

## Key comparison CCPR-K6

MEASURAND : Spectral regular transmittance

Measurements involve five different filters designated as "Filter A", "Filter B", "Filter C", "Filter D", and "Filter E", and 8 wavelengths (380 nm, 400 nm, 500 nm, 600 nm, 700 nm, 800 nm, 900 nm, and 1000 nm). The filter characteristics are detailed in Table 3 on page 7 of the Final Report. Absolute transmission measurements and associated uncertainties of all participants are available in the Annex B of the Final Report.

The key comparison reference value,  $x_R$ , and its standard uncertainty,  $u_R$ , are deduced from the participants' results compared to the Pilot's results, using a weighted mean with application of a cut-off, outliers being excluded, as explained in Sections 5 and 8 of the Final Report.

$\lambda$ / nm	Filter A		Filter B		Filter C		Filter D		Filter E	
	$x_R$	$u_R$	$x_R$	$u_R$	$x_R$	$u_R$	$x_R$	$u_R$	$x_R$	$u_R$
380	4.357E-04	1.058E-04	1.540E-03	1.637E-04	1.211E-04	3.114E-05	-1.599E-06	3.689E-06	1.049E-06	2.379E-06
400	3.701E-04	8.210E-05	1.093E-03	1.187E-04	-3.117E-05	2.835E-05	-1.185E-05	4.792E-06	-6.444E-09	1.209E-06
500	3.234E-04	6.338E-05	9.756E-04	1.139E-04	1.156E-04	2.193E-05	8.555E-06	4.187E-06	2.954E-06	1.125E-06
600	3.075E-04	6.302E-05	7.611E-04	6.358E-05	1.777E-04	1.765E-05	4.101E-05	4.668E-06	8.210E-06	1.484E-06
700	4.225E-04	6.926E-05	3.424E-04	5.251E-05	9.633E-05	2.987E-05	3.374E-05	1.090E-05	7.620E-06	4.124E-06
800	6.383E-04	4.380E-05	2.010E-04	5.879E-05	1.455E-05	2.755E-05	6.546E-06	8.918E-06	1.543E-05	3.869E-06
900	5.228E-04	6.047E-05	7.263E-05	5.819E-05	8.838E-06	1.978E-05	-4.104E-06	6.348E-06	-2.187E-06	3.015E-06
1000	4.211E-04	6.443E-05	1.051E-04	6.384E-05	-1.840E-06	1.555E-05	-3.835E-06	5.411E-06	-9.511E-06	2.903E-06

The degree of equivalence of laboratory  $i$  with respect to the key comparison reference value is given by a pair of terms:  $D_i$  and its expanded uncertainty ( $k = 2$ ),  $U_i$ , computed according to equations 16 and 17 on page 52 of the Final Report (see also Section 9 on page 62).

The degree of equivalence between pair of laboratories have not been computed for this key comparison.

## Key comparison CCPR-K6

MEASURAND : Spectral regular transmittance

Lab <i>i</i>	Wavelength: 380 nm	
	$D_i$	$U_i$
IFA-CSIC	1.188E-03	4.840E-03
KRISS	4.932E-05	8.171E-04
LNE	-4.357E-04	7.857E-04
MIKES	-4.457E-04	1.371E-03
MSL	7.868E-04	6.202E-04
NIST	1.188E-03	1.851E-03
NMi-VSL	7.432E-05	9.790E-04
NMIA	1.443E-04	5.994E-04
NMIJ	4.213E-04	8.004E-04
NPL	-3.032E-04	6.115E-04
NRC	3.493E-04	6.965E-04
PTB	2.994E-03	2.688E-03
SMU	4.217E-03	5.806E-04
A*STAR	1.682E-05	8.454E-04
VNIIOFI	-2.478E-03	1.157E-03

Lab <i>i</i>	Wavelength: 500 nm	
	$D_i$	$U_i$
IFA-CSIC	1.082E-03	1.161E-03
KRISS	-1.059E-04	7.621E-04
LNE	-3.234E-04	5.026E-04
MIKES	-3.159E-04	6.418E-04
MSL	5.291E-04	3.822E-04
NIST	9.016E-04	1.204E-03
NMi-VSL	-3.559E-04	7.054E-04
NMIA	2.541E-04	2.932E-04
NMIJ	2.951E-04	5.430E-04
NPL	-2.159E-04	3.165E-04
NRC	1.841E-04	4.940E-04
PTB	2.717E-03	1.941E-03
SMU	3.622E-03	3.586E-04
A*STAR	5.162E-05	5.591E-04
VNIIOFI	-1.208E-03	6.600E-04

## Degrees of equivalence for Filter A

Nominal transmittance at 546 nm: 92 %

All reported values are absolute

Lab <i>i</i>	Wavelength: 400 nm	
	$D_i$	$U_i$
IFA-CSIC	1.217E-03	5.618E-03
KRISS	-6.512E-05	9.082E-04
LNE	-3.701E-04	7.065E-04
MIKES	-4.426E-04	9.666E-04
MSL	7.324E-04	3.961E-04
NIST	8.749E-04	1.752E-03
NMi-VSL	7.488E-05	1.030E-03
NMIA	1.499E-04	4.035E-04
NMIJ	4.239E-04	6.612E-04
NPL	-4.026E-04	5.566E-04
NRC	5.874E-04	7.552E-04
PTB	3.257E-03	2.539E-03
SMU	4.088E-03	3.881E-04
A*STAR	2.499E-04	7.795E-04
VNIIOFI	-2.098E-03	7.658E-04

Lab <i>i</i>	Wavelength: 600 nm	
	$D_i$	$U_i$
IFA-CSIC	1.178E-03	1.574E-03
KRISS	-1.200E-04	6.633E-04
LNE	-3.075E-04	5.498E-04
MIKES	-4.975E-04	7.523E-04
MSL	4.250E-04	5.171E-04
NIST	5.050E-04	1.387E-03
NMi-VSL	-3.150E-04	8.354E-04
NMIA	2.000E-04	2.216E-04
NMIJ	4.540E-04	4.679E-04
NPL	-5.746E-05	4.342E-04
NRC	2.150E-04	5.572E-04
PTB	2.485E-03	1.584E-03
SMU	2.716E-03	3.255E-04
A*STAR	-9.246E-05	6.677E-04
VNIIOFI	-9.770E-04	5.970E-04

## Key comparison CCPR-K6

MEASURAND : Spectral regular transmittance

## Degrees of equivalence for Filter A

Nominal transmittance at 546 nm: 92 %

All reported values are absolute

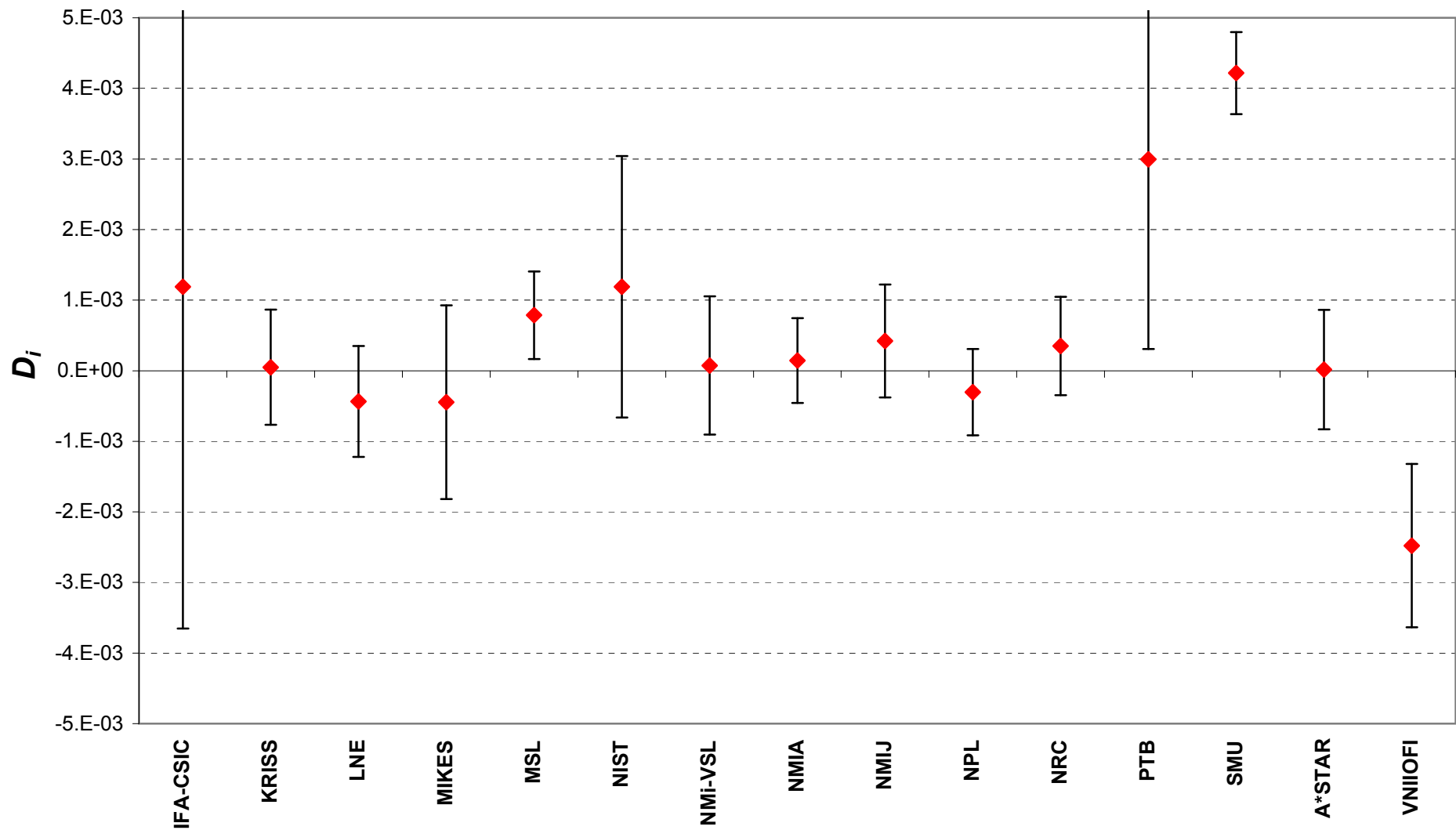
Lab <i>i</i>	Wavelength: 700 nm	
	$D_i$	$U_i$
IFA-CSIC	1.267E-03	4.623E-03
KRISS	-3.688E-04	4.121E-04
LNE	-4.225E-04	4.909E-04
MIKES	-6.813E-04	7.826E-04
MSL	1.940E-04	5.330E-04
NIST	5.033E-04	8.868E-04
NMi-VSL	-3.288E-04	6.721E-04
NMIA	1.082E-04	3.866E-04
NMIJ	4.206E-05	3.134E-04
NPL	2.372E-05	3.158E-04
NRC	1.371E-04	4.064E-04
PTB	3.084E-03	1.502E-03
SMU	2.061E-03	9.129E-04
A*STAR	-1.378E-05	5.763E-04
VNIIOFI	-7.928E-04	7.161E-04

