

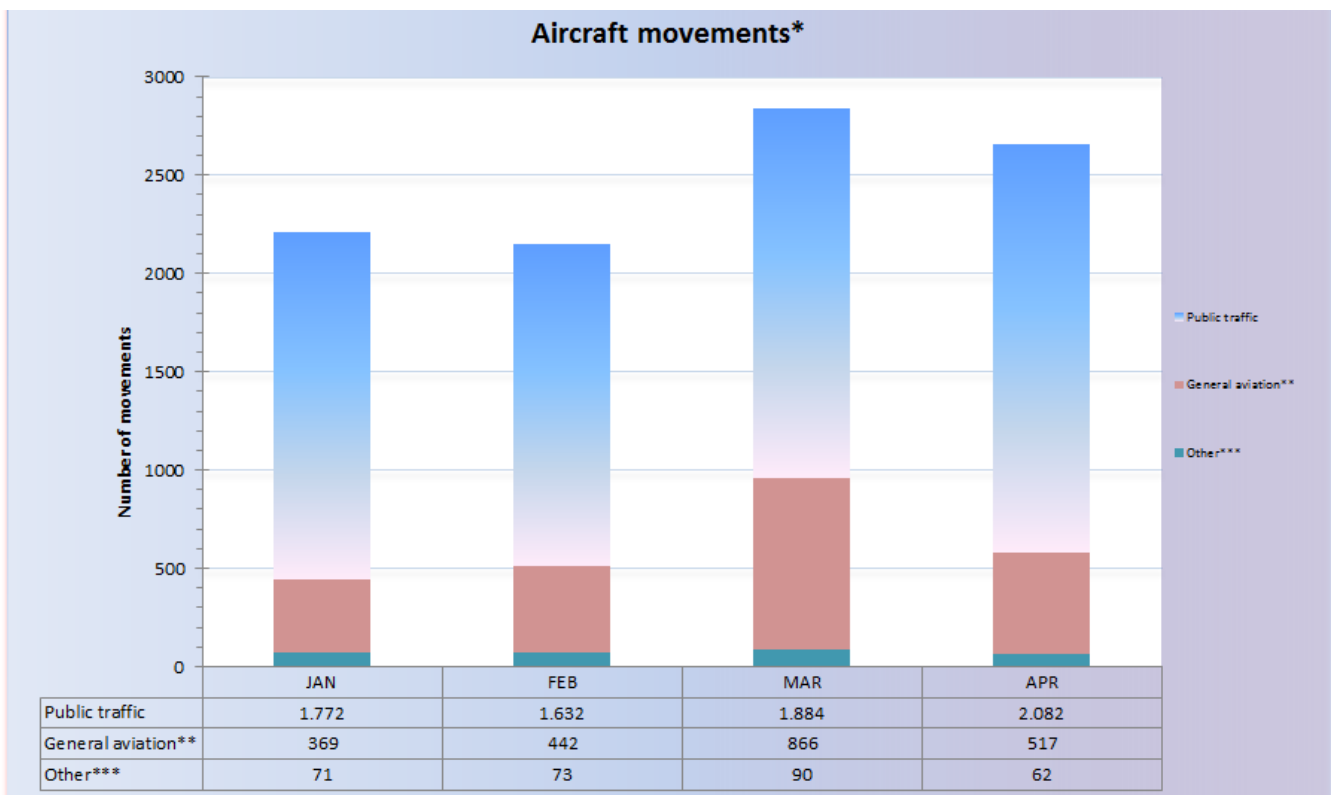
REPORT ON NOISE MEASUREMENTS

for the period JANUARY - APRIL 2017

1. TRAFFIC FIGURES - aircraft movements

Information on aircraft movements in the first four months show moderate increase, compared to the same time period last year. There were 9.860 aircraft movements, which is 10,2% more compared to the same time period last year. The data are:

- 2.212 aircraft movements in January, which is 12,0% more compared to the same time period last year,
- 2.147 aircraft movements in February, which is 14,4% more compared to the same time period last year,
- 2.840 aircraft movements in March, which is 13,6% more compared to the same time period last year,
- 2.661 aircraft movements in April, which is 2,3% more compared to the same time period last year.



* landing or takeoff of aircraft

** commercial, business and private aircrafts and helicopters which have a maximum of 19 seats and do not exceed the weight of 44 tons

***school, position or technical flights (without passengers)

Source: Fraport Slovenija, d.o.o.

