

# ENVIRONMENTAL BULLETIN OF RODOS “DIAGORAS” AIRPORT (RHO)

## Reference year 2022

Fraport Regional Airports of Greece B S.A.

Issue year: 2023

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## 1. INTRODUCTION

### 1.1. Location

Rodos “Diagoras” Airport is located on the island complex of the Dodecanese, on the north-west part of Rhodes island.

### 1.2. Administration

The airport administratively belongs to the Municipal Unit (MU) of Petaloudes of the Municipality of Rhodes of the Region of South Aegean, at a distance of approximately 14km to the south-west of the town of Rhodes. The airport is extended to two Local Communities (LC) of the MU of Petaloudes: LC Kremasti and LC Paradeisio.

### 1.3. Environmental licensing

Approved Environmental Terms	
E.T. Decision Reference number	32648/04.11.1994
E.T. Amendment Decision Reference Number	100425/ 17.01.2006
	23983/11.05.2016
	37974/07.12.2017
	6304/20.03.2018
	72087/2629/09.01.2019
	116015/7663/07.11.2022

### 1.4. Airport Basic Data

Airport name IATA / ICAO	RHO / LGRP
Airport location – Airport Reference Point (ARP)	Latitude: 36° 24' 19" N Longitude: 28° 05' 10" E
Altitude	5,73 m
Number of runways	1
Operation hours (summer)	00:00-23:59
Operation hours (winter)	00:01-24:00

Runways	Length/Width					Code
Runway	3,305 x 45.0					07/25
Full length of parallel taxiway	A: 1,000m, F: 1,700m					
Number of taxiways	4 (B,C,D,E)					
Apron capacity	A	B	C	D	E	
	-	-	13	-	2 (MARS)	
Employees	High season (31.08.2022)			Low season (30.11.2022)		

Fraport Greece (FG) employees	64	52
Employees of other companies	1.253	523

#### **Terminal**

➤ Total area (m <sup>2</sup> )	49.478
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#### **Other buildings and service/storage areas**

➤ RFF Station (m <sup>2</sup> )	1.470
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#### **Parking Areas**

Car parking spaces	286
Bus parking spaces	49
Taxi parking spaces	45

### **1.5. Airport facilities**

#### **1.5.1. Fuel Handlers**

##### **Number of fuel handler companies**

Number of fuel handler companies operating at the Airport	2
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<b>Installations inside the airport</b>	<b>EKO</b>	<b>GISSCO</b>	<b>HAFCO</b>
Environmental Management System (EMS)	YES	YES	Not operating at the airport

#### **1.5.2. Ground Handlers**

##### **Number of ground handler companies**

Number of ground handler companies operating at the Airport	3
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<b>Installations inside the airport</b>	<b>SKYSERV</b>	<b>SWISSPORT</b>	<b>GOLDAIR</b>
Environmental Management System (EMS)	NAI	NAI	NAI

## 2. TRAFFIC DATA STATISTICS

### 2.1. Annual Traffic Data

<b>Annual Traffic Data for the year 2022</b>	
Overall Annual Air Traffic Movements <sup>1</sup>	28.817
Percent of increase or decrease in relation to the previous year	94,7 %
Annual passenger traffic	3.366.614
Percent of increase or decrease in relation to the previous year	117%
Annual cargo transferred (tn)	302
Percent of increase or decrease in relation to the previous year	-19,9 %

<b>Aircraft types</b>	
<b>Prevailing aircraft types for domestic flights</b>	
Aircraft type	No. of flights
A320	2.418
AT45	1.650
A20N	1.378
A32A	720
DH8A	512
A321	262
A21N	93
C208	61
C550	46
B73H	42
Other	474
<b>Prevailing aircraft types for international flights</b>	
Aircraft type	No. of flights
B73H	9.098
A320	7.757
B738	4.661
A32A	1.931
A321	1.818
7M8	1.763
A32B	1.214
A20N	1.060
A319	902
A21N	431
Other	3.716

<sup>1</sup> Military and training flights not included.

## 2.2. High season traffic data

<b>High season traffic data (June-September)</b>	
Highest traffic month	August
Air traffic movements during the month with highest traffic	7.564
Air traffic movements daily average number during the month with highest traffic	244

## 2.3. Low season traffic data

<b>Low season traffic data (October-May)</b>	
Lowest traffic month	February
Air traffic movements during the month with lowest traffic	490
Air traffic movements daily average number during the month with lowest traffic	17

### 3. AIRCRAFT NOISE

#### 3.1. Noise measurements during the reference year

<b>Have noise measurements at the airport’s surrounding area been performed during the reference year?</b>	<b>YES</b>
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#### Noise Monitoring Stations



