

# Environmental Bulletin of Kos “Ippokratis” Airport (KGS)

## Reference year 2019

Fraport Greece

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**Version Control**

Version	Revision	Description of Revision	Date
0	0		27/05/2020





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## 1. INTRODUCTION

### Location

The “Ippocratis” airport of Kos is located in the homonym island of the Dodecanese, near the settlement Antimacheia, at a distance of 27km to the west of the capital of Kos island.

### Administration

The airport administratively belongs to the Municipal Unit of Herakleides of the Municipality of Kos, of the homonym Regional Unit that belongs to the Region of South Aegeon.

### Environmental licensing

Approved Environmental Terms	
E.T. Decision Reference number	32649/04.11.1994
E.T. Amendment Decision Reference number	Ref. No οικ. 106859/08.08.2006
	Ref. No οικ. 197968/03.05.2012
	Ref. No οικ. 6126/16.03.2018

### 1.1. Airport Basic Data

Airport Basic Data					
Airport name IATA / ICAO	KGS / LGKO				
Airport position – Airport Reference Point (ARP)	Latitude: 36° 47' 41" N Longitude: 27° 05' 28" E				
Altitude:	125.66m				
Number of runways	1				
Operation hours (winter & summer)	0:01-24:00				
Runways	Length / Width			Code	
Runway	2,390 x 45m			14/32	
Full length of parallel taxiway	N/A				
Number of taxiways	4				
Apron capacity	A	B	C	D	E
	-	-	6	-	2
Employees	High season (31.8.2019)			Low season (30.11.2019)	
Fraport Greece (FG) employees	36			37	
Employees of other companies	790			366	
Terminal					
➤ Total area (m <sup>2</sup> )				8,400	
Other buildings and service/storage areas					
➤ RFF (m <sup>2</sup> )				1557	
Parking Areas					
Car parking spaces				420	

Bus parking spaces	30
Taxi parking spaces	30

## 1.2. Airport Facilities

### 1.2.1. Fuel Handlers

Number of fuel handler companies				
Number of fuel handler companies operating at the Airport				2
Installations inside the airport		EKO	GISCO	HAFCO
Environmental Management System (EMS)	(YES/NO)	YES	YES	Not operating at the airport

### 1.2.2. Ground Handlers

Ground Handlers				
Number of ground handler companies operating at the airport				3
Installations inside the airport		SKYSERV	SWISSPORT	GOLDAIR
Vehicles (total number)		23	17	153
Environmental Management System (EMS)	(YES/NO)	YES	YES	YES

## 2. TRAFFIC DATA STATISTICS

### 2.1. Annual Traffic Data

Annual Traffic Data for the year 2019	
Overall Annual Air Traffic Movements <sup>1</sup>	19,797
Percent of increase or decrease in relation to the previous year	-2.6%
Annual passenger traffic	2,676,644
Percent of increase or decrease in relation to the previous year	0.4%
Annual cargo transferred (tn)	324
Percent of increase or decrease in relation to the previous year	11.40%
Aircraft types	
Prevailing aircraft types for domestic flights	
Aircraft type	No. of flights
AT45	1,542
DH8D	1,190
A320	672
AT75	302
AT72	277
A32A	188
AT43	114

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

A319	78
C550	38
A321	34
Other	379
<b>Prevailing aircraft types for international flights</b>	
<b>Aircraft type</b>	<b>No. of flights</b>
B73H	5,832
A320	2,548
B738	2,145
A321	716
A319	650
A32B	320
A32A	304
B753	250
A20N	180
B76W	172
Other	1,866

**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	3,570
Air traffic movements daily average number during the month with highest traffic	115

