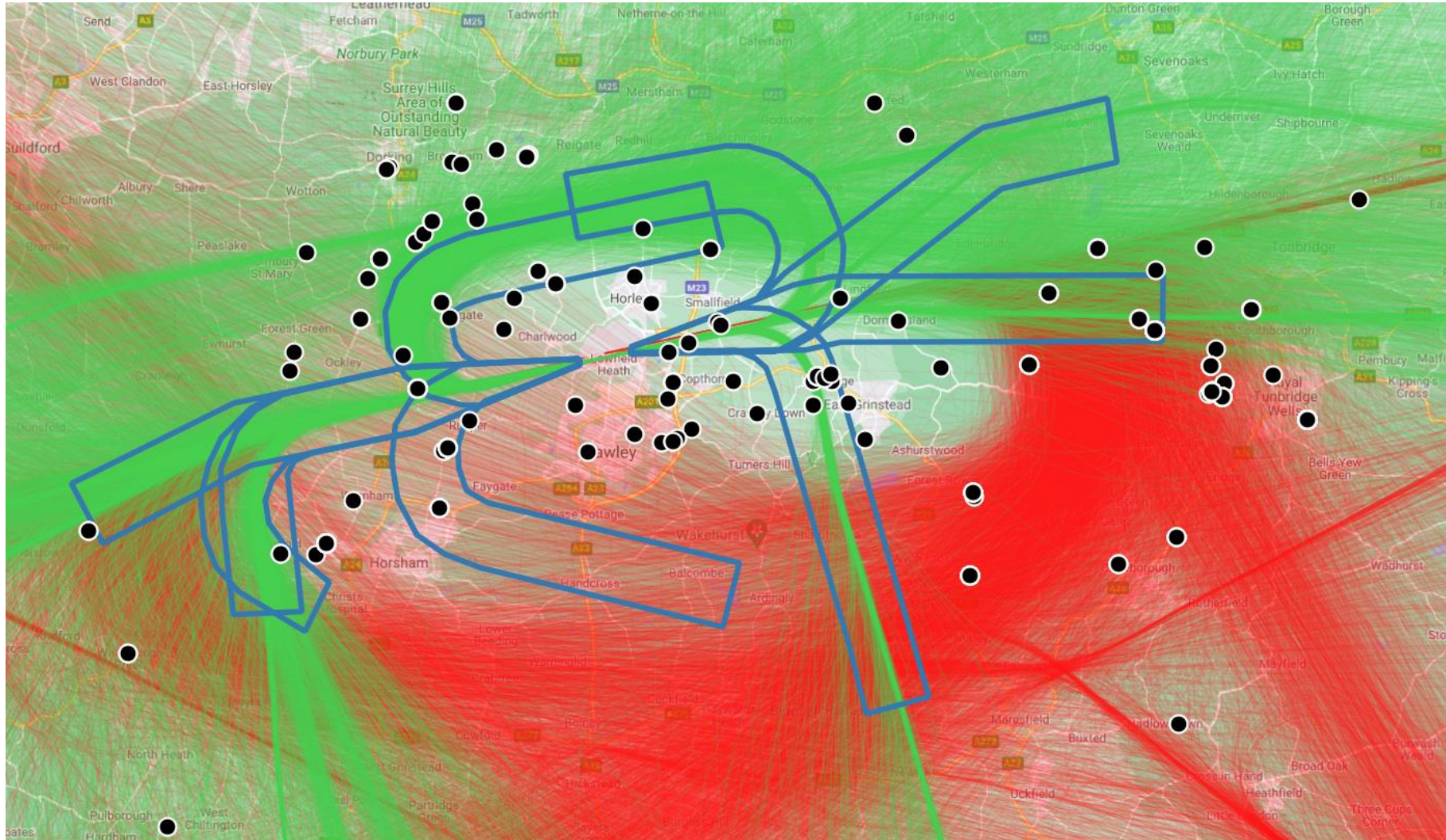


Figure 37 showed the areas in 2021 with the greatest number of complaints received were Tunbridge Wells, Broadbridge Heath and Tonbridge.

Figure 39 shows the distribution of individual complainants, as well as the tracks of all movements in Q4.

Figure 39: Q4 2021 individual complaints with Q4 2021 arrivals and departure tracks and NPRs



