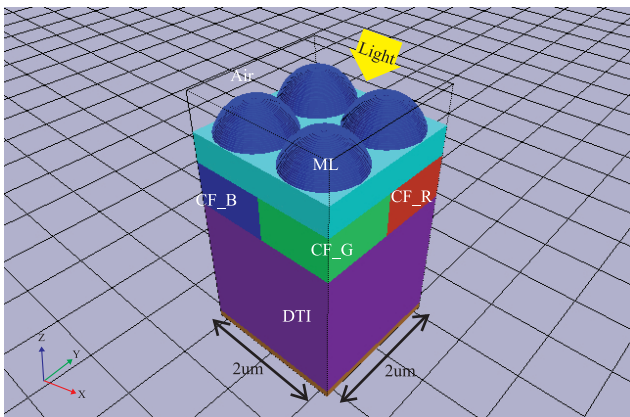


HYBRID OPTIC SIMULATOR

for CIS(Cmos Image Sensor) with Real Manufacturing Process Implemented

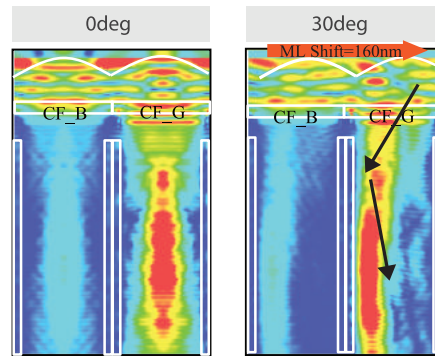
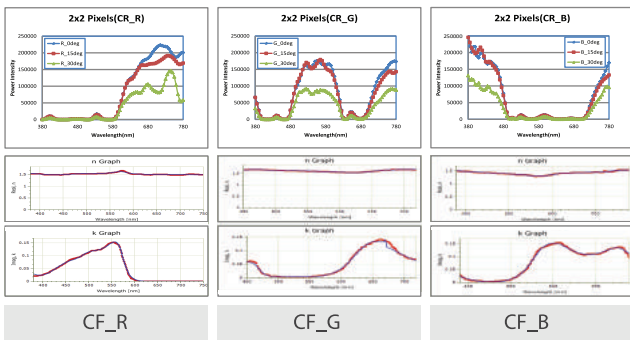
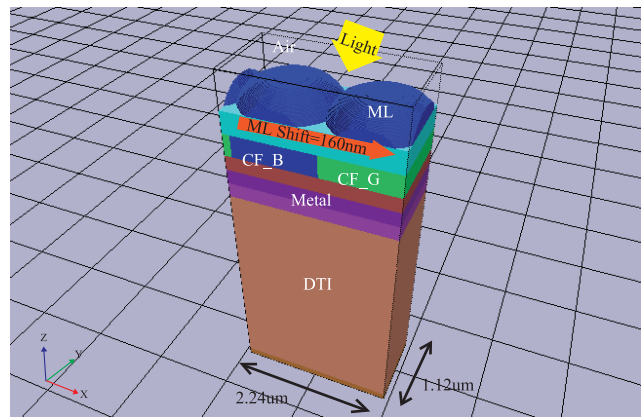
CRA Simulation

Power Comparison of the CRA in 2x2 pixels
 Increase in the CRA → Decrease of Power



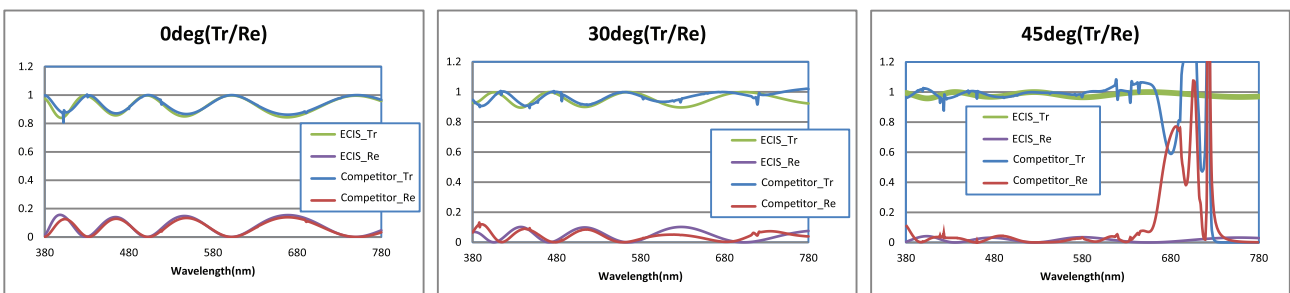
Sub Micron Pixel Simulation

DTI (Deep Trench Isolation) becomes waveguide.
 It makes TIR on DTI area because of $\text{SiO}_2 = 1.5 / \text{Si} = 4$ or Metal.