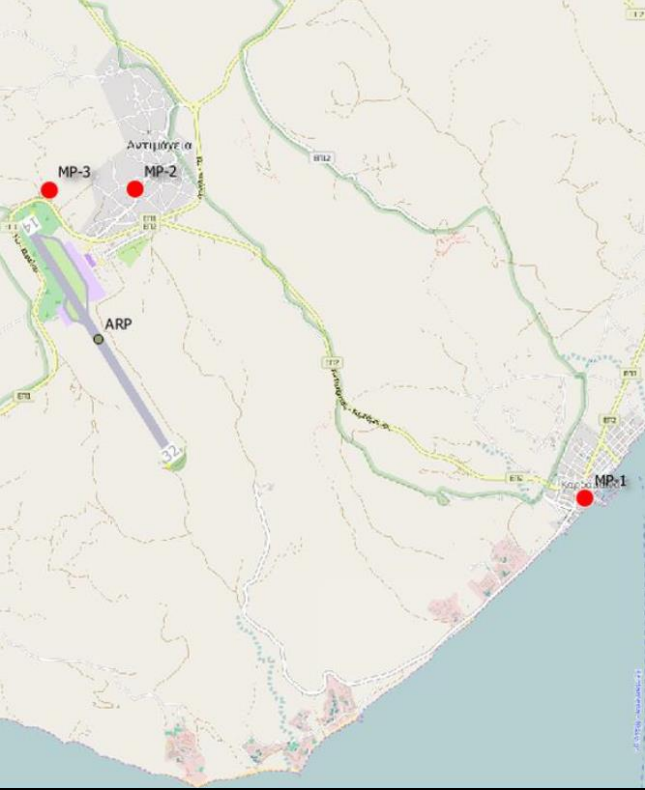
**2.3. Low season traffic data**

<b>Low season traffic data (October-May)</b>	
Lowest traffic month	February
Air traffic movements during the month with lowest traffic	296
Air traffic movements daily average number during the month with lowest traffic	11