Ground Noise

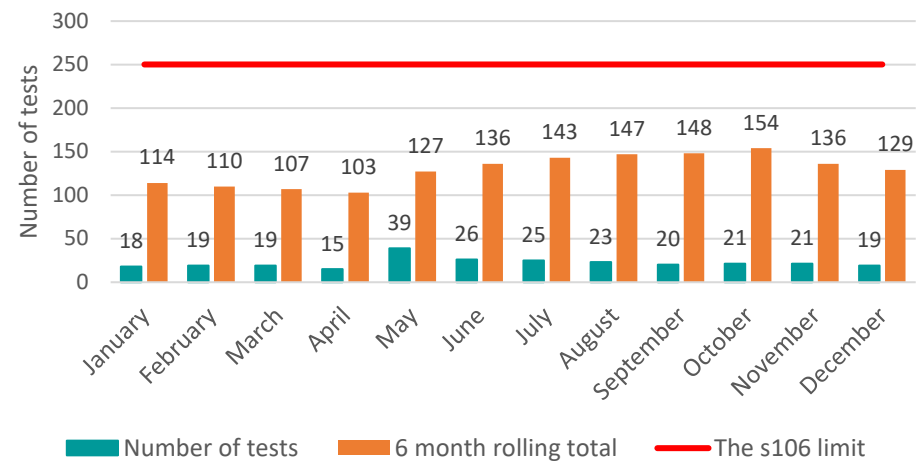


Figure 40: Engine runs⁷

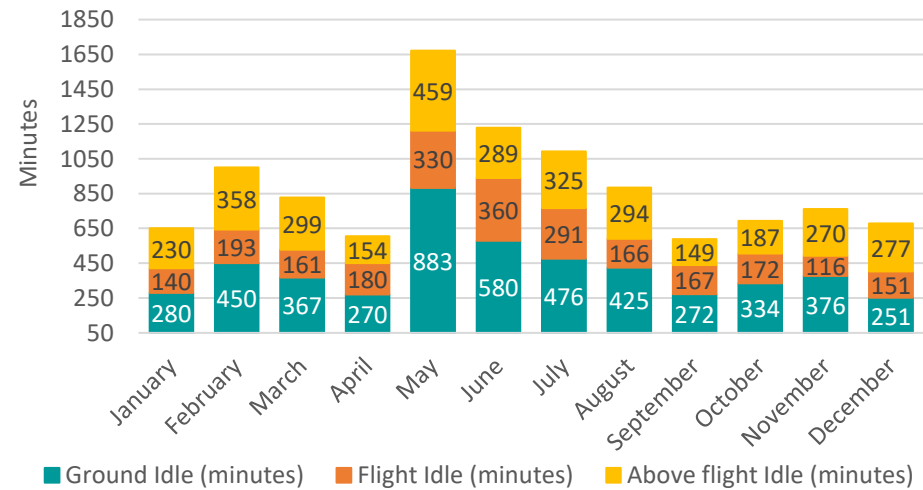


Figure 42: Cumulative minutes of engine tests

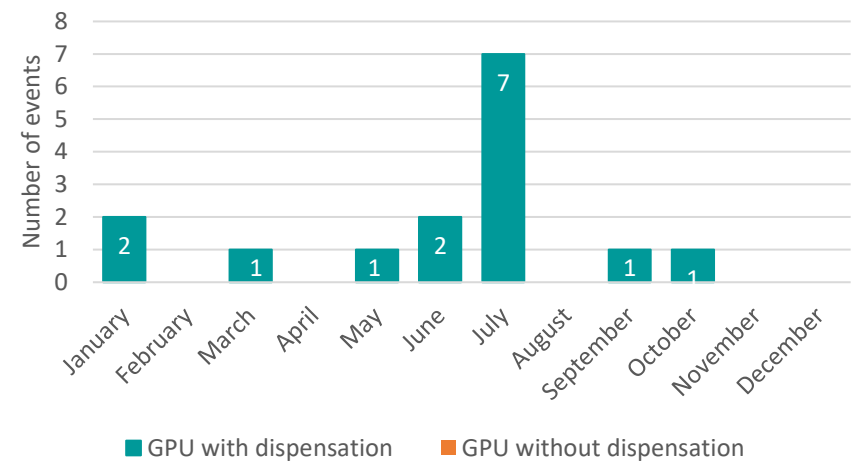


Figure 41: GPU usage⁸

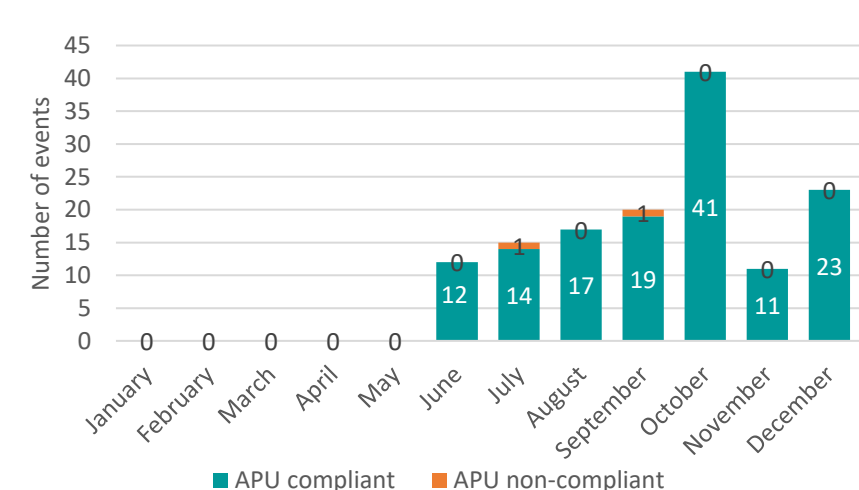


Figure 43: APU usage⁸

Figure 40 shows that the number of engine tests remains well below the Section 106 limit of 250 in a six-month period.

Figure 41 shows that there was only one use of a Ground Power Unit in Q4 2021, where a dispensation for its use was granted.

Figure 43 shows there were no instances of non-compliant APU usage in Q4 2021.

Further details on ground noise can be found in [Annex F](#).