Lab <i>i</i>	Wavelength: 800 nm	
	$D_i$	$U_i$
IFA-CSIC	8.592E-04	1.203E-03
KRISS	-6.358E-04	2.872E-04
LNE	-6.383E-04	4.711E-04
MIKES	-3.108E-04	9.060E-04
MSL	-1.133E-04	5.676E-04
NIST	4.442E-04	4.742E-04
NMi-VSL	-1.078E-05	7.564E-04
NMIA	-2.488E-04	4.095E-04
NMIJ	-3.018E-04	2.089E-04
NPL	1.922E-05	1.182E-04
NRC	-1.058E-04	2.450E-04
PTB	3.479E-03	1.487E-03
SMU	2.082E-03	2.137E-03
A*STAR	8.117E-04	1.869E-04
VNIIOFI	-9.928E-04	6.068E-04

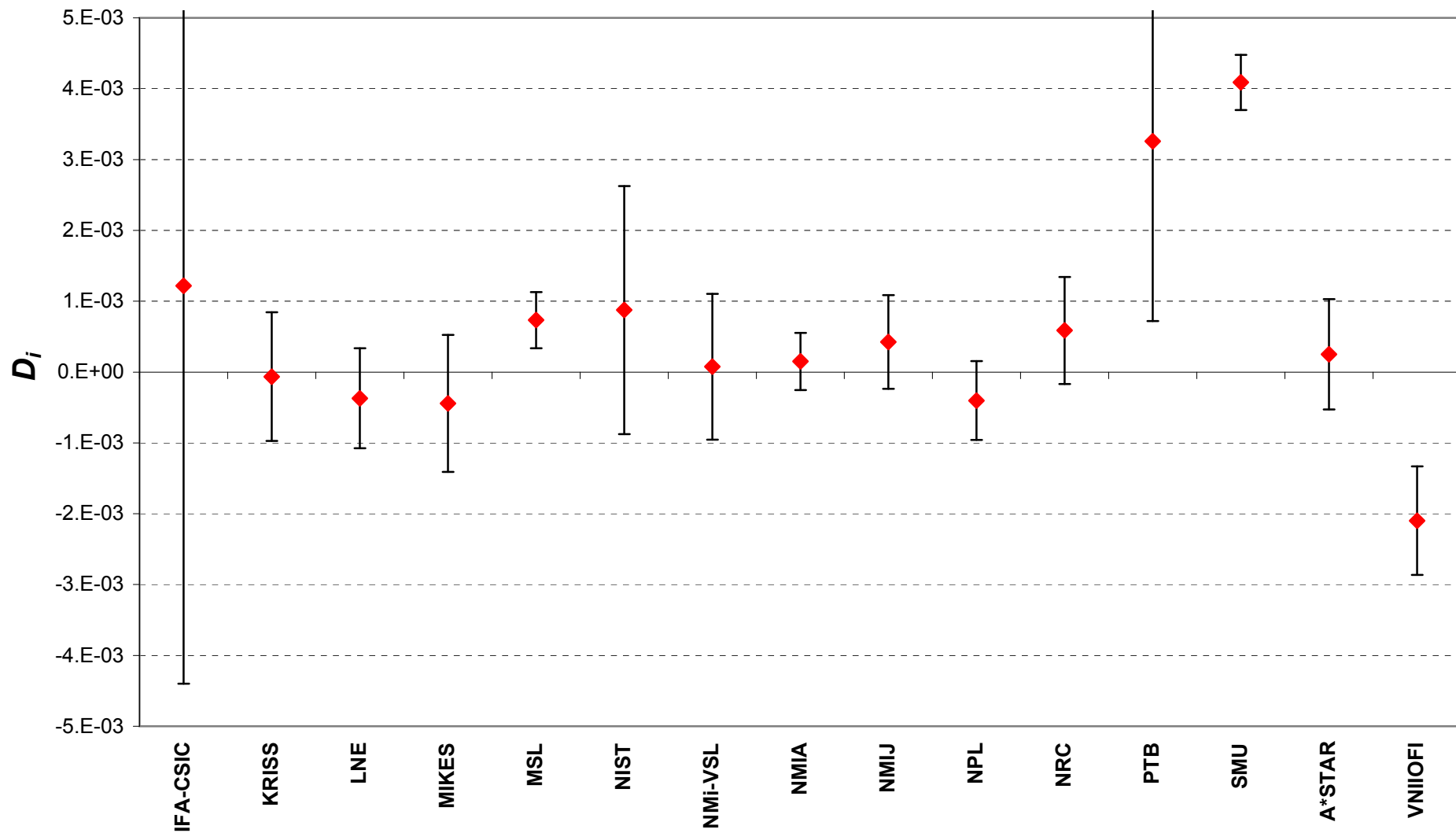
Lab <i>i</i>	Wavelength: 900 nm	
	$D_i$	$U_i$
IFA-CSIC	1.150E-03	4.204E-03
KRISS	-4.478E-04	2.896E-04
LNE	-5.228E-04	4.736E-04
MIKES	-2.703E-04	8.536E-04
MSL	-5.263E-06	5.551E-04
NIST	6.097E-04	6.165E-04
NMi-VSL	6.474E-05	7.670E-04
NMIA	-2.518E-04	4.969E-04
NMIJ	2.512E-04	1.214E-03
NPL	7.974E-05	2.069E-04
NRC	3.974E-05	2.906E-04
PTB	6.474E-05	3.678E-03
SMU	1.228E-03	2.407E-03
A*STAR	6.647E-04	2.804E-04
VNIIOFI	-1.010E-03	6.742E-04

Lab <i>i</i>	Wavelength: 1000 nm	
	$D_i$	$U_i$
IFA-CSIC	1.181E-03	4.004E-03
KRISS	-3.786E-04	2.925E-04
LNE	-4.211E-04	4.943E-04
MIKES	-2.961E-04	8.982E-04
MSL	8.895E-05	5.919E-04
NIST	7.114E-04	6.456E-04
NMi-VSL	2.139E-04	7.862E-04
NMIA	2.514E-04	2.628E-04
NMIJ	4.314E-04	1.022E-03
NPL	-1.605E-05	2.719E-04
NRC	4.145E-05	2.849E-04
PTB	8.089E-04	3.731E-03
SMU	-	-
A*STAR	7.581E-04	5.808E-04
VNIIOFI	-6.481E-04	6.169E-04

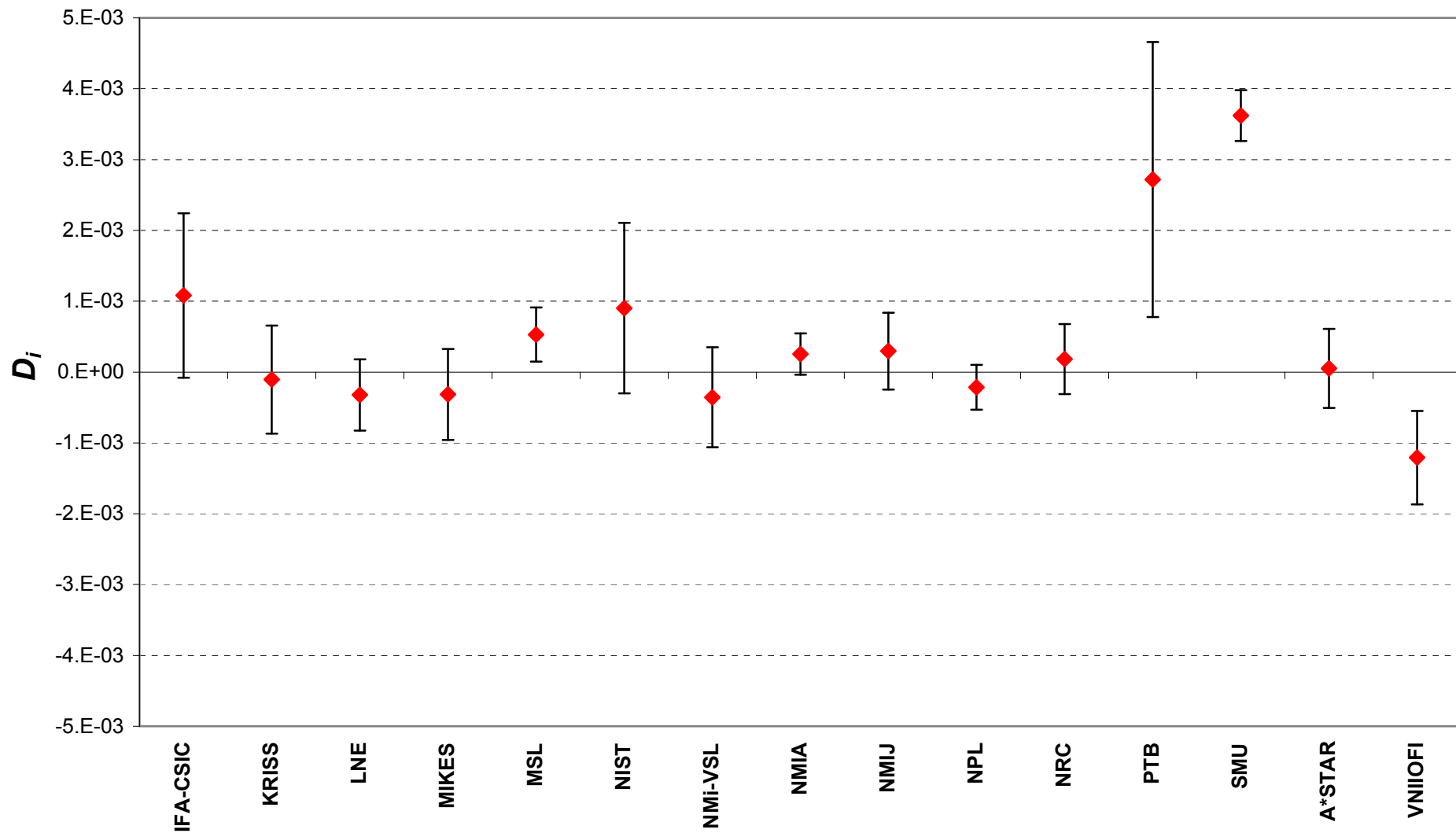
**CCPR-K6 Spectral regular transmittance - Filter A -  $\lambda = 380$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