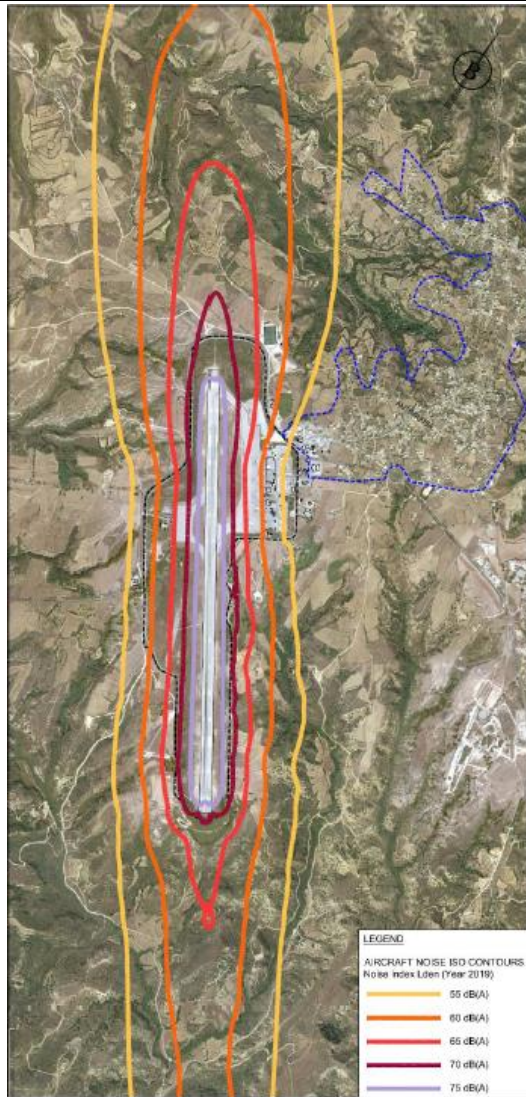
### 3. AIRCRAFT NOISE

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

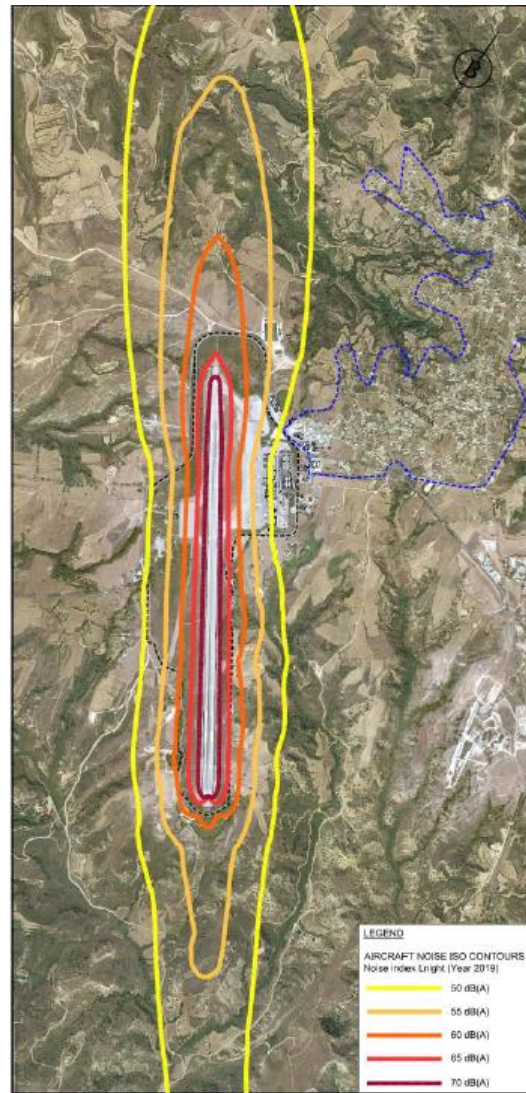
Have noise measurements at the airport's surrounding area been performed during the reference year? [YES/NO]		YES
<b>Measurement points</b>		
		
<b>Measurement points coordinates</b>	<b>Measurement points description</b>	
1) Position: 36° 46' 52" N 27° 08' 34" E	Kardamaina area, to the south-east of the runway near a small port and the beach, at the roof of the Town Hall. Affected by arrivals RWY 32 and departures RWY 14	
2) Position: 36° 48' 26" N 27° 05' 42" E	Antimachia area, east of RWY 16/34 on a school roof. Affected by arrivals RWY 14 and departures RWY 32	
3) Position: 36° 48' 15" N 27° 05' 09" E	Antimacheia area, to the northeast of the runway 16/34 at a sport court. Affected by arrivals RWY 14 and departures RWY 32.	
<b>Measurement period</b>	06.07.2019 – 07.07.2019	
<b>Noise indicators</b>	Lden, Lnight	
<b>Summary of measurement results:</b>		
Noise levels are monitored according to the airport's monitoring program. No exceedance of noise indicators levels Lden = 70 dB(A) and Lnight = 60 dB(A) was observed.		

3.2. Noise levels calculation based on noise simulation software

<b>Aircraft noise levels calculation based on simulation software [YES/NO]</b>	<b>YES</b>
<b>Software used:</b> IMMI Noise Prediction Software (CNOSSOS EU assessment method based on Directive 2015/996/EU)	
<b>Noise indicators and respective contours calculation:</b>	L <sub>den</sub> , L <sub>night</sub>