Annex A – Additional Statistics

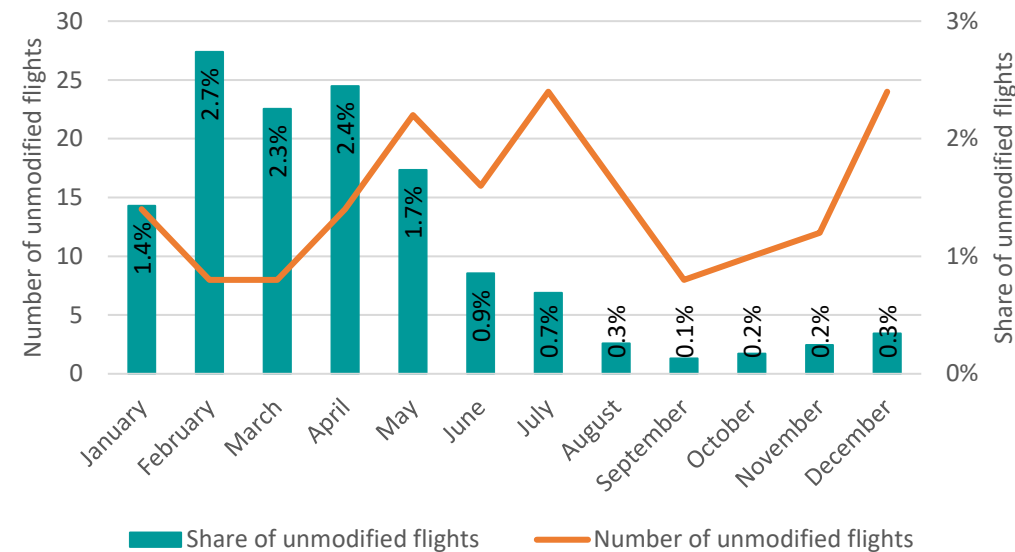


Figure A-1: Number and share of flights by unmodified A320 family aircraft

The number of flights operated by unmodified A320 family aircraft, which have not had fuel over-pressure protector modification installed, has been very low. These aircraft are being operated by airlines that are not regular operators at Gatwick.

Gatwick Airport has been applying an additional noise charge to unmodified A320 aircraft since the 1st January 2018. The number of these flights has been reduced by -95% since then and represented 0.32% of all the A320 traffic in 2021.



Annex A – Additional Statistics

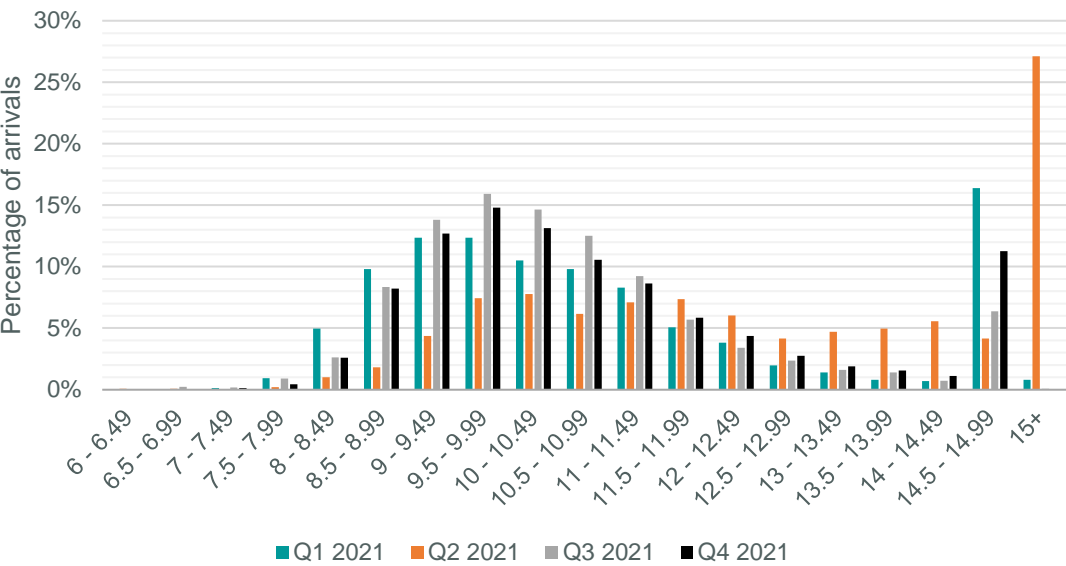


Figure A-2: Traffic Joining ILS per quarter – Runway 26 Only

Figure A-2 shows a high percentage of arrivals joining greater than 14NM which accounts for aircraft that arrive directly from the east.

In Q4, only 0.61% of aircraft joined ILS inside 8 NM. This is monitored as a result of Recommendation Imm-10 of the 2016 Independent Arrivals Review (IAR). Please refer to [Annex C](#) for the full background and rationale for continuous monitoring.