Measurement points coordinates	Measurement points description
MP01: 36° 24' 00.91" N 28° 05' 02.80" E	Paradisi area, south of the runway on the balcony of a house. Affected by all flights o and from both directions
MP02: 36° 24' 50.85" N 28° 06' 45.72" E	Kremasti area, east of RWY 16/34 on a hotel rooftop. Affected by arrivals RWY 25 and departures RWY 07
<b>Measurement period</b>	01.01.2022 – 31.12.2022
<b>Noise indicators</b>	L <sub>den</sub> , L <sub>night</sub>

#### Summary of measurement results:

Noise levels are monitored according to the airport’s monitoring program.  
 No exceedance of the noise indicators levels L<sub>den</sub> = 70 dB(A) and L<sub>night</sub> = 60 dB(A) was observed.  
 MP01: L<sub>den</sub> = 60,8dB(A) & L<sub>night</sub> = 52,9dB(A)  
 MP02: L<sub>den</sub> = 63,3dB(A) & L<sub>night</sub> = 54,4dB(A)



**3.2. Noise levels calculation based on noise simulation software**


<b>Aircraft noise levels calculation based on noise simulation software</b>	YES
<b>Software used:</b> N/A	
<b>Noise indicators and respective contours calculation:</b> N/A	
<b>Noise contours:</b> N/A	

**Summary of results:**

According to new environmental terms, there is no obligation for noise simulation model this year.

## 4. AIR QUALITY

### 4.1. Air quality measurements during the reference year

<b>Have air quality measurements at the airport's surrounding area been performed during the reference year?</b>		<b>YES</b>
<b>Measurement points</b>		
		
<b>Measurement points</b>	<b>Measurement points description</b>	
Position: 36° 24' 44.8" N 28° 07' 01.6" E	Kremasti area, east of RWY 16/34 on a hotel rooftop. Affected by arrivals RWY 25 and departures RWY 07.	
<b>Measurement period:</b>	01.01.2022 - 31.12.2022	
<b>Pollutants measured:</b>	PM <sub>10</sub> , PM <sub>2,5</sub> , NO <sub>2</sub> , SO <sub>2</sub> , C <sub>6</sub> H <sub>6</sub> , O <sub>3</sub>	

#### Summary of measurement results:

Air quality is monitored according to the airport's monitoring program.  
No exceedance of the air quality limits was observed.

**4.2. Air pollutants emission and dispersion modelling**

<b>Calculation of air pollutants concentrations based on an emission and dispersion modelling software</b>		YES
Software used: N/A		
Pollutants concentrations and respective contours calculation: N/A		
PM <sub>10</sub>		
NO <sub>x</sub>		
SO <sub>x</sub>		
Benzene (C <sub>6</sub> H <sub>6</sub> )		

**Summary of results:**

The air pollutants simulation model is being performed in 2023.

## 5. WASTE MANAGEMENT

Waste	Collection	Management/Disposal
<b>Recyclables (paper, plastic, metals, glass)</b>	Separate collection by licensed private company.	Disposal at material recovery facility for recycling
<b>Residues (Mixed Waste) and Bulky Waste</b>	Collection by licensed private company.	Disposal in the municipal sanitary landfill of Northern Rodos

### Notes:

1. Regarding the different categories of the MSW (recyclables, mixed waste, bulky waste), the Airport Users handle their waste together with Fraport Greece B (central management).
2. Regarding the “alternative management” waste categories (Waste lubricant oil WLO, WEEE, etc.):
  - i. Waste Lubricant Oil (WLO): Collection and management by authorized collector “CYTOP S.A.”
  - ii. Waste Electrical & Electronic Equipment (WEEE): Collection and management by alternative management system “Appliances Recycling S.A.”
  - iii. Accumulators: Collection and management by alternative management system “Re-Battery S.A.”
  - iv. Small batteries: Collection and management by alternative management system “AFIS S.A.”
  - v. Used tires: Collection and management by alternative management system “ECOELASTIKA S.A.”
3. The total quantities of the hazardous waste further to the above-mentioned and produced at the airport, are managed by licensed private companies which have a contract with Fraport Greece B, according to the provisions of the legislation in force.
4. The total quantities of the produced waste by category resulting from all activities of the airport, the collectors and final recipients, are recorded by Fraport Greece B and submitted in the Electronic Waste Registry of the Ministry for Environment and Energy via the Annual Waste Producer Report according to the provisions of the legislation in force.