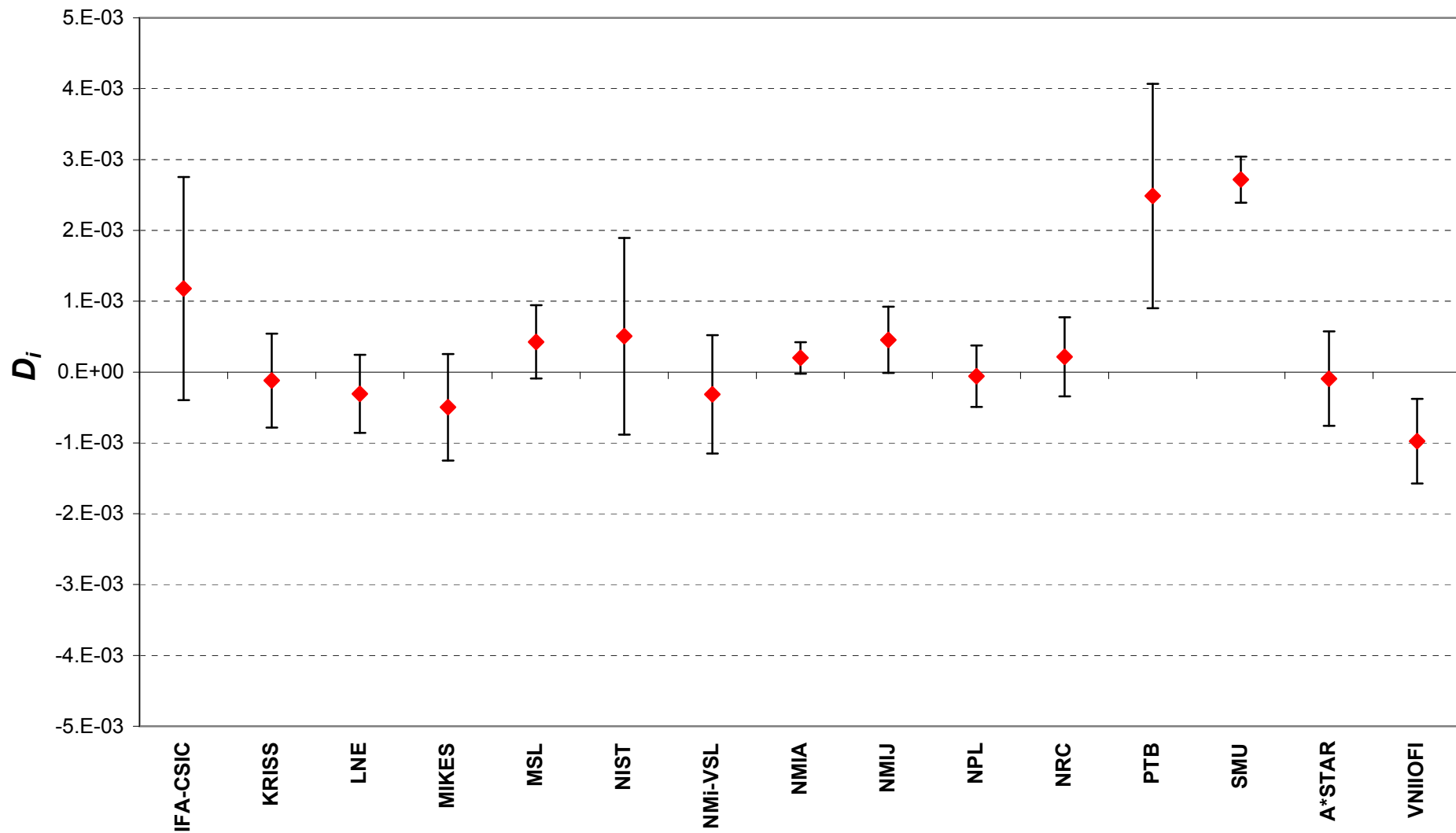
**CCPR-K6 Spectral regular transmittance - Filter A -  $\lambda = 400$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



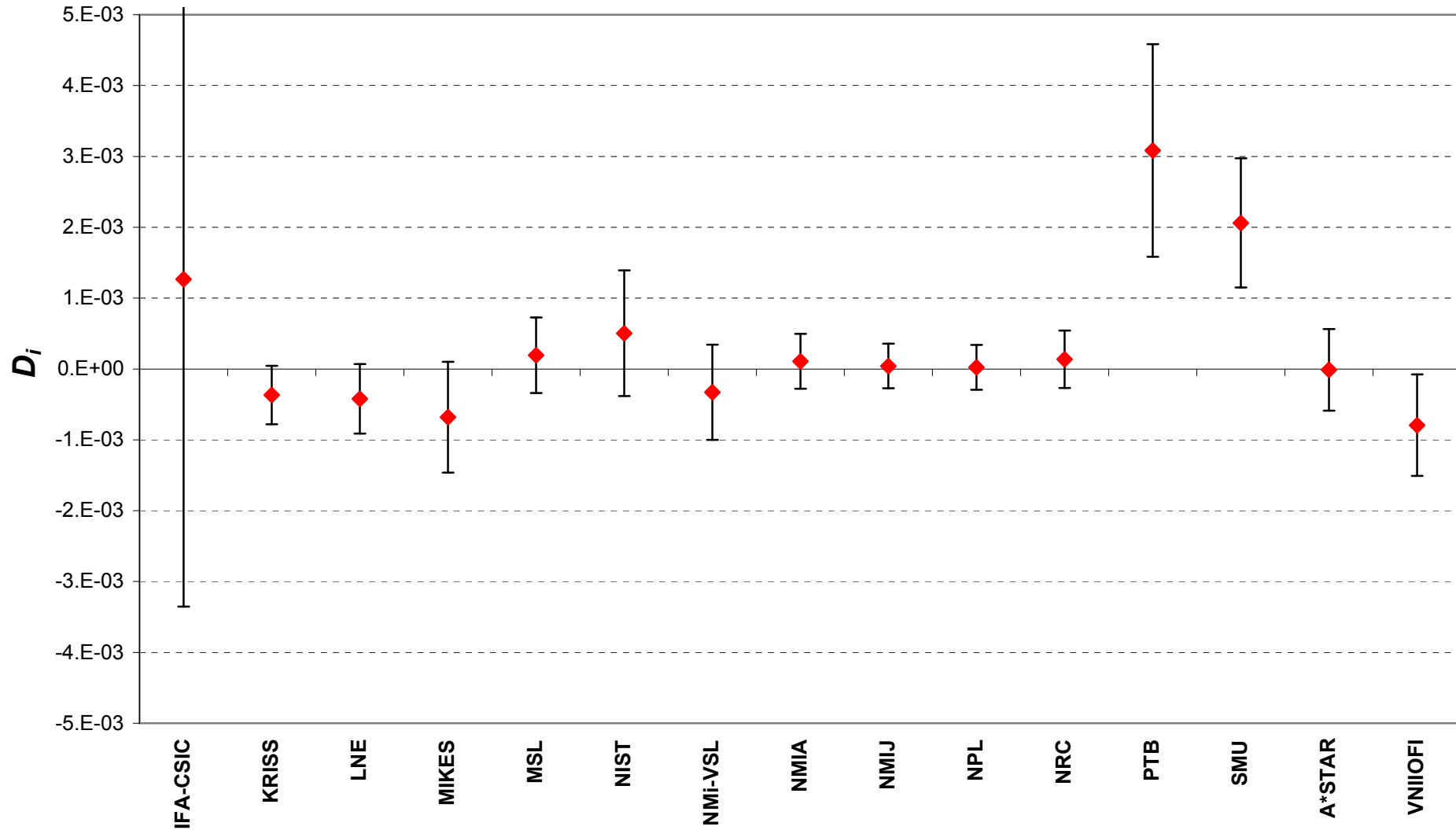
**CCPR-K6 Spectral regular transmittance - Filter A -  $\lambda = 500$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



**CCPR-K6 Spectral regular transmittance - Filter A -  $\lambda = 600$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )

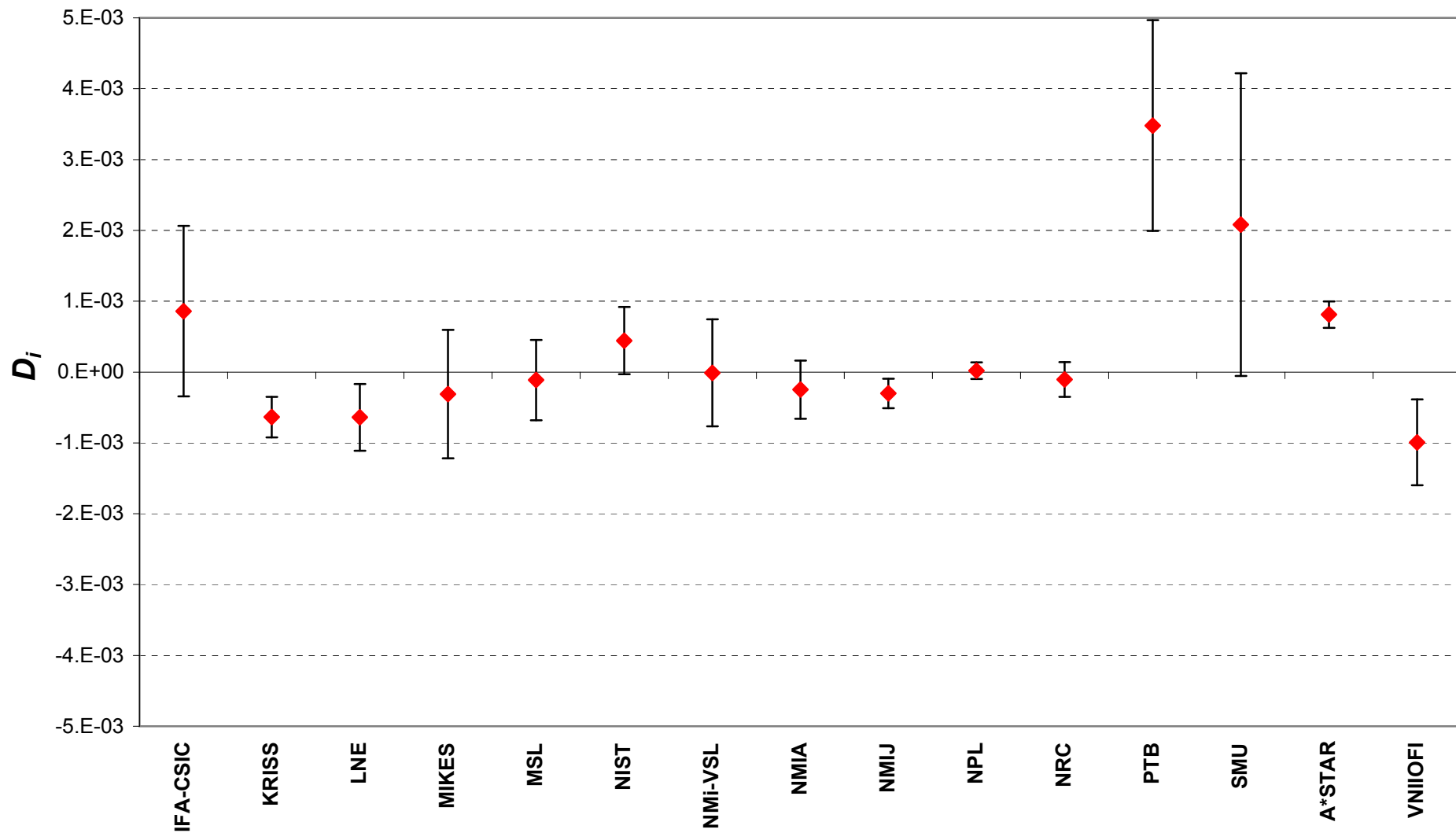


**CCPR-K6 Spectral regular transmittance - Filter A -  $\lambda = 700$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )

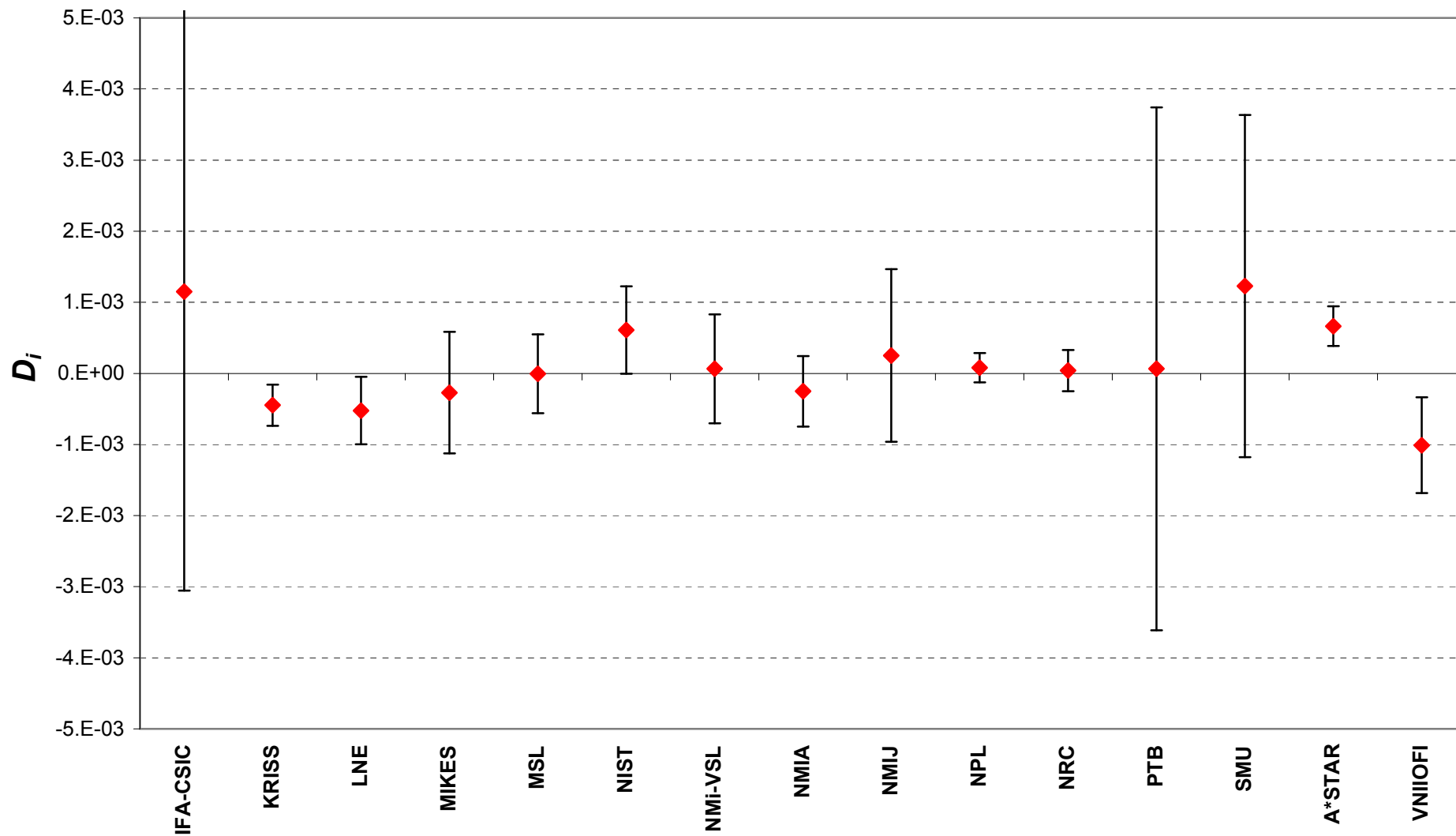




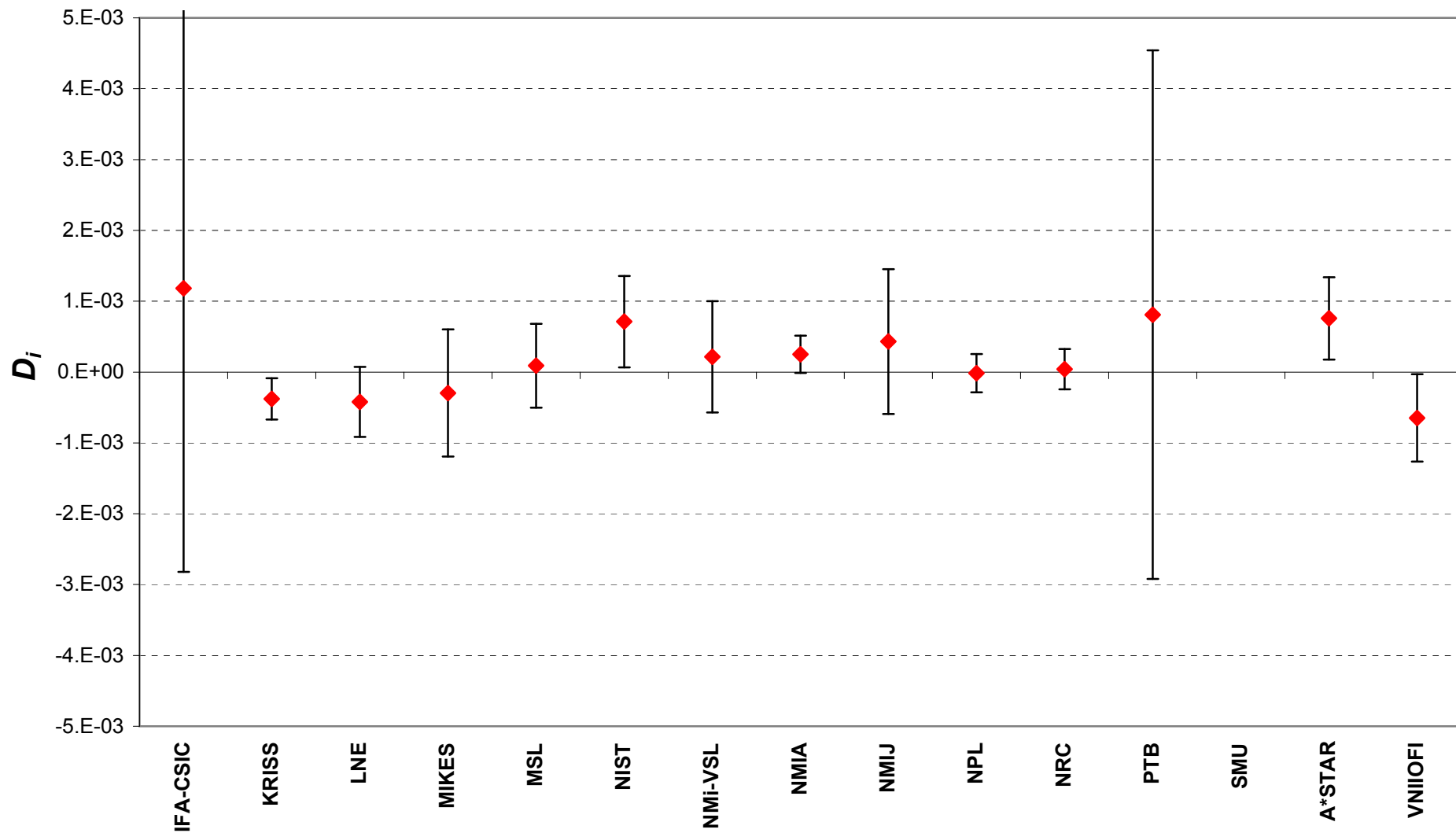
**CCPR-K6 Spectral regular transmittance - Filter A -  $\lambda = 800$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



**CCPR-K6 Spectral regular transmittance - Filter A -  $\lambda = 900$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



**CCPR-K6 Spectral regular transmittance - Filter A -  $\lambda = 1000$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



## Key comparison CCPR-K6

MEASURAND : Spectral regular transmittance

## Degrees of equivalence for Filter B

Nominal transmittance at 546 nm: 56 %

All reported values are absolute

Lab <i>i</i>	Wavelength: 380 nm	
	$D_i$	$U_i$
IFA-CSIC	-3.928E-03	2.009E-03
KRISS	6.248E-05	1.110E-03
LNE	-1.540E-03	9.948E-04
MIKES	3.777E-03	1.182E-03
MSL	1.877E-03	1.260E-03
NIST	1.165E-03	2.383E-03
NMi-VSL	1.900E-04	2.015E-03
NMIA	-1.490E-04	1.622E-03
NMIJ	6.748E-05	2.469E-03
NPL	-1.358E-03	6.092E-04
NRC	-1.853E-03	1.451E-03
PTB	-1.240E-03	1.801E-03
SMU	-7.902E-04	1.100E-03
A*STAR	6.925E-04	3.893E-03
VNIIOFI	1.194E-03	6.602E-04

Lab <i>i</i>	Wavelength: 400 nm	
	$D_i$	$U_i$
IFA-CSIC	-1.301E-03	3.517E-03
KRISS	8.690E-04	1.228E-03
LNE	-1.093E-03	8.621E-04
MIKES	6.700E-04	7.915E-04
MSL	-2.260E-04	9.252E-04
NIST	7.904E-05	6.988E-04
NMi-VSL	-6.346E-05	1.121E-03
NMIA	1.120E-04	6.524E-04
NMIJ	9.354E-05	5.810E-04
NPL	-3.185E-04	5.791E-04
NRC	-6.385E-04	1.395E-03
PTB	9.923E-04	1.798E-03
SMU	-9.642E-04	1.673E-03
A*STAR	1.417E-03	1.038E-03
VNIIOFI	-3.650E-04	8.107E-04

Lab <i>i</i>	Wavelength: 500 nm	
	$D_i$	$U_i$
IFA-CSIC	-1.018E-03	1.612E-03
KRISS	1.534E-03	8.127E-04
LNE	-9.756E-04	8.164E-04
MIKES	2.269E-04	6.999E-04
MSL	-6.956E-04	8.934E-04
NIST	4.729E-04	9.318E-04
NMi-VSL	-2.856E-04	9.610E-04
NMIA	-3.796E-04	7.427E-04
NMIJ	-1.716E-04	5.435E-04
NPL	3.944E-04	6.485E-04
NRC	-7.406E-04	1.413E-03
PTB	2.944E-04	1.795E-03
SMU	-1.057E-03	1.044E-03
A*STAR	6.894E-04	9.243E-04
VNIIOFI	3.309E-04	7.756E-04

Lab <i>i</i>	Wavelength: 600 nm	
	$D_i$	$U_i$
IFA-CSIC	-9.486E-04	1.361E-03
KRISS	1.366E-03	4.037E-04
LNE	-7.611E-04	4.279E-04
MIKES	4.039E-04	5.923E-04
MSL	-6.461E-04	5.422E-04
NIST	5.314E-04	8.617E-04
NMi-VSL	-2.136E-04	8.780E-04
NMIA	-8.816E-04	4.675E-04
NMIJ	-2.706E-04	2.127E-04
NPL	6.689E-04	2.930E-04
NRC	-8.086E-04	1.029E-03
PTB	2.464E-04	1.439E-03
SMU	-1.071E-03	5.924E-04
A*STAR	6.339E-04	4.608E-04
VNIIOFI	-1.546E-04	5.824E-04