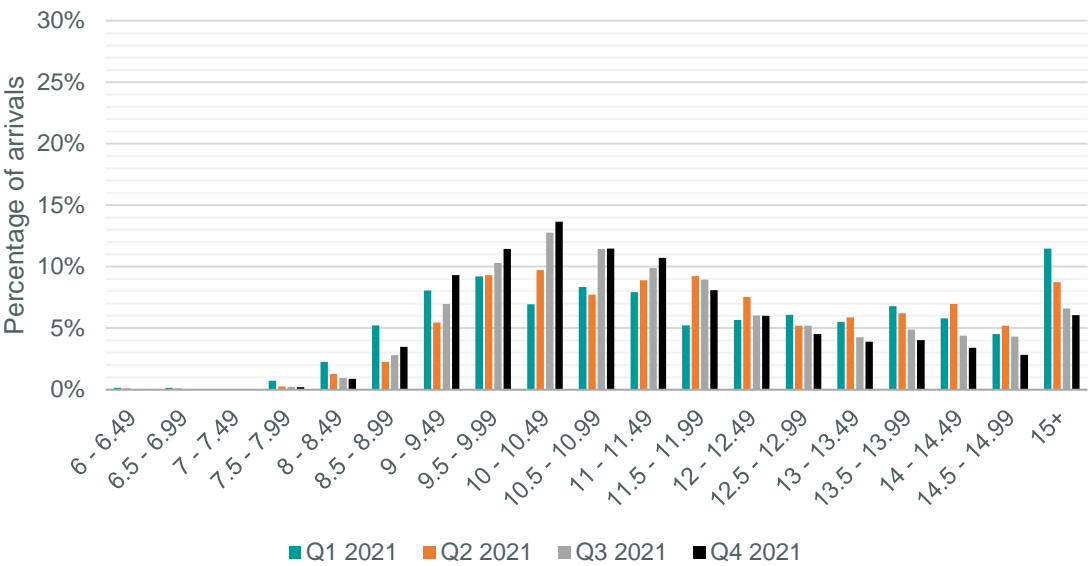


Figure A-3: Traffic Joining ILS per quarter – Runway 08 Only

Figure A-3 shows a rather even distribution of arrivals during easterly operations. There have been more aircraft joining at 15NM+ during Q1 2021, mainly due to the quieter airspace as a result of the third national lockdown and a higher proportion of straight-in approaches.

In Q4, only 0.23% of aircraft joined ILS inside 8NM.



Annex B

Noise Abatement Procedures referred to by figures in this report

1 AIP, EGKK AD 2.21 NOISE ABATEMENT PROCEDURES,
Sub-paragraph 10

Where the aircraft is approaching the aerodrome to land it shall, commensurate with its ATC clearance, minimise noise disturbance by the use of continuous descent and low power, low drag operating procedures.

2 AIP, EGKK AD 2.21 NOISE ABATEMENT PROCEDURES,
Sub-paragraph 14

Aircraft which land at Gatwick Airport - London between the hours of 2330 (2230) and 0600 (0500), whether or not making use of the ILS localiser and irrespective of weight or type of approach, shall not join the centre-line: below 3,000 FT or closer than 10 NM from touchdown.

Note on altitude tolerances:

3,000ft (Gatwick QNH) – 202ft (airfield elevation) = 2,798ft

2,798 ft – 200ft ATC radar tolerance = 2,598ft

These values are used to assess compliance within the Airport's Noise & Track Keeping System.

3 AIP, EGKK AD 2.21 NOISE ABATEMENT PROCEDURES,
Sub-paragraph 11

Before landing at the aerodrome the aircraft shall maintain as high an altitude as practicable and shall not fly over the congested areas of Crawley, East Grinstead, Horley and Horsham at an altitude of less than 3000 FT (Gatwick QNH) nor over the congested area of Lingfield at an altitude of less than 2000 FT (Gatwick QNH).

4 AIP, EGKK AD 2.21 NOISE ABATEMENT PROCEDURES,
Sub-paragraph 9

After taking off the aircraft shall avoid flying over the congested areas of Horley and Crawley.



5 AIP, EGKK AD 2.21 NOISE ABATEMENT PROCEDURES,
Sub-paragraph 1

After take-off the aircraft shall be operated in such a way that it is at a height of not less than 1,000 FT AAL at 6.5 KM from start of roll as measured along the departure track of that aircraft.

6 AIP, EGKK AD 2.21 NOISE ABATEMENT PROCEDURES,
Section 3 and section 4

Any aircraft shall, after take-off, be operated in such a way that it will not cause more than 94 dBA L_{max} by day (from 0700 (0600) to 2300 (2200) hours) as measured at any noise monitoring terminal at any of the sites referred to in sub-paragraph (2).

Any aircraft shall, after take-off, be operated in such a way that it will not cause more than 89 dBA L_{max} by night (from 2300 (2200) to 0700 (0600) hours) and that it will not cause more than 87 dBA L_{max} during the night quota period (from 2330 (2230) to 0600 (0500) hours) as measured at any noise monitoring terminal at any of the sites referred to in sub-paragraph (2).

7 Agreement in relation to Gatwick Airport Under Section 106 of
the Town and Country Planning Act 1990 and other powers

Full version:

https://www.gatwickairport.com/globalassets/publicationfiles/business_and_community/all_public_publications/sustainability/s106/completed-s.106-agreement-30.04.19.pdf

8 AIP, EGKK AD 2.20 LOCAL AERODROME REGULATIONS, 1
AIRPORT REGULATIONS, Sub-paragraph I

Fixed Electrical Ground Power must be used when available and serviceable. Use of aircraft Auxiliary Power Units (APUs) and Ground Power Units (GPUs) are strictly controlled to minimise environmental impact. APUs must be shut down after arrival and only restarted before departure according to the timescales described in detail in published Gatwick Airport Instructions and Directives. Regular audits take place to ensure compliance with the regulations.