## 6. ECOSYSTEM AROUND THE AIRPORT

### 6.1. Flora-Fauna

Flora	
Are there protected zones of vegetation/habitats in the broader airport area?	YES
<p><b>(if YES)</b> Short description: Rodos Airport “Diagoras” is near to the Natura 2000 site:</p> <ul style="list-style-type: none"> <li>GR4210006 Rodos: Profitis Ilias - Epta Piges B– Petaloudes – Remata (Area:11,312.41ha)</li> </ul>	
Fauna	
Are there protected species of fauna/birds in the broader airport area?	YES
<p><b>(if YES)</b> Short description:</p> <p>Rodos Airport “Diagoras” is close to the Important Bird Areas:</p> <ul style="list-style-type: none"> <li>GR171:Western, eastern and southern Rhodes (Area: 29,468.26ha)</li> <li>GR170: Chalki island and surrounding islets (Area: 35,292.42 ha)</li> </ul> <p>The protected bird species that have been observed at Rodos airport since April 2017 are presented below:Black-crowned night heron (<i>Nycticorax nycticorax</i>), Black kite (<i>Milvus migrans</i>), Collared pratincole (<i>Glareola pratincola</i>), Eurasian curlew (<i>Numenius arquata</i>), Eurasian stone-curlew (<i>Burhinus oedicephalus</i>), Eurasian skylark (<i>Alauda arvensis</i>), European roller (<i>Coracias garrulous</i>), European turtle-dove (<i>Streptopelia turtur</i>), Garganey (<i>Anas querquedula</i>), Glossy ibis (<i>Plegadis falcinellus</i>), Isabelline wheatear (<i>Oenanthe isabellina</i>), Lapwing (<i>Vanellus vanellus</i>), Lesser grey shrike (<i>Lanius minor</i>), Lesser kestrel (<i>Falco naumanni</i>), Long-legged buzzard (<i>Buteo rufinus</i>), Marsh harrier (<i>Circus aeruginosus</i>), Masked shrike (<i>Lanius nubicus</i>),Mediterranean gull (<i>Larus melanocephalus</i>), Montagu’s harrier (<i>Circus pygargus</i>), Pallid harrier (<i>Circus macrourus</i>), Purple heron (<i>Ardea purpurea</i>), Red-footed falcon (<i>Falco vespertinus</i>), Short-eared owl (<i>Asio flammeus</i>), Short-toed snake eagle (<i>Circaetus gallicus</i>), Spur-winged lapwing (<i>Vanellus spinosus</i>), Squacco heron (<i>Ardeola ralloides</i>), White stork (<i>Ciconia ciconia</i>).</p>	

## 7. WILDLIFE HAZARD MANAGEMENT

<b>Wildlife strikes and wildlife hazard management measures</b>	
<b>Wildlife species that suffered a strike</b>	<b>Strikes (%)</b>
Small passerines	66%
Gulls	24%
Birds of prey	10%
<b>Wildlife strike risk mitigation measures:</b>	
The presence and behavior of wildlife species at Rodos airport is monitored in regular intervals, daily, from dawn to dusk. Some of the wildlife control methods applied at Rodos airport are: distress calls (bioacoustics), digital sounds, anti-bird laser, etc. Preventive long-term actions that are mainly related to habitat management measures (e.g. grass cutting, water body management) are also taken to further reduce the presence of species constituting a risk to flight safety. In addition, a NOTAM is published and regularly updated.	

## 8. CULTURAL HERITAGE

<b>Have new cultural heritage properties been discovered during the reporting period?</b>	NO
<i>(if YES)</i> Details provided in the table below:	

Location	Date of discovery	Type of discovery	Additional protection measures taken

## 9. RESOURCES CONSUMPTION

### 9.1. Energy consumption

Energy consumption (monthly electric energy consumption, in Kwh)	
Total annual electric energy consumption (in Kwh)	10.820.449,80

### 9.2. Fuel consumption

Fuel consumption		
Number of FG vehicles at the airport	23	
Total annual fuel consumption	Diesel (lt)	26.356,91
	Unleaded gasoline (lt)	1.458,18

### 9.3. Heating oil or natural gas consumption

Heating oil or natural gas consumption	
Total annual heating oil consumption (lt)	0
Total annual heating natural gas consumption (m <sup>3</sup> )	N/A

### 9.4. Fuel consumption for generator

Fuel consumption	
Total annual consumption (lt)	6.197,82

### 9.5. Water consumption

Water consumption	
Total annual consumption (m <sup>3</sup> )	63.285,5



## 10. GREENHOUSE GAS EMISSIONS & CARBON FOOTPRINT

Greenhouse gas emissions that were included in the carbon footprint calculation are the CO<sub>2</sub> emissions included in scope 1 & 2 of the GHG protocol:

- Scope 1: Direct GHG emissions that occur from sources that are owned and/or controlled by the airport,
- Scope 2: Indirect GHG emissions from the generation of purchased electricity, steam, heat or cooling consumed by the airport.

