

It illustrates properties of different spectral diapasons for defining transmission in atmosphere window electromagnetic waves main spectral diapason 3–5 micro M and 8–12 micro M, that became standard for thermo vision devises all over the world, it also defines requirement for hardware, optic system and electric circuits.

This document presents the history of approach for measuring temperature, temperature scale and defines physical advantage of this scale.

It considers methods for modeling thermo vision/measuring systems and calibrating these devises, involve parameters for observer eye.

The definition of black-body and standards of thermo constant and measuring scales, that may be used in my work is of particular interest.

**Д. Е. Евсеева**

## **DESIGN IN OUR LIFE**

Up until the Industrial Revolution objects were made by craftsmen, either working on their own, collectively in rural cottage industries or in Guilds or Societies in the towns. The majority worked at a low level of skill and design, producing simple buildings, furniture, plates, etc.

There also were a few craftsmen who worked for the nobility and the rich merchants producing objects based on designs and technology taken from other countries but it was also of a very low standard with very little thought for the user.

In those days designers were either architects or artists and men felt no need to use them. In the early part of the XIX century, people began to realize that there was a problem. The architect, Charles Cockerel said, «The attempt to supersede the work of the mind and the hand by mechanical process for the sake of economy will always have the effect of degrading and ultimately ruining art». Many years later, the Bauhaus used technological processes as the basis of their designs.

Since that time till nowadays there appeared different styles and schools of design like Art Nouveau which developed a new style of curving lines, asymmetrical design and elements of fantasy, Art Moderne and Art Deco was characterized by the use of rich materials, repeating motifs, the influence of cubism but also historical influences especially non-western applies and fine arts.

Nowadays design is everywhere – and that is why looking for a definition may not help you understand what it is. Design is everywhere. It is why you bought the last piece of modern furniture and it is what made online banking possible.

But one definition, given by designer Richard Seymour during the Design Council's Design in Business Week 2002, is «making things better for people». It emphasizes that design activity is focused first and foremost on human behaviour and quality of life, not factors like distributor preferences. But nurses or road sweepers could say they, too, «make things better for people».

Meanwhile a definition focused on products or three-dimensional realizations of ideas excludes the work of graphic designers, service designers and many other disciplines.

Design could be viewed as an activity that translates an idea into a blueprint for something useful, whether it is a car, a building, a graphic, a service or a process. Scientists can invent technologies, manufacturers can make products, engineers can make them function and marketers can sell them, but only designers can turn a concept into something that is desirable, viable, commercially successful and adds value to people's lives.

Good design begins with the needs of the user. No design, no matter how beautiful and ingenious, it is, does not fulfil a user need. This may sound obvious but many products and services, Wap mobile phone services for example, failed because the people behind them did not understand this.

Companies have often designed their way out of failure by treating a product that serves the customer's needs better than its rivals. Design delivered the operating-system market to Microsoft, rescued Apple Computer and made Sony an electronics giant. Innovation in the form of design is a key to success.

The design process is not a mysterious activity designers carry out behind a cloak of secrecy, magical. It starts when decisions about why, how and even whether to go ahead with a project are being taken.

An organization and its designers need to ask certain questions right at the start – why is design work needed? Is it respond to changing markets or to customer trends? Maybe the company just wants to increase its market share, or it is something totally new. This is the reason for the designers to go about conducting research.

Needs to be carried out both before and during the design process, especially if the project will take some years to complete.

The research is based on market and totally on user. Overloading customer behavior not only makes it easier for designers to create something, it can also provide creative inspiration.

After this you can start to plan your project – how to present it to customer and what materials you will use.

Good relationships between designer and a customer are also very important. The best relationships are two-way streets, where each party can communicate to each other and maintained throughout the design process. The need for communication was summed up by designer Wayne Hemingway during the Design Council's Design in Business Week 2002: «Here is no point sitting designers in a room and letting them design. They have to work with you and be a part of the business».

At the final stage project implementation what finished by manufacturers, engineers, IT (Information Technologies) experts or service providers, but that does not mean the designers edit the scene. It is important to allow for redesign and the designers also have a vital role to play in representing their ideas to all those involved in executing them.

**A. B. Зотов**

## **THE HYBRID VEHICLES**

At the beginning I'd like to speak about new environmental problems. Hothouse gas emission and pollution of car combustion engines brought ecological problems in big cities.

And it's increasing, because the estimated Planet Earth population may grow from 6 to 10 billions to 2050. That's 1.7 times. But the expected vehicle number will grow from half to 2 billions, despite the GM bankruptcy. That is 4 times.

These problems are so serious that they became very important subject of international discussions.

Results of one were accepted in the Kyoto Protocol. Kyoto Protocol is an agreement made under the United Nations Framework Convention on Climate Change.

Under this agreement industrialized countries will reduce their collective emissions of greenhouse gases and pollutions over the five year period 2008–2012.

Therefore a decrease of fuel consumption and alternative engine types became a new task in automotive industry. Namely hybrid vehicles with combustion engines, hybrid vehicles with fuel cell hydrogen elements engines and battery engines.

Hybrid electric vehicles combine electric and internal combustion engine drive. Hybrid electric vehicles keep the zero pollution benefits of electric motors with the high fuel energy density benefits of the thermal engines. Hybrid electric drives adjust the combustion engine load and frequency into the point of the best