L<sub>den</sub>




L<sub>night</sub>

**Summary of results:**

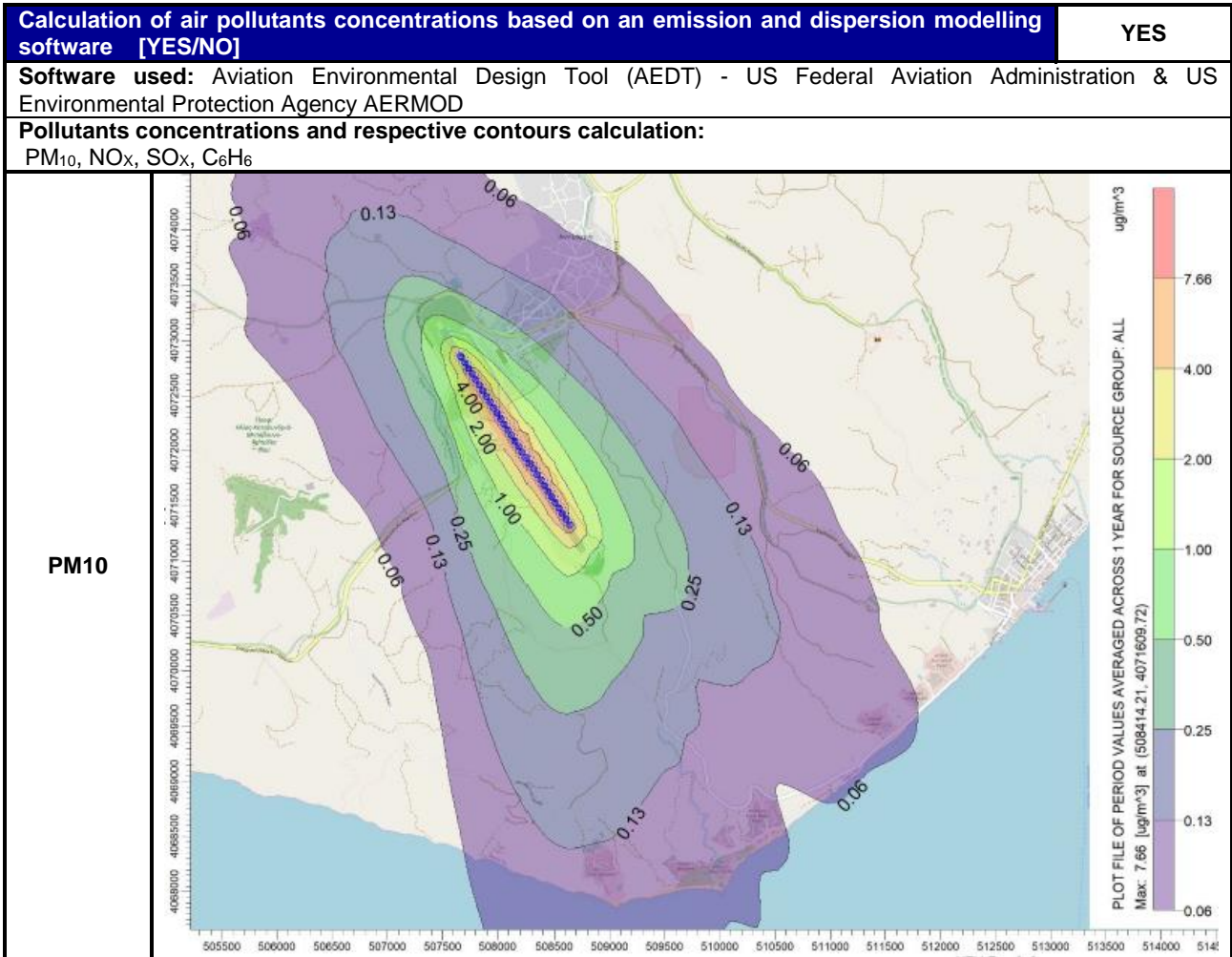
For the year 2019 no populations or buildings inside official settlement boundaries were found to be exposed to noise levels higher than the limits L<sub>den</sub> = 70 dB(A) and L<sub>night</sub> = 60 dB(A).