High Accuracy of Oblique Incident Angle

- High accuracy 3D simulation for oblique incident angle as light source by over 60 degree.
- Competitor can not available.
- Competitors don't give accurate results in oblique incident and full wave mode.
- ECIS gives the high accuracy over 50 degree.(Maximum CRA)



ECIS and Competitor Accuracy Comparison at PBC or Bloch BC.

WORK PROCESS

MATERIAL

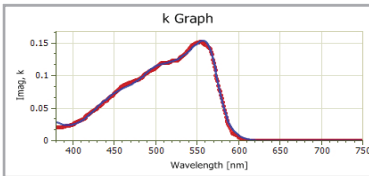
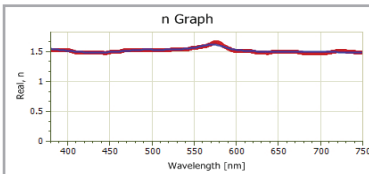


Automatic Fitting Program

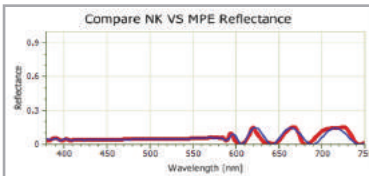
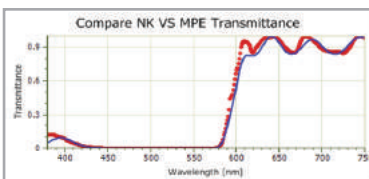
Optimized for Organic Display Materials with high accuracy.

FDTD necessarily require the fitting.

CIS Material : Si, SiO₂, CF_Red/ Green/ Blue, Al, Ag, etc



CF_Red n, k Graph



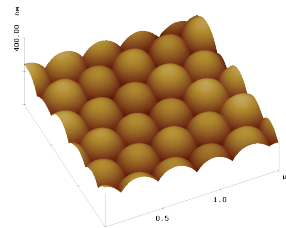
CF_Red_Compare NK vs MPE

MESH
STRUCTURE

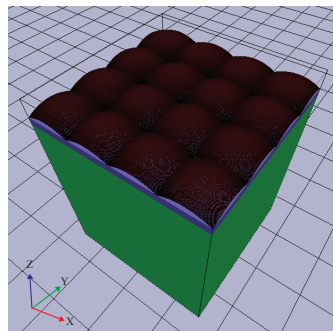


Support the AFM Format

All windows are based on simple UI. Not script with Mask information and Thickness



AFM Image



AFM to Structure

OPTIC SOLVER

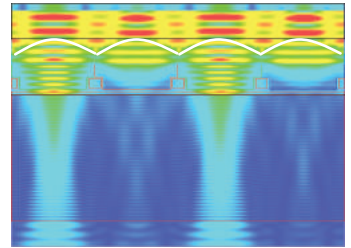


VIEWER

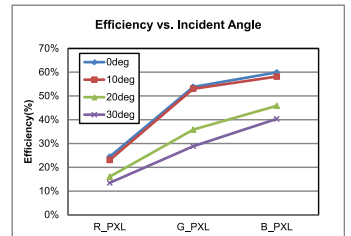


Optic Analysis

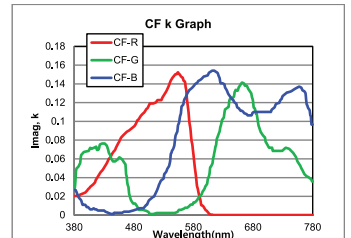
The Engine with "Full Wavelength Simulations (FWS)" mode simulates it once and generates the output of all wavelength.



E-Field(550nm)



Efficiency(%)



R, G, B Color Filter

ExpertCIS Key Benefits

ExpertCIS

Strength

- ✓ EM+ 3DFDTD + Ray tracing : World first
- ✓ Easy GUI & Viewer (strong post processing)
- ✓ Easy n,k fitting program (Display, Semiconductor)
- ✓ High Accuracy of Oblique incident angle
- ✓ Strong Technical Supporting
- ✓ 3D complicated structure generation
(Accurate simulation for Sub Micron Pixel)

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Specification

PLATFORM : IBM – Compatible

OS : Windows 7

CPU : 4.0GHZ or Better

MEMORY : Minimum 8GB Recommended 16GB or Better

GRAPHIC CARD : OpenGL supported