

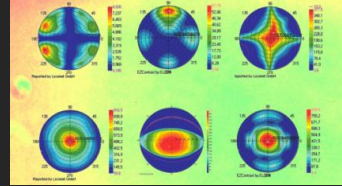
Electronic-Displays TroubleShooting

**Top 10 List of the most common problems
with electronic displays**

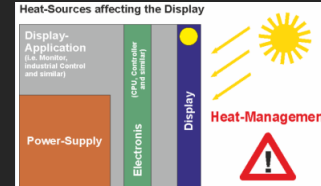
What in detail are we doing?



Power efficient light source technologies for extreme temperatures i.e. -100°C to $+300^{\circ}\text{C}$ and more



Analyzing, simulating, calculating, verifying...



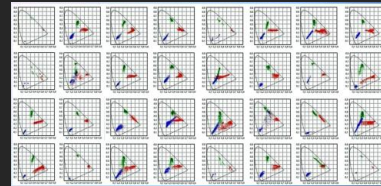
IP and solutions for advanced heat management in display related systems



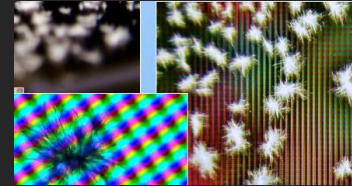
Cleanroom assembly for samples and small qty, we have about 2000m² of cleanrooms



Optical measurement of displays and light sources
We use Eldim equipment.



Qualifying, sorting and screening of special or dedicated display related products



Analyzing and decontamination of Bio contaminations like fungus, bugs and other



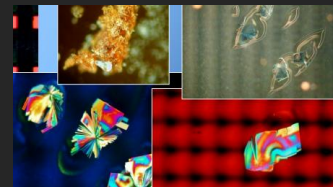
We realize very special measurement systems



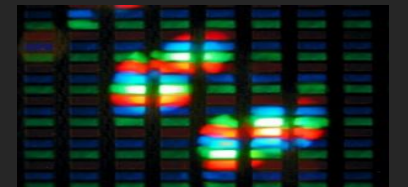
Failure analysis, bug fixing and trouble shooting.



R&D for new hybrid, 3D and holo-displays



R&D for optical bonding of various shapes, materials, processes and analyzing its quality



We create new kinds of variable pixel structures for 2D and 3D

Which problems are most common?

Our hit list from the last 20 years

1. **electrical problems** (equipotential / potential equalization, GND-conzept, cables, connectors, oscillation tendencies, EMI etc.)
2. **electronic problems** (control, timing, levels, interference, layout, processes etc.)
3. **thermal problems** (hot-spots, cold-spots, packing-density, heat dissipation, degradation etc.)
4. **Touch-problems** (degraded seals, hermetically sealed seals, ITO-degradation, disintegration of coatings, ghost-touches, driver, maltreated surfaces etc.)
5. **chemical problems** (moisture, corrosion, yellowing, solvents, cleaners etc.)

Which problems are most common?

Our hit list from the last 20 years

6. Bio-contamination (mold, vermin, germs etc.)
7. mechanical problems (expansion coefficients, tightness, shock, vibration, tension etc.)
8. optical problems (polarizer & retarder-orientation, light-sources, light guides, reflectors, optical films etc.)
9. tech. design-problems (wrong parts, combination of inappropriate components, wrong processes and parameters etc.)
10. optical bonding-problems (bubbles, blisters, delamination, contamination, streaks, inclusions, yellowing, materials, processes etc.)