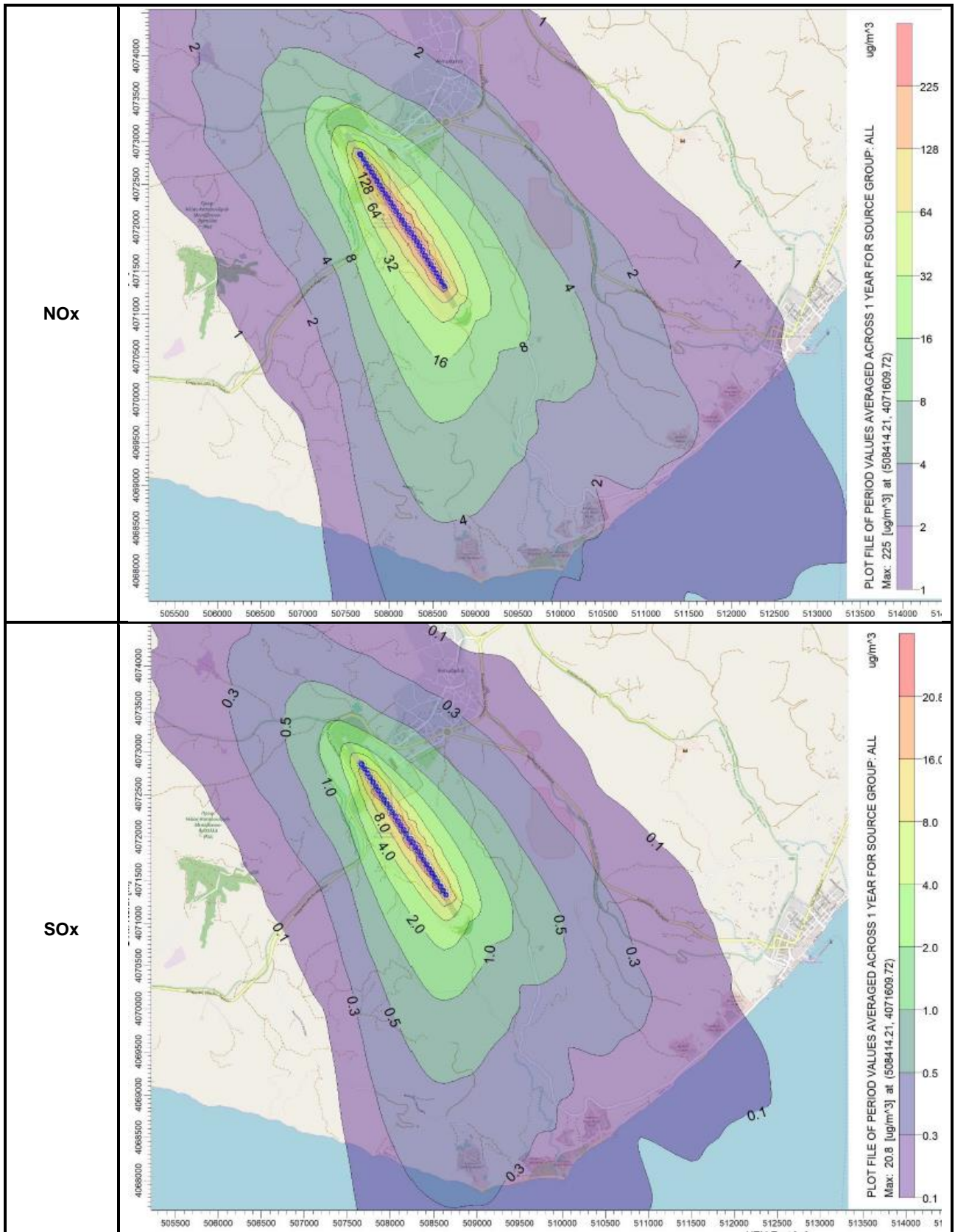
## 4. AIR QUALITY

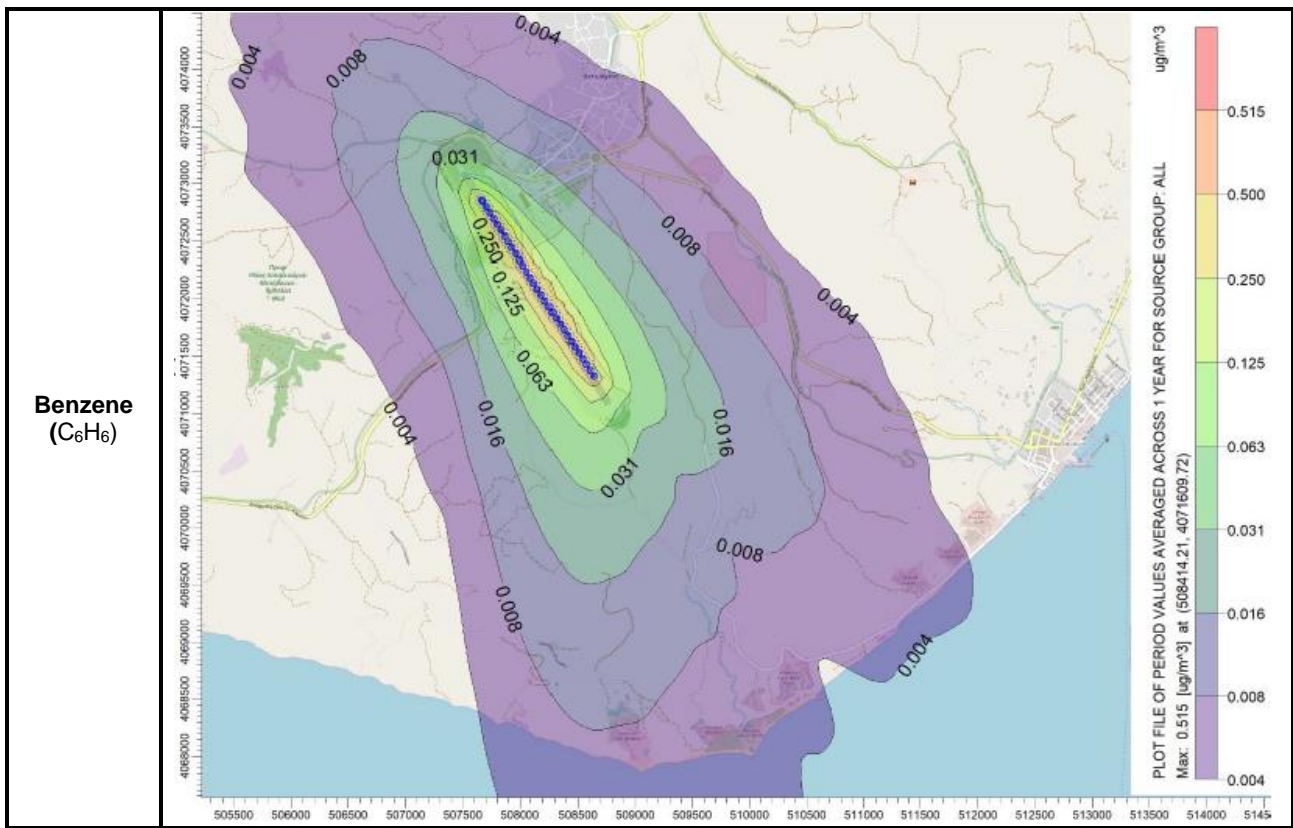
### 4.1. Air quality measurements during the reference year

Have air quality measurements at the airport's surrounding area been performed during the reference year? [YES/NO]		YES
<b>Measurement points</b>		
		
<b>Measurement points coordinates</b>	<b>Measurement points description</b>	
1) Position: --° --' --" N --° --' --" E	At a distance of less than 500 meters, in the parking area of the airport	
2) Position: --° --' --" N --° --' --" E	Antimacheia Settlement, at a distance of approximately 1.3 km, to the north-east of the airport.	
<b>Measurement period</b>	06.07.2019 – 13.07.2019	
<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>		
<b>Summary of measurement results:</b>		
<p>Air quality is monitored according to the airport's monitoring program.</p> <p>It is noted that some individual exceedances for the O<sub>3</sub> pollutant mean values were recorded. As a result of its dependency on the solar radiation, ozone does not show a homogenous trend during the year. Increased ozone concentrations are recorded usually at the end of spring and beginning of summer, especially during the days with high sunlight. Therefore these momentary exceedances are considered to be individual occurrences not related to the airport's operation.</p>		

