The results of the statistical study of the last 5200 diamonds analysed by IGE gem testing laboratory are presented. Such characteristics as carat weight, colour and clarity grades, basic round brilliant cut proportions, UVL (365 nm) fluorescence and absorption spectra characteristics (the intensity of the 415.5 nm line) were taken into account.

The relation between the UVL fluorescence and optic absorption was studied for colour D diamonds.

- **Carat weight**
  - The distribution of analysed diamonds by their weight is very irregular and shows well defined maxima at nearly round weights (for example, 1.0-1.1, 0.5-0.6 weight groups), related with the diamond price changing at these points.

- **Colour**
  - Distribution of analysed diamonds by their colour grade, obtained as a result of comparison with diamond colour masterstones. In 101 diamond (1.9 % of all diamonds) rare non-compatible or fancy colours were observed.

- **Clarity**
  - The majority of analysed diamonds has the VSI2 clarity grade. No P3 diamonds were observed in the last 5200 certified stones.

**Cut**
- The majority (90.26 %) of all diamonds have round brilliant cut. Other cut types and shapes as well as basic round brilliant cut proportions and other cut parameters were studied.
- The ideal values of two different round brilliant cut models (Tolkowsky and Tillander) are also plotted for comparison with the data given by real diamonds.

**Other characteristics**
- Other characteristics which are systematically archived for analysed diamonds are UVL (365 nm) fluorescence (colour and intensity) and the intensity of 415.5 nm line in optic absorption spectrum.
- Visual estimation is used for both characteristics, defining 5 fluorescence intensity and 7 optic absorption grades.

**Study of the properties of colour D diamonds**
- The study of 85 colour D diamonds (1.63 % of all analysed stones) were carried out to determine the correlation between their fluorescence and optic absorption spectra.
- General distribution of values fluorescence intensity and 415 nm absorption line are very similar with those representation for all colour diamonds. But, in contrast for colour D diamonds some correlation of this values was observed (see 3D figure below). One can see that colour D diamonds tend to plot 2 families of values on this diagram. First one of characteristics by the absence of absorption at 415 nm and very weak to medium fluorescence (blue column, 42 stones, 53 % of all colour D diamonds). These are the diamonds which do not belong to the Cape type. Other group of colour D stones (47 %) is formed by Cape type diamonds generally with well pronounced absorption at 415.5 nm and strong one medium fluorescence.

**Conclusions**
- The distribution of weight of analysed diamonds is very heterogeneous. The majority of diamonds belongs to the 1-1,1 or 0,5-0,6 ct weight groups.
- The most frequent grades of colour and purity of certified diamonds are H and VS2.
- 90 % of all diamonds have round brilliant cut. Other most used cuts are: emerald (3.91 %) and princess (1.57 %).
- The real values of pavilion depth and table width of round brilliant cut are usually bigger than ideal ones, while the crown height is usually smaller.
- Colour D diamonds represent 1.63 % of all diamonds analysed. This colour grade can have both Cape type diamonds and diamonds which do not belong to Cape type.
- Two groups of diamonds were find to have a great probability for high colour grades:
  - diamonds which have no absorption line at 415.5 nm - those which have quite strong absorption at 415,5 nm but also medium UVL fluorescence.