## Key comparison CCPR-K6

MEASURAND : Spectral regular transmittance

## Degrees of equivalence for Filter B

Nominal transmittance at 546 nm: 56 %

All reported values are absolute

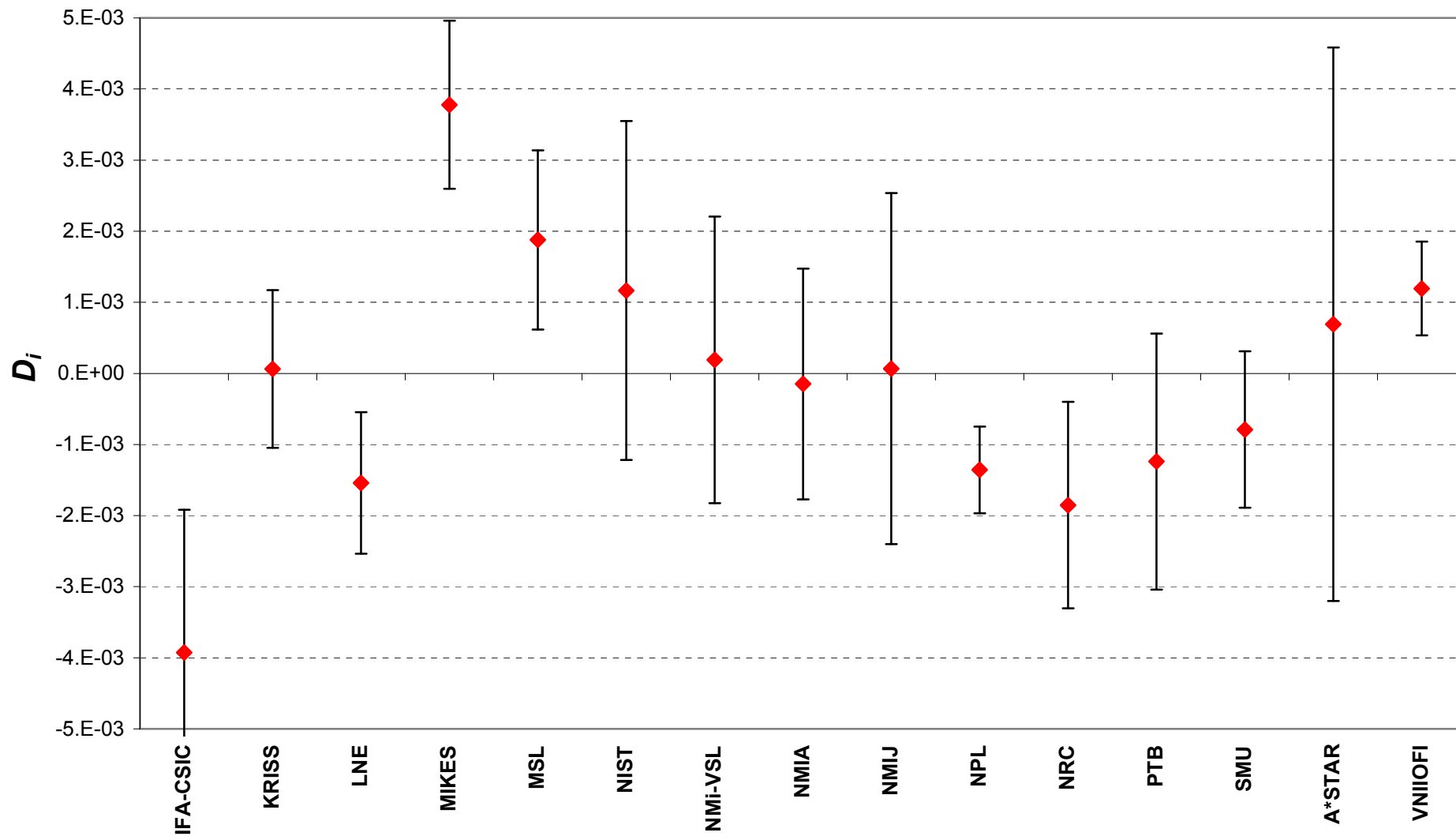
Lab <i>i</i>	Wavelength: 700 nm	
	$D_i$	$U_i$
IFA-CSIC	-7.529E-04	2.852E-03
KRISS	1.085E-03	3.159E-04
LNE	-3.424E-04	2.892E-04
MIKES	6.301E-04	6.125E-04
MSL	-2.212E-04	3.979E-04
NIST	2.561E-04	8.145E-04
NMi-VSL	-1.045E-04	9.031E-04
NMIA	-3.572E-04	2.207E-04
NMIJ	4.381E-05	3.486E-04
NPL	-2.154E-04	3.433E-04
NRC	-3.974E-04	5.121E-04
PTB	2.878E-04	1.251E-03
SMU	-9.081E-04	3.295E-04
A*STAR	6.563E-04	2.574E-04
VNIIOFI	2.083E-04	6.801E-04

Lab <i>i</i>	Wavelength: 800 nm	
	$D_i$	$U_i$
IFA-CSIC	-7.985E-04	8.770E-04
KRISS	1.229E-03	7.287E-04
LNE	-2.010E-04	3.370E-04
MIKES	5.365E-04	6.611E-04
MSL	-1.935E-04	3.419E-04
NIST	2.407E-04	6.483E-04
NMi-VSL	4.115E-04	8.396E-04
NMIA	-9.898E-05	4.304E-04
NMIJ	3.115E-04	3.876E-04
NPL	-3.785E-04	4.540E-04
NRC	1.565E-04	2.661E-04
PTB	9.115E-04	1.308E-03
SMU	-5.305E-04	2.870E-04
A*STAR	4.640E-04	3.329E-04
VNIIOFI	-3.085E-04	7.089E-04

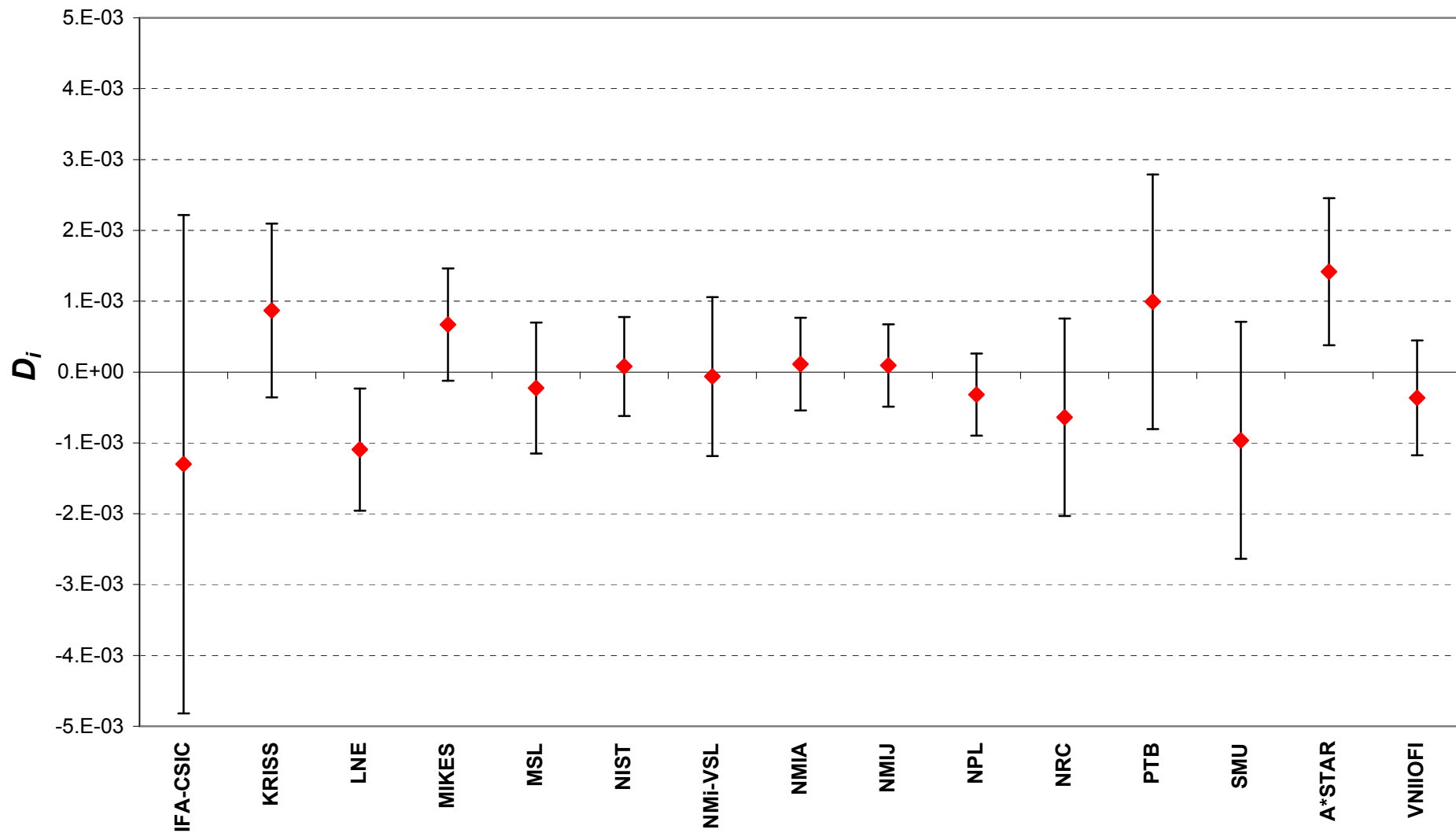
Lab <i>i</i>	Wavelength: 900 nm	
	$D_i$	$U_i$
IFA-CSIC	-2.078E-03	1.998E-03
KRISS	9.624E-04	7.184E-04
LNE	-7.263E-05	3.578E-04
MIKES	4.099E-04	7.253E-04
MSL	-4.763E-05	3.369E-04
NIST	3.097E-04	9.092E-04
NMi-VSL	4.184E-04	6.998E-04
NMIA	-1.634E-06	2.651E-04
NMIJ	1.984E-04	1.264E-03
NPL	-4.051E-04	3.144E-04
NRC	2.812E-05	2.322E-04
PTB	-2.351E-04	5.270E-04
SMU	-5.296E-04	3.917E-04
A*STAR	7.899E-04	4.284E-04
VNIIOFI	1.934E-04	8.109E-04

Lab <i>i</i>	Wavelength: 1000 nm	
	$D_i$	$U_i$
IFA-CSIC	-2.440E-03	2.599E-03
KRISS	5.874E-04	7.949E-04
LNE	-1.051E-04	3.965E-04
MIKES	4.699E-04	8.428E-04
MSL	8.316E-05	4.166E-04
NIST	1.616E-04	7.961E-04
NMi-VSL	1.224E-04	6.555E-04
NMIA	-4.909E-05	3.279E-04
NMIJ	4.639E-04	1.151E-03
NPL	-3.326E-04	2.293E-04
NRC	-6.509E-05	2.545E-04
PTB	3.324E-04	5.843E-04
SMU	-	-
A*STAR	7.349E-04	4.755E-04
VNIIOFI	1.884E-04	9.018E-04