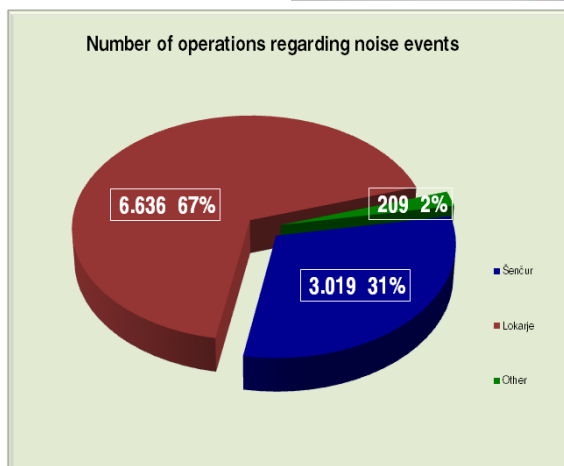
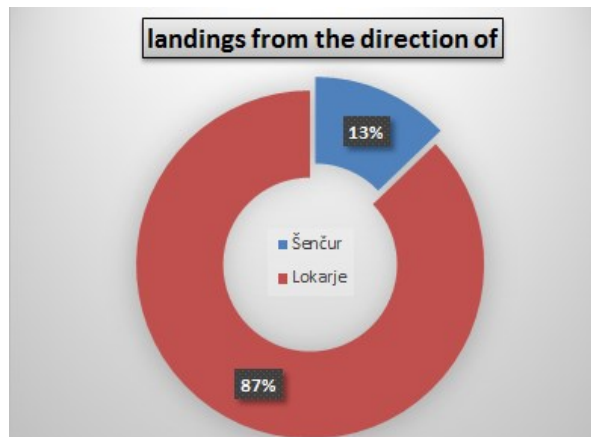
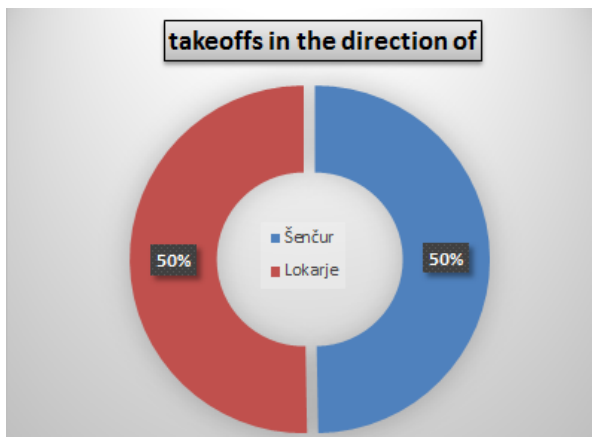
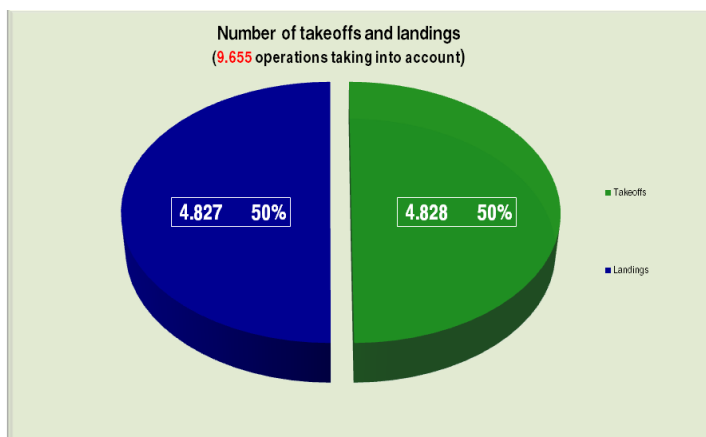
2. NOISE POLLUTION SOURCE DATA - measuring terminals' data

Measuring terminals have taken 9.655 operations* (4.828 takeoffs and 4.827 landings) into account. Overflights of school aircraft flights and most of military and police helicopter flights are not included in this number.

The share of takeoffs in the direction of Šenčur was 50% and the share of landings from the direction of Šenčur was 13%; also in the direction of Lokarje 50% and from the direction of Lokarje 87%.