Annex C

ILS Joining Point – Background and Rationale for Monitoring

Background

Joining point data is monitored as a result of Recommendation Imm-10 of the 2016 Independent Arrivals Review (IAR). The recommendation proposed to alter a safety feature - the ILS minimum joining point - applied by air traffic controllers to help pilots ensure a fully stabilised final approach to the runway. The objective was to safely increase geographical dispersal of arrivals to more closely emulate the operations prior to a change in 2013 when the ILS minimum joining point had been increased from 7NM to 10NM. Specifically, the recommendation proposed extending the arrival swathe by reducing the ILS minimum joining point from 10NM to 8NM from touchdown. Hence the arrival swathe would extend from a minimum of 8NM to 14NM, with aircraft joining on a straight in approach when traffic permits.

Following the publication of the Action Plan, GAL working closely with NATS, progressed the implementation of the recommendation into an operational evaluation supported by detailed analysis. The evaluation commenced on the 15 August 2016. GAL & NATS have closely monitored use of the ILS since the implementation of the evaluation. In early January 2017, in anticipation of the need to conduct a thorough assessment of the results from the evaluation period and in order to avoid a temporary reversion to the pre-August 2016 minimum joining point, GAL made a request to CAA for a 3-month extension of the use of the reduced ILS minimum joining point.

Over the entire evaluation period the joining points between 8NM to 10NM was used by, on average, almost 20% of arrivals. As the evaluation progressed, the number of aircraft making use of joining points between 8NM and 10NM

increased, reaching a peak of 31% in January 2017. The increased use of these joining points closer to touch down had increased the geographical dispersal of the arrivals swathe. With the agreement of the CAA and NATS at Noise Management Board (NMB) 5 it was decided that the 8NM minimum ILS joining point would be transitioned to a permanent procedure on the 15 May 2017.

Rationale for continuous monitoring

Following the adoption of the change as a permanent procedure, reporting continued to the NMB on a regular basis to provide transparency of the traffic dispersal achieved. The reporting and monitoring function was subsequently transferred to NaTMAG, as reporting became part of routine operational monitoring. In Q4 2020, ILS joining point distance statistics were absorbed into the new Airspace Office Quarterly and Annual reporting.

Communities continue to express concerns regarding flights that join the ILS inside 8NM during the day due to their noise impact. When the proportion of such flights becomes noticeably higher than the long-term average, the Airspace Office informs NATS (providing supporting data) and refers this to Gatwick's Flight Operations Performance and Safety Committee (FLOPSC) for further investigation. Whilst it is understood that vectoring practice by air traffic controllers has noise impacts, the rationale for taking action through FLOPSC - instead of NaTMAG - is that the 8NM ILS minimum joining point is a safety procedure, rather than a noise abatement procedure, relating to the stabilised approach of aircraft to the runway. FLOPSC is the competent safety body.



Annex D

Roles and Responsibilities

Gatwick Airport Limited

GAL is the licensed operator of Gatwick Airport. It is not directly responsible for aircraft operations but is responsible for the control of ground noise at the airport and the implementation and monitoring of DfT policy.

The Airspace Office

The Airspace Office is responsible for recording, investigating and responding to aircraft noise enquiries as well as to monitor and report airline compliance to noise mitigation measures as detailed in the UK AIP. The Airspace Office can also, if requested, provide information regarding flight paths and arrival routes, for example to prospective homebuyers. The Airspace Office also manages the airport Noise and Track Keeping system 'ANOMS' and a number of fixed and mobile noise monitors within the local area. They are regularly relocated, the data analysed, and the findings reported.

Air Traffic Control

NATS is the main Air Navigation Service Provider in the United Kingdom and provide guidance to flights in the vicinity of Gatwick Airport. NATS' en-route business is regulated and operated under licence from the Civil Aviation Authority (CAA). The terms of the licence require NATS to be capable of meeting on a continuous basis any reasonable level of overall demand. They are charged with permitting access to airspace on the part of all users, whilst making the most efficient overall use of airspace.

The Gatwick Airport air traffic control is operated by Air Navigation Solutions, who oversee the runway and ground operations.

Air Navigation Solutions

ANS is responsible for aerodrome air traffic control at Gatwick Airport from when the aircraft leaves its stand to when it reaches 4,000ft in the air. ANS also manages air traffic engineering services, emergency and alerting services, and meteorological services.

Department for Transport

The DfT is responsible for the formulation of noise abatement policy, the location of Noise Preferential Routes (NPRs) for departing aircraft and night flight regulations.

Civil Aviation Authority

As the UK's independent specialist aviation regulator, the CAA has responsibility for regulating airspace over the UK. This includes the new and established air traffic routes and areas which commercial aircraft use to fly into and out of airports, and the airspace used by military and General Aviation flights.

An organisation proposing a change to the design of UK airspace must follow the CAA's airspace change process. The CAA has a duty to consider a range of factors set out by government in deciding whether or not to approve the change. One set of factors is the environmental objectives set for the CAA by the Secretary of State – including consideration of noise impacts.