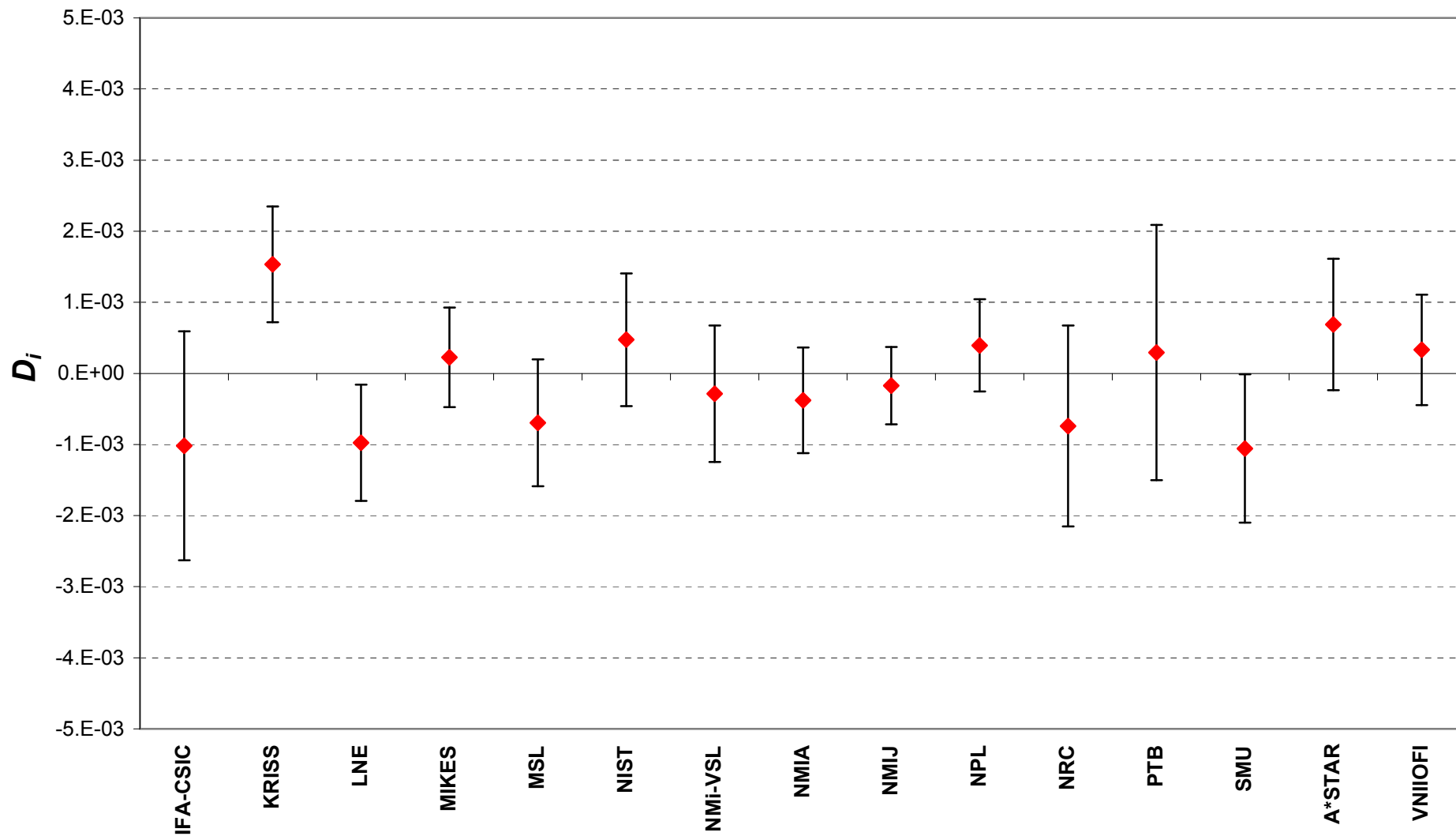
**CCPR-K6 Spectral regular transmittance - Filter B -  $\lambda = 380$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



**CCPR-K6 Spectral regular transmittance - Filter B -  $\lambda = 400$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )

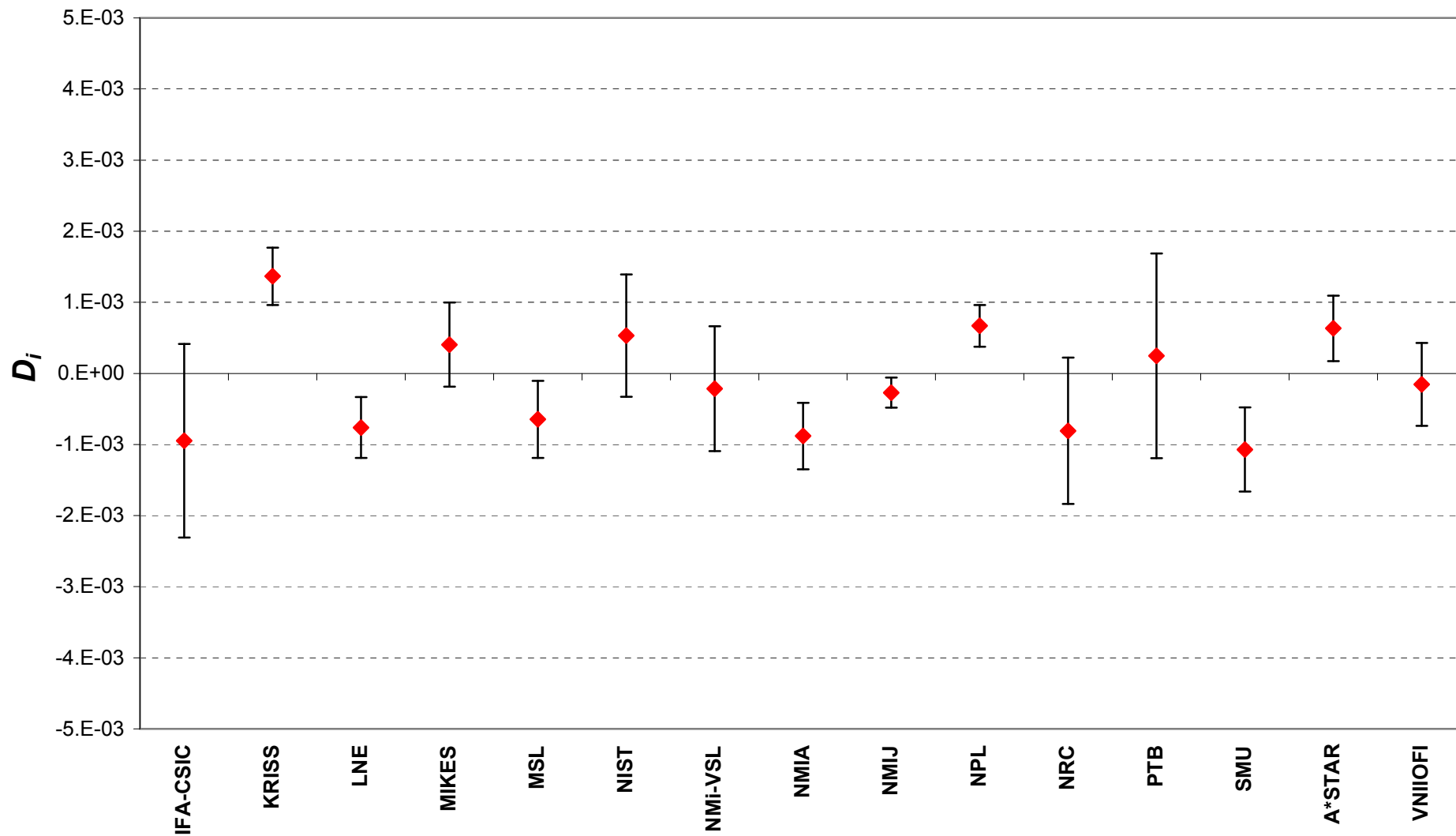


**CCPR-K6 Spectral regular transmittance - Filter B -  $\lambda = 500$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )

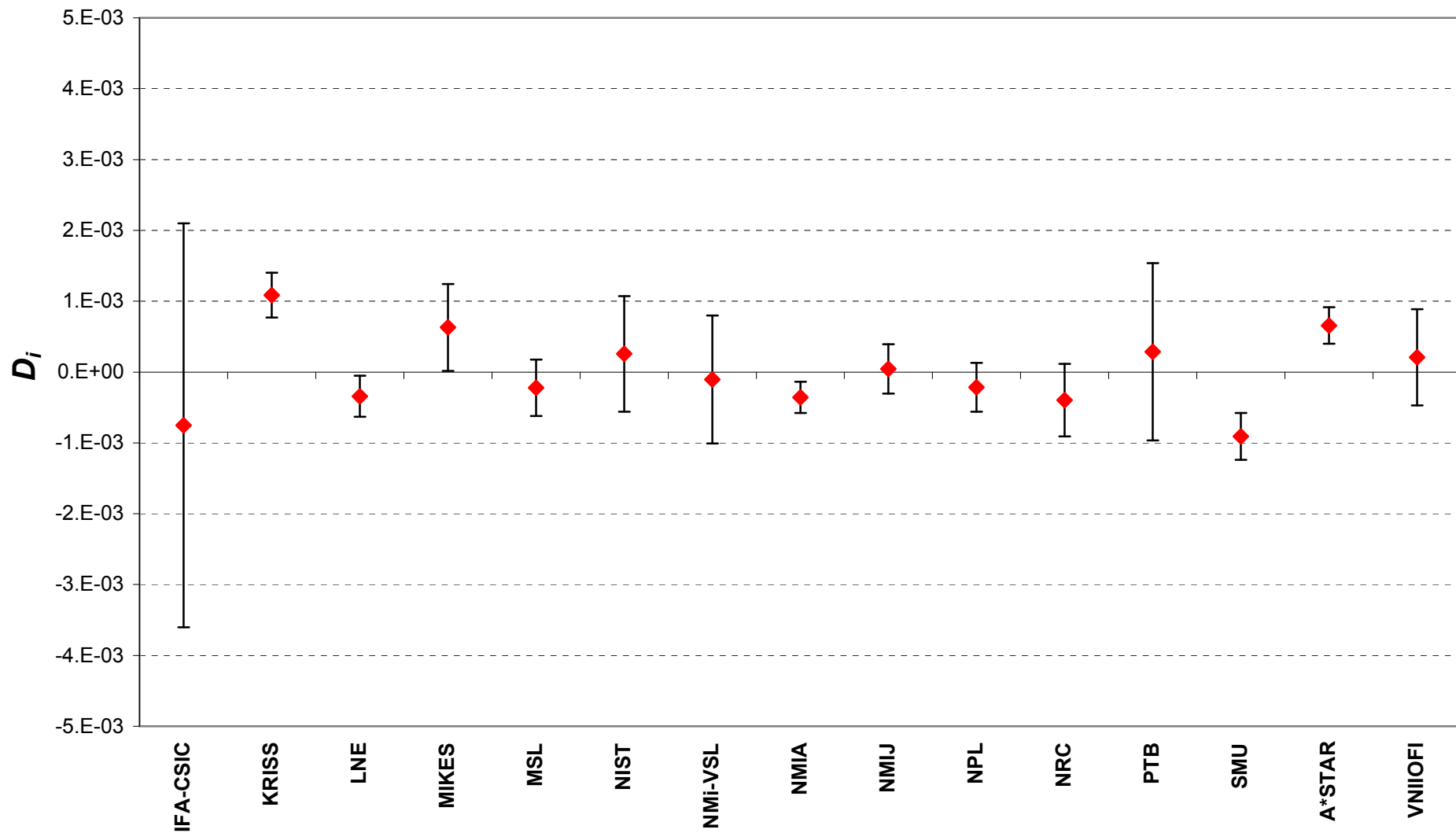




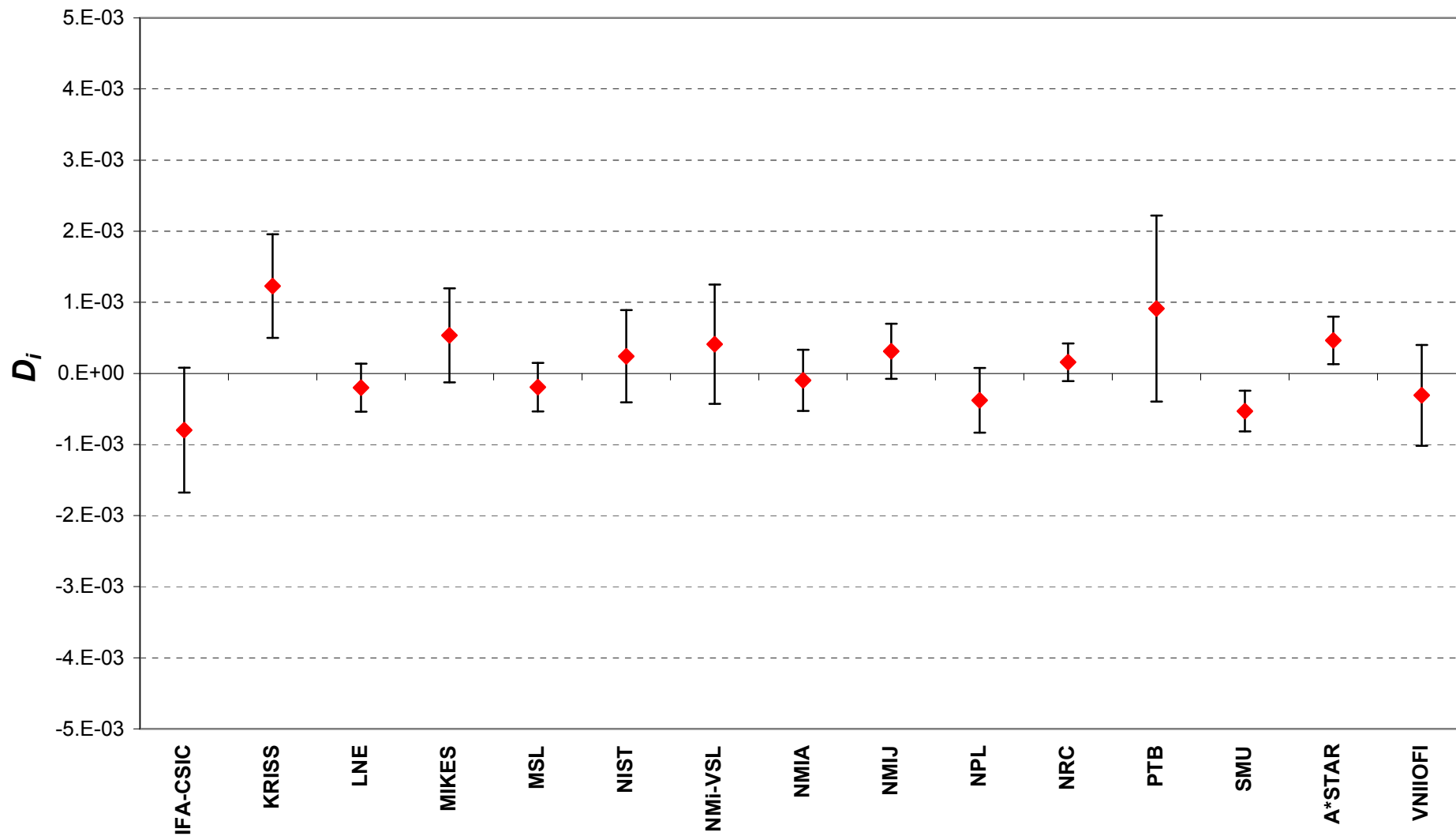
**CCPR-K6 Spectral regular transmittance - Filter B -  $\lambda = 600$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



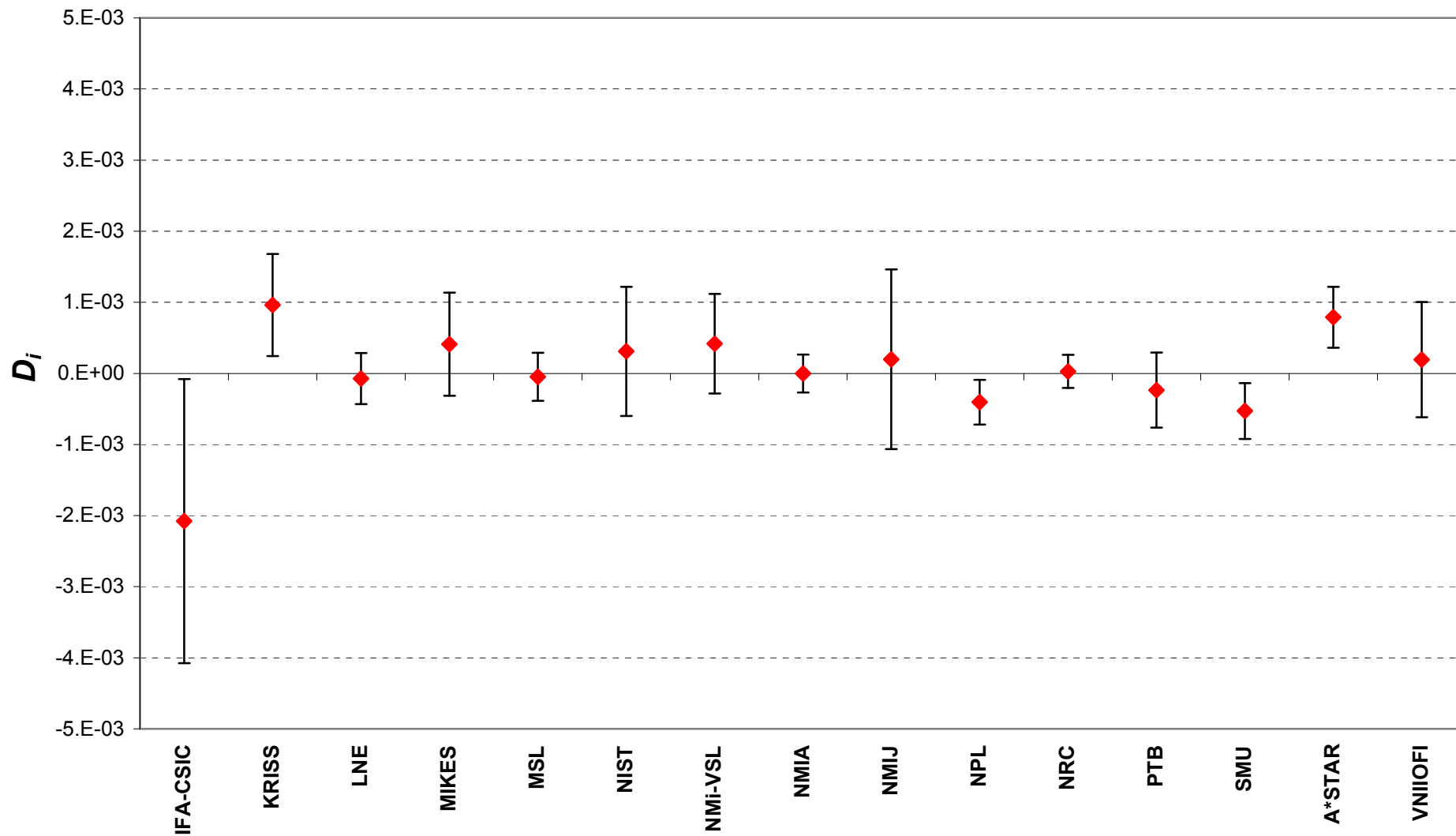
**CCPR-K6 Spectral regular transmittance - Filter B -  $\lambda = 700$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



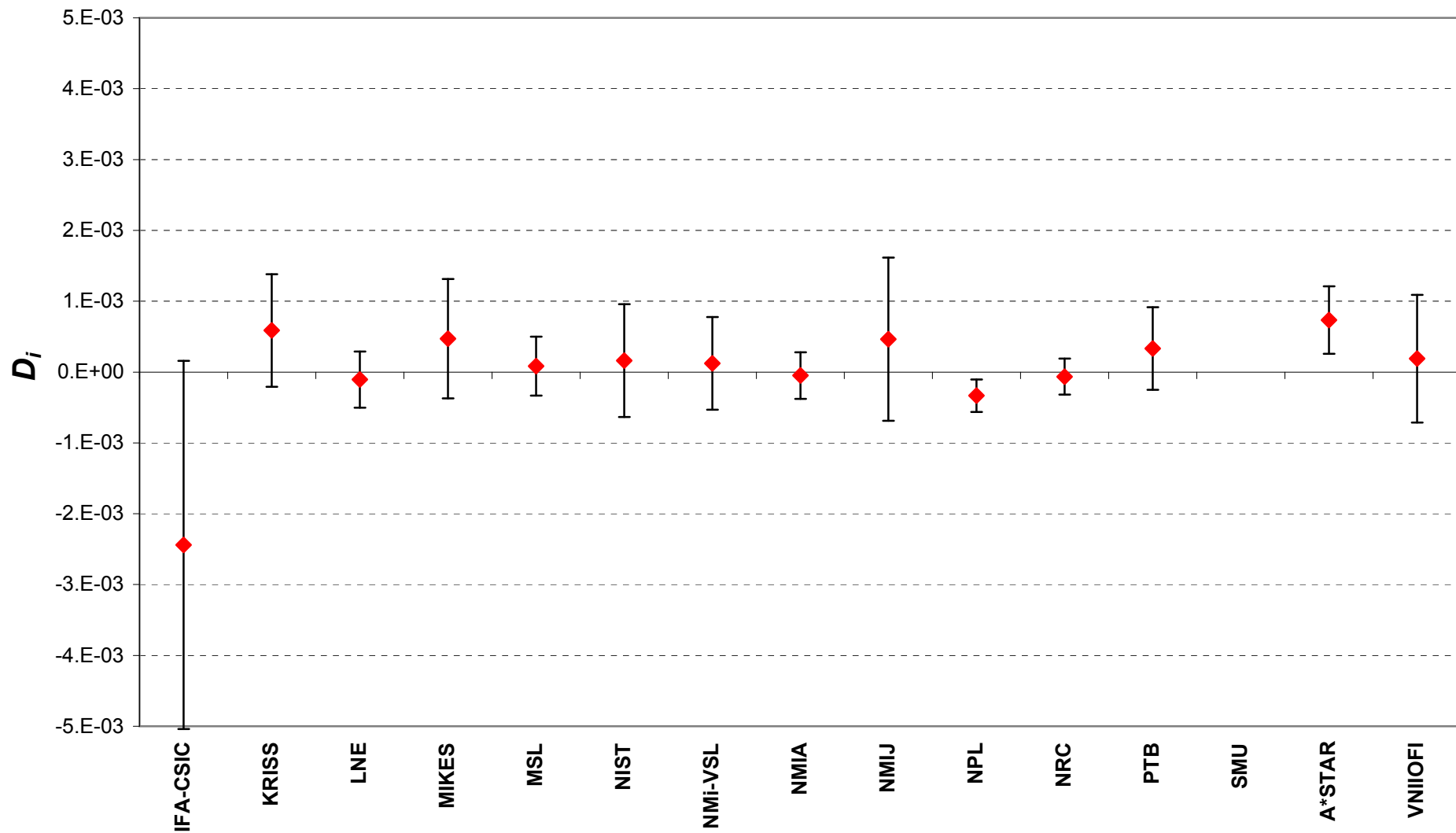
**CCPR-K6 Spectral regular transmittance - Filter B -  $\lambda = 800$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