Source Flows	Total CO <sub>2</sub> Emissions (t)
	2022
Direct emissions form heating fuel (scope 1)	0,0
Direct emissions from fuel used for fleet vehicles (scope 1)	73,9
Direct emissions from fuel used for generators (scope 1)	16,5
Indirect emissions from electricity consumption (scope 2)	4.544,8
<b>Total (t)</b>	<b>4.635,2</b>
<b>Kg CO<sub>2</sub> /passenger</b>	<b>0,79</b>

### Notes:

Fraport Greece B is committed to the monitoring, management and reduction of its airports carbon footprint. In order for this target to be achieved:

- Direct and indirect carbon emissions from all the emission sources in the airports' boundaries are calculated and reported, based on the GHG Protocol (scope 1 & 2)
- The airport is certified according to ACA (Airport Carbon Accreditation), Level-1

## 11. HUMAN COMSUMPTION WATER MONITORING PROGRAM

Human consumption water quality	
Water supply (public water network or airport's boreholes)	Municipal Water & Sewage Company (DEYA) of Rodos
Is sampling of the airport's water network performed?	YES
(if YES) Sampling frequency:	Quarterly
<p><b>Summary of results:</b> The results of the microbiological and chemical analyses show that the water of the airport's network <b>is occasionally non potable</b> due to high concentrations of chlorides. The rest of the parameters analyzed as regards the airport's water network are <b>within the legislative limits</b> defined by the Ministerial Decision Γ1 (δ)/ΓΠ οικ. 67322/ GG 3282 B/19-9-2017 regarding the quality of human consumption water.</p>	

## 12. RAINWATER

<b>RAINWATER (collection, treatment disposal and recipient)</b>		
<b>Area</b>	<b>Collection/treatment/disposal</b>	<b>[YES/NO]</b>
Apron and manoeuvring area	Collected in drainage ditches leading to the sea	YES
Other runoffs (runway etc.)	Collected in drainage ditches leading to the sea	YES
Treatment of rainwater by oil-separator		NO

<b>Rainwater quality</b>	
Is sampling of the airport's rainwater performed?	YES
<b>(if YES)</b> Sampling frequency:	Yearly
<b>Parameters analyzed:</b> pH, conductivity, TSS, DO, NO <sub>3</sub> , NO <sub>2</sub> , Oil & grease, BOD, COD, Total Petroleum Hydrocarbons (TPH), PAHs, BTEX, Heavy metals, PCBs, Detergents	
<b>Summary of results:</b>	
Surface rainwater quality is monitored according to the airport's monitoring program. Due to the absence of designated recipients and relevant national quality limits for surface rainwater, the Environmental Health & Safety Guidelines of the International Finance Corporation (IFC) are adopted. Surface rainwater monitoring for 2022, was not performed.	

### 13. GROUNDWATER AND/OR SOIL AND/OR SOIL GAS MONITORING

Groundwater and/or soil and/or soil gas quality	
Is sampling of the airport’s groundwater and/or soil and/or soil gas performed?	YES
<b>(if YES)</b> Sampling frequency:	Yearly
<b>Parameters analyzed:</b> TPH, BTEX, MTBE (groundwater) and Volatile hydrocarbons, aliphatic, aromatic and chlorinated (soil gas)	
<b>Summary of results:</b>	
Groundwater quality is monitored according to the airport’s monitoring program from boreholes managed by Fraport Greece. Groundwater monitoring for 2022 was not performed. According to the approved environmental terms, monitoring of groundwater and air from the Fuel Handlers is not foreseen for the year 2022.	

## 14. SEWAGE TREATMENT AND DISPOSAL

Sewage	
Sewage network to the municipal waste water treatment plant (WWTP)	NO
Autonomous airport’s waste water treatment plant (WWTP)	YES*

Blue water
<b>Collection and disposal:</b> Collection in a tank on the site of the WWTP and disposal within the WWTP of the airport for further treatment.

Waste water treatment plant description (where applicable) <i>Description of characteristics and condition of the airport’s WWTP including possible problems. Type and frequency of the effluent quality measurements.</i>	
Degree of treatment of airport’s WWTP	Secondary treatment & chlorination
Treatment method	Prolonged ventilation
Disposal of treated wastewater	WWTP of Municipal Water & Sewage Company (DEYA) of Rodos
Sludge disposal	Sanitary Landfill
Sampling frequency of WWTP effluent	Monthly
Parameters analyzed	BOD, COD, SS, TN,TP, T. Coliforms, E.Coli, pH, Residual Cl <sub>2</sub>
Summary of quality of WWTP effluent	The WWTP effluent quality is within the limits set out in JMD 5673/400/1997

*\*Airport sewage is collected through a sewage network and treated at the airport’s WWTP. The airport’s WWTP treated effluent is directed to the municipal WWTP of DEYA Rodos. The qualitative parameters of the treated effluent is within the set limits.*