Annex E

15-year KPI table

| | | | 12 Month Performance | | | | | | | | | | | | |
|--|-----------|------------|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Parameter | 2021 | 2020 | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 | 2008 | 2007 |
| Track keeping performance (% on track) | 98.20% | 98.49% | 98.42% | 98.08% | 98.06% | 98.56% | 99.71% | 99.28% | 98.04% | 97.63% | 97.42% | 96.98% | 96.82% | 98.45% | 98.62% |
| 24hr CDO (% achievement) | 90.89% | 89.59% | 89.58% | 90.74% | 90.48% | 88.58% | 89.75% | 92.61% | 91.36% | 88.56% | 90.49% | 89.73% | 87.92% | 83.53% | 81.00% |
| Day/Shoulder CDO (% achievement) | 90.94% | 89.79% | 89.70% | 90.80% | 90.56% | 88.18% | 89.21% | 92.43% | 91.13% | 88.72% | 90.19% | 89.31% | 87.69% | 82.98% | 80.25% |
| Core night CDO (% achievement) | 90.07% | 85.74% | 88.27% | 90.03% | 89.60% | 92.90% | 95.32% | 95.25% | 94.04% | 85.27% | 93.96% | 93.94% | 91.75% | 89.65% | 89.04% |
| 1000ft Infringements (No.) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 6 | 22 | 11 | 26 |
| 1000ft Infringements (No. below 900ft) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 4 | 14 |
| Departure Noise Infringements (Day) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 13 |
| Departure Noise Infringements (Night/Shoulder) | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 2 | 2 |
| Individual Complainants | 254 | 313 | 698 | 836 | 997 | 2,324 | 1,746 | 3,366 | 533 | 414 | 343 | 411 | 473 | 432 | 672 |
| Total Noise Complaints Received | 5,068 | 6,628 | 25,593 | 24,447 | 24,658 | 17,715 | 15,189 | 21,712 | 2,296 | 1,952 | 2,673 | 5,033 | 2,254 | 6,281 | 5,288 |
| Enquiry Response Performance Target is 95% Within 8 Days | 99.98% | 99.49% | 77.63% | 99.98% | 99.89% | 46.55% | 93.89% | 73.39% | 99.24% | 98.42% | 95.65% | 99.25% | 84.10% | 97.50% | 94.90% |
| Ground Noise Complaints received | 3 | 10 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 3 | 4 | 2 | 1 | 8 | |
| Number of Fixed and Mobile Noise Monitors | 22 | 23 | 23 | 12 | 11 | 11 | 12 | 12 | 12 | 10 | 10 | 11 | 11 | 11 | 10 |
| Northern/Standby Runway Movements | 532 | 1,042 | 2,842 | 3,534 | 3,722 | 2,567 | 2,498 | 1,496 | 4,473 | 14,836 | 2,444 | 1,012 | 904 | 1,008 | 1,286 |
| West/East Runway Split (%) | 68/32 | 83/17 | 68/32 | 62/38 | 78/22 | 67/33 | 70/30 | 67/33 | 63/37 | 71/29 | 67/33 | 64/36 | 70/30 | 70/30 | 67/33 |
| % of Arrivals performing go-arounds | 0.30% | 0.49% | 0.58% | 0.49% | 0.43% | 0.46% | 0.39% | 0.39% | 0.38% | 0.42% | 0.31% | 0.30% | 0.36% | 0.27% | 0.33% |
| Percentage of Chapter 4 (or equivalent) aircraft % | 99% | 99% | 98% | 99% | 99% | 99% | 99.70% | 99% | 99% | 99% | 96% | 98% | | | |
| Percentage of Chapter 14 aircraft % | 58% | 66% | 62% | 56% | 55% | | | | | | | | | | |
| Unmodified A320 Family Aircraft (% total ATM's) | 0.32% | 0.61% | 0.73% | 1.5% | 0.4% | | | | | | | | | | |
| Total Aircraft Movements | 55,225 | 79,310 | 284,736 | 283,926 | 286,271 | 280,089 | 267,777 | 259,974 | 250,527 | 246,792 | 251,019 | 240,462 | 251,714 | 263,716 | 266,540 |
| Total Passengers | 6,254,549 | 10,166,916 | 46,573,796 | 46,075,410 | 45,561,700 | 43,130,800 | 40,267,938 | 38,127,700 | 35,447,009 | 34,222,461 | 33,660,146 | 31,353,547 | 32,370,000 | 34,100,000 | 35,200,000 |



Annex F

Ground Noise Tables

| | Engine Tests | | | | | | FEGP ¹ Availability | | |
|--------|------------------------|-------------------------|----------------|-------------|-------------|-------------------|--------------------------------|-----------------|----------------------|
| | Number of Engine Tests | 6 month rolling average | 6 month totals | Ground Idle | Flight Idle | Above Flight Idle | NT | ST ² | Remotes ³ |
| Jan-21 | 18 | 19 | 114 | 280 | 140 | 230 | 99.98% | 100.00% | 100.00% |
| Feb-21 | 19 | 18 | 110 | 450 | 193 | 358 | 100.00% | 100.00% | 99.99% |
| Mar-21 | 19 | 18 | 107 | 367 | 161 | 299 | 99.99% | 100.00% | 100.00% |
| Apr-21 | 15 | 17 | 103 | 270 | 180 | 154 | 100.00% | 100.00% | 100.00% |
| May-21 | 39 | 21 | 127 | 883 | 330 | 459 | 99.98% | 100.00% | 100.00% |
| Jun-21 | 26 | 23 | 136 | 580 | 360 | 289 | 100.00% | 100.00% | 99.77% |
| Jul-21 | 25 | 24 | 143 | 476 | 291 | 325 | 100.00% | 100.00% | 99.59% |
| Aug-21 | 23 | 25 | 147 | 425 | 166 | 294 | 99.72% | 100.00% | 100.00% |
| Sep-21 | 20 | 25 | 148 | 272 | 167 | 149 | 100.00% | 100.00% | 100.00% |
| Oct-21 | 21 | 26 | 154 | 334 | 172 | 187 | 99.84% | 100.00% | N/A |
| Nov-21 | 21 | 23 | 136 | 376 | 116 | 270 | 99.77% | 100.00% | N/A |
| Dec-21 | 19 | 22 | 129 | 251 | 151 | 277 | 99.94% | 100.00% | N/A |