Including the overflights, the measuring terminals have taken 9.864 operations into account, of which 3.019 (31%) operations are the takeoffs and landings in/from the direction of Šenčur and 6.636 (67%) operations are the takeoffs and landings in/from the direction of Lokarje. The number of other events, related to overflights of school aircraft flights and military and police helicopter flights, is 209 (2%).

* Note: 2.1% of operations is not included due to uncertainty of data – the impact on the result of noise is negligible < 0,09 dB(A)



Source: ZVD Institute of Occupational Safety d.o.o.

3. MEASUREMENT RESULTS - noise indicators

The following environment noise indicators were calculated in the first four months of this year, based on the measured noise data of individual events, associated with air traffic (takeoffs, landings, overflights of aircrafts):

Measuring terminal	Noise indicators [dB(A)] - monthly average																Limit values [dB(A)]			
	January				February				March				April				Decree on limit values for environment noise indicators			
	L _D	L _E	L _N	L _{DEN}	L _D	L _E	L _N	L _{DEN}	L _D	L _E	L _N	L _{DEN}	L _D	L _E	L _N	L _{DEN}	L _D	L _E	L _N	L _{DEN}
1 Šenčur I.	54	51	46	56	54	51	46	56	55	53	44	55	55	52	44	55	58	53	48	58
2 Lokarje	51	50	42	52	51	50	42	52	53	51	44	54	52	51	44	53	58	53	48	58
3 Kranj	51	50	44	53	51	49	44	53	51	49	44	53	51	51	45	54	58	53	48	58
4 Šenčur II.	53	51	44	54	52	51	45	54	52	53	45	55	52	51	46	55	58	53	48	58

Source: ZVD Institute of Occupational Safety d.o.o.

The table shows the daily calculated noise indicators:

- **Indicator L_d** in dB(A) shows the daily noise load, due to the air traffic. The day time lasts between 6⁰⁰ and 18⁰⁰. Depending on the number of noise events at each measuring point, we determined the average hourly noise load, on the basis of data on noise levels in dB (A) and the duration of the events t(s), which was sent to us as measurement data, by the measuring terminal. We use this hourly noise load for determining individual noise indicator.
- **Indicator L_e** in dB(A) shows noise load, similar to the L_d indicator, but at evening time that lasts between 18⁰⁰ and 22⁰⁰. This is the time period when people are more susceptible to the disturbance. Therefore, 5 dB (A) is added during this time period.
- **Indicator L_n** in dB(A) describes the night time that lasts between 22⁰⁰ and 06⁰⁰. It is assumed that the population, around the airport (or other noise sources), is resting during this time period. Disturbances during this time period may have a profound impact on health and relaxation. Therefore, 10 dB (A) is added during this time period.
- **Indicator L_{den}** in dB(A) represents the total daily noise load.

Regarding the seriousness of the excess, we marked the excessive noise indicators with a green highlighted print, for excesses up to 3 dB (A), with a blue highlighted print for excesses between 3 and 6 dB (A) and with a red highlighted print for excesses over 6 dB (A). A research on the noise pollution source is carried out for all the red and blue markings.

NOTE: average noise values are determined in accordance with the requirements of the Decree on limit values for environment noise indicators (OG RS No. 105/2005, 34/2008, 109/2009 in 62/2010). Calculations are based on measured noise levels sent from different measuring terminals. They measure total noise and overflight noise of each aircraft. Weather conditions have a partial impact on results, which we are trying to eliminate as far as possible. The wind and thermal inversion still have a partial impact on the measuring results. Based on the SIST ISO 1996-2 standard, data have the uncertainty of about 3 dB (A), since it is not possible to completely exclude the effects of weather conditions (rain, wind, thermal inversion). This means that the actual result varies within -3 and +3 dB (A) of the written.