4.2. Air pollutants emission and dispersion modelling







**Summary of results:**

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

**5. WASTE MANAGEMENT**

Waste management		
Waste	Collection	Management/Disposal
Recyclables (paper, plastic, metals, glass)	Separate collection by the Municipality of Kos	Disposal at material recovery facility or transshipment for recycling
Residues (Mixed Waste) and Bulky Waste	Collection by the Municipality of Kos	Disposal in landfill

**Σημειώσεις:**

1. Regarding the different categories of the MSW (recyclables, mixed waste), Airport Users handle their waste autonomously. The implementation of a central system by Fraport Greece is expected.
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."

Waste management		
Waste	Collection	Management/Disposal
3. The total quantities of the produced waste by category resulting from all activities of the airport are recorded by Fraport Greece A and submitted in the Electronic Waste Registry via the Annual Waste Producer Report as provided for by the applicable legislation.		

## 6. ECOSYSTEM AROUND THE AIRPORT

### 6.1. Flora-Fauna

ECOSYSTEM AROUND THE AIRPORT	
<b>Flora</b>	
Are there protected zones of vegetation/habitats in the broader airport area? [YES/NO]	NO
<i>(If YES)</i> Short description:	
<b>Fauna</b>	
Are there protected zones of fauna/birds in the broader airport area? [YES/NO]	YES
<i>(If YES)</i> Short description:	Streptopelia turtur (Turtle dove)

### 6.2. Ecologically fragile areas

The airport is located outside the limits of protected areas included in the National Protected Areas Network. Nevertheless reference is made to the direct proximity of the airport area to the Wildlife Sanctuary “Profitis Ilias-Katsoundria-Mesovouno-Ampella” with code K514. Moreover, at a distance of approximately 1km to the east of the airport is located a Wildlife Sanctuary “Kastro-Tsampi-Sabei-Aeras of the Municipality of Herakleides of Kos island” with code K849.

## 7. WILDLIFE HAZARD MANAGEMENT

Wildlife hazard management	
<b>Extent of the problem</b> (animal species):	<b>Strikes (%)</b>
<i>Not identified*</i>	24%
<i>Larus michahellis (Yellow-legged gull)</i>	14%
<i>Corvus cornix (Hooded crow)</i>	14%
<i>Burhinus oedichnemus (Eurasian stone-curlew)</i>	10%
<i>Falco tinnunculus (Common kestrel)</i>	10%
<i>Caprimulgus europaeus (European nightjar)</i>	5%
<i>Corvus monedula (Jackdaw)</i>	5%
<i>Hirundo rustica (Barn swallow)</i>	5%
<i>Coracias garrulus (Roller)</i>	5%

<i>Larus michahellis (Yellow-legged gull), Corvus cornix (Hooded crow)</i>	5%
<i>Hedgehog</i>	5%
<b>Adopted measures :</b>	
<ul style="list-style-type: none"> <li>• Drainage ditches are periodically checked and if necessary cleaned, to ensure efficient water run-off and, thus, reducing the attractiveness of the airside to the wildlife</li> <li>• Systematic grass cutting at the airside</li> <li>• Fence maintenance</li> <li>• Trapping of mammals (mainly stray cats and dogs) that may be found at the manoeuvring area by the use of trap and under the permit received by the ministry of Environment &amp; Energy “<i>Monitoring and trapping birds and mammals population at the 14 regional airports operated by Fraport Greece</i>” (Permit: 165654/142, 12/2/2018)</li> <li>• Systematic monitoring and census of bird species populations on and off-airport (in a distance of 13km from the airport) and mapping of their habitat and the areas that are attractive to birds</li> <li>• Seminar awareness video on the identification and safe removal of reptiles and information about the snake species at Kos, under the collaboration with the Lalitsa Non-Profit Association</li> <li>• Awareness video on the safe handling of stray dogs</li> </ul>	
<b>Reference year summary results:</b>	
<p>Hellenic Civil Aviation Authority receives annual reports referring to the risk assessment of the wildlife hazard as well as to the wildlife hazard management at the 12 regional airports operating by Fraport Greece. Aktion Airport and Chania Airport “Ioannis Daskalogiannis” are excluded, in accordance with the Concession Agreement, Annex 20, paragraph 6.3.3 &amp; 6.3.4.</p>	