¹ FEGP – Fixed Electrical Ground Power (power supplied to aircraft from the electrical grid).

² FEGP Availability 100% for 2021, due to the closure of the South Terminal during the COVID-19 pandemic

³ Remote Stand usage from October 21 no longer included due to a change in CSS



Annex F

Ground Noise Tables

| | APU's | | | | | | | | GPU's | |
|--------|---|---|---|--|---|--|--|--------------------------------------|-------------------------------------|---------------------------|
| | Number of aircraft running APU's which were compliant | Non-compliances ¹ Number of aircraft running APU's which were not compliant | Number of aircraft parked but not running APU's | Total number of aircraft on the airfield | Number of dispensations due to Covid 19 | Number of APU checks undertaken (Target 3) | Operations Duty Team audits ² | Operations Duty Team non-compliances | Used With Dispensation ³ | Used Without Dispensation |
| Jan-21 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 2 | 0 |
| Feb-21 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 |
| Mar-21 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 1 | 0 |
| Apr-21 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 |
| May-21 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 1 | 0 |
| Jun-21 | 12 | 0 | 383 | 395 | 0 | 3 | 30 | 0 | 2 | 0 |
| Jul-21 | 14 | 1 | 349 | 364 | 1 | 3 | 30 | 0 | 7 | 0 |
| Aug-21 | 17 | 0 | 260 | 277 | 2 | 3 | 29 | 1 | 0 | 0 |
| Sep-21 | 19 | 1 | 226 | 246 | 0 | 3 | 27 | 0 | 1 | 0 |
| Oct-21 | 41 | 0 | 198 | 239 | 0 | 3 | 28 | 0 | 1 | 0 |
| Nov-21 | 11 | 0 | 203 | 214 | 0 | 3 | 24 | 0 | 0 | 0 |
| Dec-21 | 23 | 0 | 157 | 180 | 0 | 3 | 29 | 0 | 0 | 0 |

¹ The operation of aircraft Auxiliary Power Units (APU) is restricted and their operation permitted only in certain circumstances.

² This includes monitoring of aircraft auxiliary power unit usage.

³ The operation of Ground Power Units (GPU) is only permitted in certain circumstances.



Glossary of Terms (1)

| | | |
|-------------|--------------------------------------|---|
| AAL | Above Aerodrome Level | The height of an aircraft above the elevation of the referenced aerodrome, usually the one from which they departed or which they are approaching. |
| AIP | Aeronautical Information Publication | Essential air navigation information published by NATS on behalf of the CAA, detailing regulations applicable to the operation of aircraft, e.g. at specific aerodromes. |
| ANPT | Airline Noise Performance Table | A programme that ranks airlines flying into and from Gatwick Airport in relation to their overall noise performance. |
| APU | Auxiliary Power Unit | A small combustion engine on an aircraft that provides energy for functions like lighting or heating/cooling when the main engines are switched off. |
| ATC | Air Traffic Control | An entity responsible for a safe and expedite air traffic flow. To this end they monitor aircraft and issue instructions to the flight crew, either from the airport control tower or from a radar centre. |
| ATM | Air Traffic Movement | An aircraft operation on the airport's runway, i.e. either a departure or an arrival. |
| CAA | Civil Aviation Authority | The UK independent civil aviation regulator |
| CDO | Continuous Descent Operations | An optimised descent profile utilised to reduce noise impact and fuel consumption by avoiding prolonged periods of level flight below 7,000ft. 'For monitoring purposes, a descent will be deemed to have been continuous provided that no segment of level flight longer than 2.5 Nautical Miles (NM) occurs below 7,000ft QNH and 'level flight' is interpreted as any segment of flight having a height change of not more than 50ft over a track distance of 2nm or more, as recorded in the airport Noise and Track Keeping system.' |
| DfT | Department for Transport | The government department providing policy & guidance for air traffic through their work with airlines, airports, the Civil Aviation Authority and NATS. |