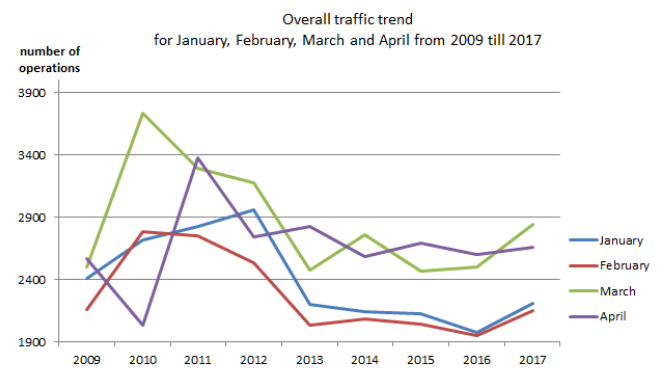
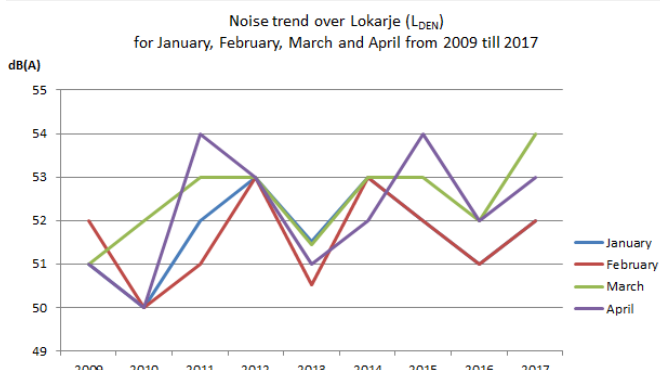
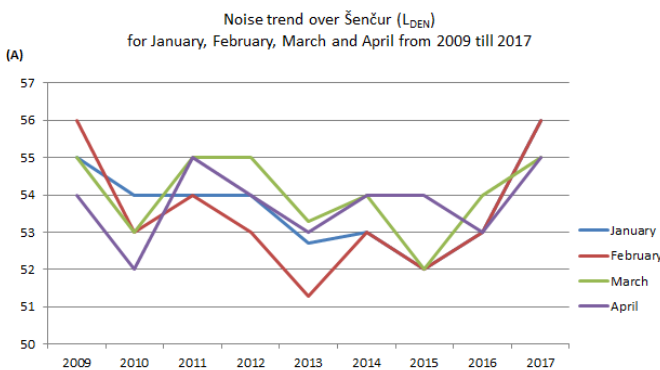
4. ANALYSIS - the loudest aircrafts and noise trend

The following events, in conjunction with takeoffs and landings, were the loudest in the first four months of this year:

Šenčur I. overflight measurements			
Aircraft type	arrival (ARR) / depart. (DEP)	Date and time of the event	Current noise level EPNL in dB(A)
Alenia ATR 72	ARR	17.1.2017 20:10 duration of the event 26 seconds	100
Airbus 319	ARR	13.1.2017 17:16 duration of the event 28 seconds	98
Embrear ERJ-170	DEP	13.1.2017 15:34 duration of the event 18 seconds	98
Bombardier CRJ700	ARR	15.1.2017 11:17 duration of the event 29 seconds	97
Embrear ERJ-170	DEP	6.3.2017 15:46 duration of the event 13 seconds	96
Boeing 737-800	DEP	10.3.2017 10:45 duration of the event 19 seconds	96
Dassault Falcon 20	DEP	17.1.2017 14:37 duration of the event 27 seconds	95
Canadair RJ-900	DEP	13.4.2017 17:27 duration of the event 17 seconds	93
Alenia ATR 72	DEP	29.1.2017 20:52 duration of the event 16 seconds	91
Fairchild C-26 Metroliner	DEP	6.2.2017 8:25 duration of the event 18 seconds	91

Lokarje overflight measurements			
Aircraft type	arrival (ARR) / depart. (DEP)	Date and time of the event	Current noise level EPNL in dB(A)
Airbus 320	DEP	7.3.2017 8:49 duration of the event 19 seconds	97
Boeing 737-400	DEP	19.1.2017 9:47 duration of the event 22 seconds	96
Fairchild C-26 Metroliner	DEP	27.1.2017 9:34 duration of the event 25 seconds	94
Boeing 737-800	DEP	2.2.2017 9:36 duration of the event 20 seconds	92
Fairchild C-26 Metroliner	DEP	1.3.2017 9:02 duration of the event 19 seconds	91
Airbus 319	DEP	18.4.2017 14:21 duration of the event 18 seconds	90
Airbus 319	DEP	8.3.2017 8:37 duration of the event 17 seconds	90
Airbus 319	DEP	31.1.2017 19:57 duration of the event 15 seconds	90
Airbus 321	DEP	6.3.2017 9:50 duration of the event 21 seconds	88
Alenia ATR 72	ARR	17.4.2017 6:17 duration of the event 19 seconds	88

The trend of noise changes over Šenčur and Lokarje from 2009 to 2017:



Source: ZVD Institute of Occupational Safety d.o.o.
Fraport Slovenija, d.o.o.