\*“Not identified” refers to birdstrikes evidence (e.g. blood or part of feathers) that does not allow the bird species identification

## 8. CULTURAL HERITAGE

Have new cultural heritage properties been discovered during the reporting period? [YES/NO]			NO
(if YES) 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)	
MONTH	Kwh
Total annual electric energy consumption (in Kwh)	2,530,084



### 9.2. Fuel consumption

Fuel consumption		
Number of FG vehicles at the airport	18	
Number of firefighting vehicles at the airport	4	
Total annual fuel consumption	Diesel (lt)	15,100
	Unleaded gasoline (lt)	630

### 9.3. Heating oil or natural gas consumption

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

\*Heating and cooling is achieved via heat pumps

### 9.4. Water consumption

Water consumption	
Period	Consumption [m <sup>3</sup> ]
Total annual consumption	14.635

## 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)
	2019
Direct emissions from heating fuel (scope 1)	0.0
Direct emissions from fuel used for fleet vehicles (scope 1)	25.7
Direct emissions from fuel used for firefighting vehicles (scope 1)	16.2
Direct emissions from fuel used for generators (scope 1)	0.9
Indirect emissions from electricity consumption (scope 2)	1,614.2
<b>Total (t)</b>	<b>1,656.9</b>
<b>Kilos CO<sub>2</sub>/ passenger</b>	<b>0.62</b>

#### Notes:

Fraport Greece B 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 was certified during the reference year according to ISO 14064 regarding greenhouse gas emission by an independent certification body

## 11. HUMAN CONSUMPTION WATER MONITORING PROGRAM

Human consumption water quality	
Water supply (public water network or airport's boreholes)	Municipal Water & Sewage Company (DEYA) of Kos
Is sampling of the airport's water network performed? [YES/NO]	YES
(if YES) Sampling frequency:	Quarterly
<b>Summary of results:</b> The results of the microbiological and chemical analyses show that the parameters analysed 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.	

## 12. RAINWATER

RAINWATER (collection, treatment disposal and recipient)		[YES/NO]
Area	Collection/treatment/disposal	
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

## 13. GROUNDWATER MONITORING PROGRAM

Groundwater quality	
Is sampling of the airport's groundwater performed? [YES/NO]	YES
(if YES) 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> Groundwater quality is monitored according to the airport's monitoring program. In addition, the fuel handling companies monitor the quality of groundwater according to the environmental terms. According to FG's analyses results,, the environmental monitoring reports of the fuel handlers, and based on the New Dutch List (2009) which is adopted in the absence of relevant national specifications/limits, the environmental condition of the ground water is found adequate and no decontamination measures are necessary.	

## 14. SEWAGE TREATMENT & DISPOSAL

Sewage	
Sewage network to the municipal waste water treatment plant (WWTP)	YES
Autonomous airport's waste water treatment plant (WWTP)	NO
<b>Short description:</b>	
<b>Blue water</b>	
<b>Collection and disposal:</b> Collection in septic tank and disposal at the municipal network	

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	N/A
Treatment method	N/A
Disposal of treated wastewater	N/A
Sludge disposal	N/A
Sampling frequency of WWTP effluent	N/A
Parameters analysed	N/A
Summary of quality of WWTP effluent	N/A