Glossary of Terms (2)

| | | |
|---------------|--|---|
| DME | Distance Measuring Equipment | A fixed radio beacon which provides information to aircraft about their distance from its position. "1 DME" denotes 1 nautical mile from the selected ground station easured as a slant range. |
| EGKK | (ICAO-code for Gatwick airport) | These four-letter airport codes are used in the AIP and other aeronautical documents. This code is unique to Gatwick airport. |
| EPNdB | Effective Perceived Noise in decibels | A noise metric aimed to measure the relative noisiness of an individual aircraft flying by. It is relevant for the quota count classification can be calculated from the certified noise levels. |
| FLOPSC | Flight Operations Performance & Safety Committee | An engagement committee at Gatwick Airport ensuring the development of best practice by airline operators using Gatwick. It is made up of representatives of Gatwick Airport, the DfT, ATC service providers and airlines operating at the airport. |
| GACT | Gatwick Airport Community Trust | An independent charity which awards grants annually to local community schemes which benefit parts of East and West Sussex, Surrey and Kent. |
| GAL | Gatwick Airport Limited | - |
| GNMG | Gatwick Noise Monitoring Group | The GNMG consists of Environmental Health Officers and associated noise professionals. It evaluates and discusses the data from all noise monitors surrounding Gatwick Airport. |
| GPU | Ground Power Unit | An either fixed or mobile unit (usually a diesel powered generator) which can supply electrical power to the electrical system of an aircraft while on the ground. |
| IAR | Independent Arrivals Review | Gatwick commissioned an independent review of air traffic around the airport in. The final report has been published in 2016. More information can be found on our website . |
| ILS | Instrument Landing System | Is a precision runway approach aid based on two radio beams which together provide pilots with both vertical and horizontal guidance during an approach to land. |
| IRVR | Instrumented Runway Visual Range | An IRVR system automatically measures the approximate distance over which an aircraft pilot can see the runway surface markings and lights. |

Glossary of Terms (3)

| | | |
|---------------|---|---|
| KPI | Key Performance Indicator | A set of metrics or values by which performance is measured and monitored. |
| LTA | Long Term Average | Values of a metric averaged over a relatively long period – typically one year. |
| MTOW | Maximum Take-Off Weight | The certified maximum total weight of an aircraft during take-off. |
| NaTMAG | Noise and Track Monitoring Advisory Group | NaTMAG brings together representatives from the DfT, ANS, NATS, airlines, Gatwick Airport and local authorities. The group discusses a wide range of noise and track-keeping issues. |
| NATS | National Air Traffic Service | NATS is the main Air Navigation Service Provider in the United Kingdom. |
| NMB | Noise Management Board | The Noise Management Board (NMB) is a unique body, bringing together representatives from all stakeholders in the management and mitigation of aircraft noise. |
| NPR | Noise Preferential Route | Departure flight paths that avoid densely populated areas and therefore reduce the noise. |
| PAPI | Precision Approach Path Indicator | PAPI lights provide a visual indication of the aircraft's position in relation to the glide path. The system consists of four lights placed next to the runway abeam the touch down zone. |
| QC | Quota Count | The QC is the noise quota assigned to an aircraft and is calculated on the basis of the EPNdB of that aircraft on take-off or landing. The QC is used for night flight restrictions at Gatwick, for which there is a set quota limit each season in addition to the movement limit. |
| QNH | (no acronym) | When its barometric pressure is set to QNH an altimeter reads the altitude above mean sea level. |
| RAG | Red-Amber-Green | A tier system used to rate and categorise performance. |
| S106 | Section 106 | Refers to Section 106 the Town and Country Planning Act 1990. |
| TK | Track Keeping | A departure is defined as on-track if it does not deviate from the used NPR conformance monitoring swathe before reaching the applicable minimum altitude. |

Glossary of Terms – Night Flight Restrictions

For the purposes of the night flight restrictions, the hours of the day have been categorised into four periods. These are also used for some noise abatement procedures such as CDO (see page 10).

The periods are called Day, Shoulder 1, Night and Shoulder 2. However, the night flight restrictions differentiate between the night period (Night + Shoulder 1 + Shoulder 2) and the night quota period (Night only). The latter is referred to as Core Night in the context of CDO.

The graphic below depicts the different periods and their boundaries.
The Day period runs from 07:00:00 to 22:59:59. All times are local times.

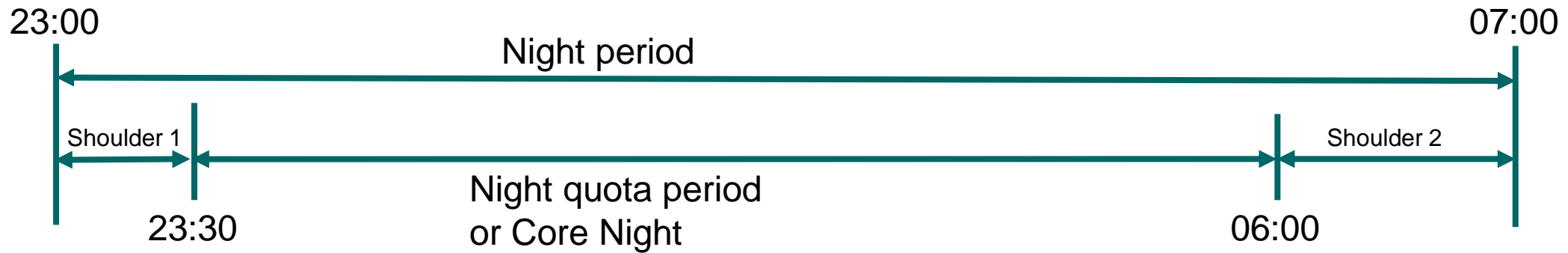


Figure G-1: Definition of time periods referred to in this report



YOUR LONDON AIRPORT
Gatwick