**CCPR-K6 Spectral regular transmittance - Filter B -  $\lambda = 900$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



**CCPR-K6 Spectral regular transmittance - Filter B -  $\lambda = 1000$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



## Key comparison CCPR-K6

MEASURAND : Spectral regular transmittance

Lab <i>i</i>	Wavelength: 380 nm	
	$D_i$	$U_i$
IFA-CSIC	-5.986E-04	2.766E-04
KRISS	-2.251E-04	1.984E-04
LNE	-1.211E-04	3.009E-04
MIKES	8.371E-04	2.522E-04
MSL	5.334E-04	1.939E-04
NIST	2.267E-04	2.735E-04
NMi-VSL	-6.432E-05	7.506E-04
NMIA	2.106E-04	2.700E-04
NMIJ	6.276E-05	4.526E-04
NPL	-1.928E-04	1.345E-04
NRC	-2.091E-04	1.649E-04
PTB	-1.358E-04	1.977E-04
SMU	-1.547E-04	1.189E-04
A*STAR	2.793E-05	7.778E-04
VNIIOFI	2.824E-04	6.350E-04

Lab <i>i</i>	Wavelength: 500 nm	
	$D_i$	$U_i$
IFA-CSIC	-1.211E-04	2.851E-04
KRISS	1.209E-04	8.430E-05
LNE	-1.156E-04	1.661E-04
MIKES	-2.609E-05	1.580E-04
MSL	-1.511E-04	1.268E-04
NIST	1.522E-04	2.225E-04
NMi-VSL	1.512E-04	4.292E-04
NMIA	-1.126E-04	1.792E-04
NMIJ	7.791E-05	2.718E-04
NPL	3.139E-04	1.023E-04
NRC	-1.078E-04	1.191E-04
PTB	3.584E-04	5.377E-04
SMU	-3.916E-04	1.817E-04
A*STAR	-9.909E-05	1.916E-04
VNIIOFI	5.991E-05	6.916E-04

## Degrees of equivalence for Filter C

Nominal transmittance at 546 nm: 10 %

All reported values are absolute

Lab <i>i</i>	Wavelength: 400 nm	
	$D_i$	$U_i$
IFA-CSIC	-2.726E-04	4.872E-04
KRISS	-4.223E-04	1.486E-04
LNE	3.117E-05	1.491E-04
MIKES	2.199E-04	2.172E-04
MSL	3.637E-04	1.738E-04
NIST	1.515E-04	2.348E-04
NMi-VSL	-6.133E-05	4.165E-04
NMIA	2.967E-04	2.548E-04
NMIJ	2.784E-04	3.065E-04
NPL	-1.476E-04	1.136E-04
NRC	6.923E-06	1.492E-04
PTB	3.204E-04	5.632E-04
SMU	-3.251E-04	2.351E-04
A*STAR	2.214E-04	3.429E-04
VNIIOFI	-3.808E-04	6.350E-04

Lab <i>i</i>	Wavelength: 600 nm	
	$D_i$	$U_i$
IFA-CSIC	-2.007E-04	2.526E-04
KRISS	2.278E-04	7.732E-05
LNE	-1.777E-04	1.311E-04
MIKES	1.306E-04	1.868E-04
MSL	-1.717E-04	7.047E-05
NIST	1.145E-04	1.614E-04
NMi-VSL	1.251E-04	3.734E-04
NMIA	-1.214E-04	1.046E-04
NMIJ	-3.794E-05	1.756E-04
NPL	2.418E-04	8.810E-05
NRC	-1.059E-04	1.382E-04
PTB	9.131E-05	4.584E-04
SMU	-2.698E-04	1.976E-04
A*STAR	-3.669E-05	1.169E-04
VNIIOFI	2.581E-05	7.001E-04

## Key comparison CCPR-K6

MEASURAND : Spectral regular transmittance

Lab <i>i</i>	Wavelength: 700 nm	
	$D_i$	$U_i$
IFA-CSIC	-1.488E-04	6.950E-04
KRISS	3.142E-05	1.709E-04
LNE	-9.633E-05	1.559E-04
MIKES	1.487E-04	2.394E-04
MSL	2.324E-04	1.939E-04
NIST	6.842E-05	3.467E-04
NMi-VSL	7.117E-05	6.723E-04
NMIA	8.617E-05	1.628E-04
NMIJ	-3.133E-05	3.930E-04
NPL	1.118E-04	9.696E-05
NRC	-1.632E-04	1.595E-04
PTB	-2.095E-05	8.373E-04
SMU	-5.366E-04	2.451E-04
A*STAR	-1.031E-04	4.638E-04
VNIIOFI	6.053E-04	6.361E-04

Lab <i>i</i>	Wavelength: 900 nm	
	$D_i$	$U_i$
IFA-CSIC	5.366E-05	4.075E-04
KRISS	1.502E-04	1.441E-04
LNE	-8.838E-06	1.744E-04
MIKES	-4.834E-05	1.926E-04
MSL	-5.384E-05	9.642E-05
NIST	4.966E-05	1.936E-04
NMi-VSL	4.472E-04	5.307E-04
NMIA	-2.634E-05	1.736E-04
NMIJ	-8.534E-05	1.208E-03
NPL	-1.338E-06	6.122E-05
NRC	4.366E-05	6.298E-05
PTB	1.012E-04	2.936E-04
SMU	-3.900E-04	1.952E-04
A*STAR	6.116E-05	1.349E-04
VNIIOFI	8.162E-06	5.839E-04

## Degrees of equivalence for Filter C

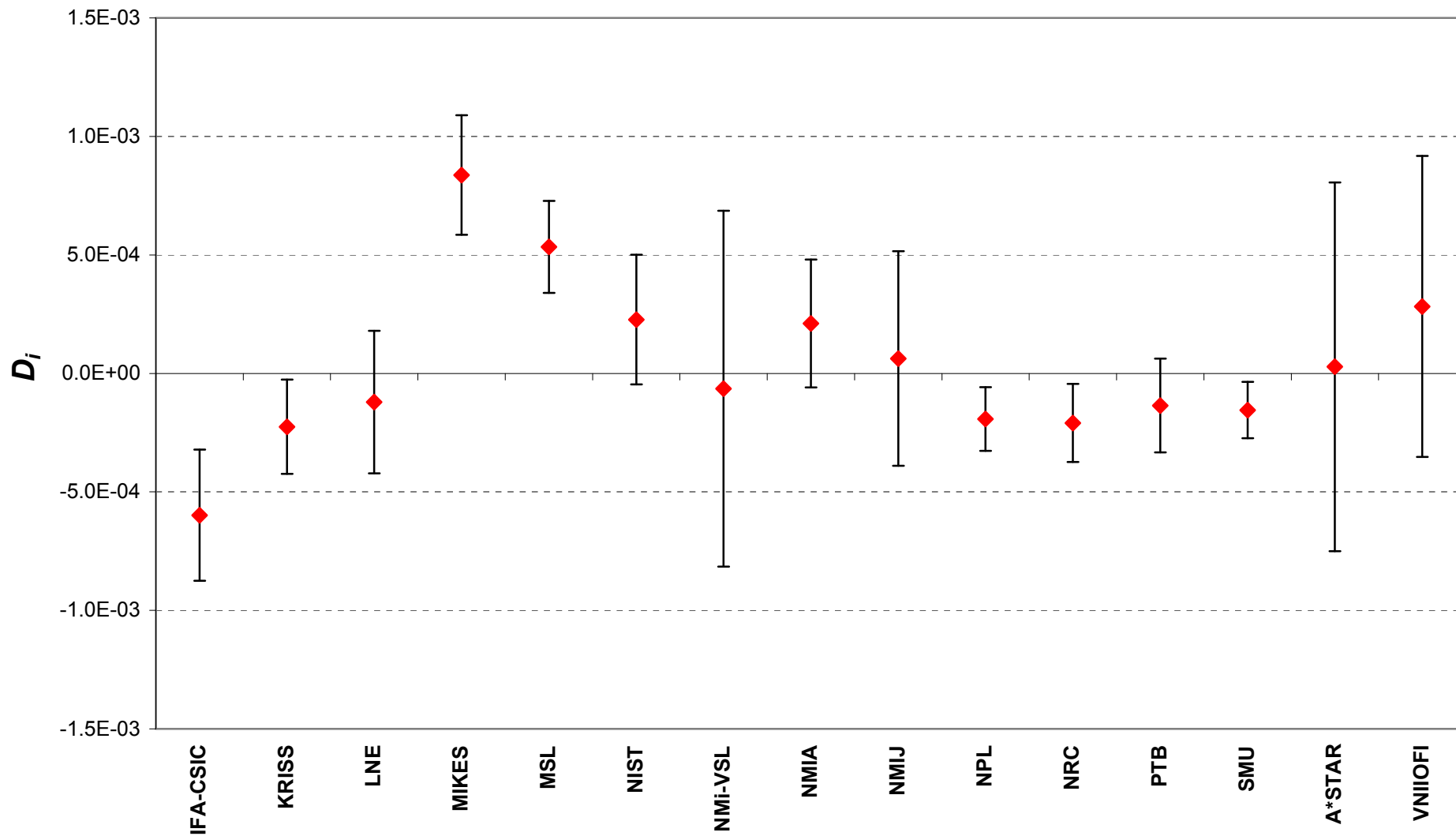
Nominal transmittance at 546 nm: 10 %

All reported values are absolute

Lab <i>i</i>	Wavelength: 800 nm	
	$D_i$	$U_i$
IFA-CSIC	-1.846E-04	2.861E-04
KRISS	2.474E-04	2.340E-04
LNE	-1.455E-05	2.618E-04
MIKES	-6.455E-05	2.144E-04
MSL	-6.705E-05	1.082E-04
NIST	5.545E-05	2.822E-04
NMi-VSL	1.859E-04	6.323E-04
NMIA	6.320E-05	5.117E-04
NMIJ	5.495E-05	2.920E-04
NPL	1.304E-04	1.465E-04
NRC	9.295E-05	9.598E-05
PTB	2.754E-04	8.518E-04
SMU	-4.078E-04	2.322E-04
A*STAR	5.449E-06	1.707E-04
VNIIOFI	-1.511E-04	6.605E-04

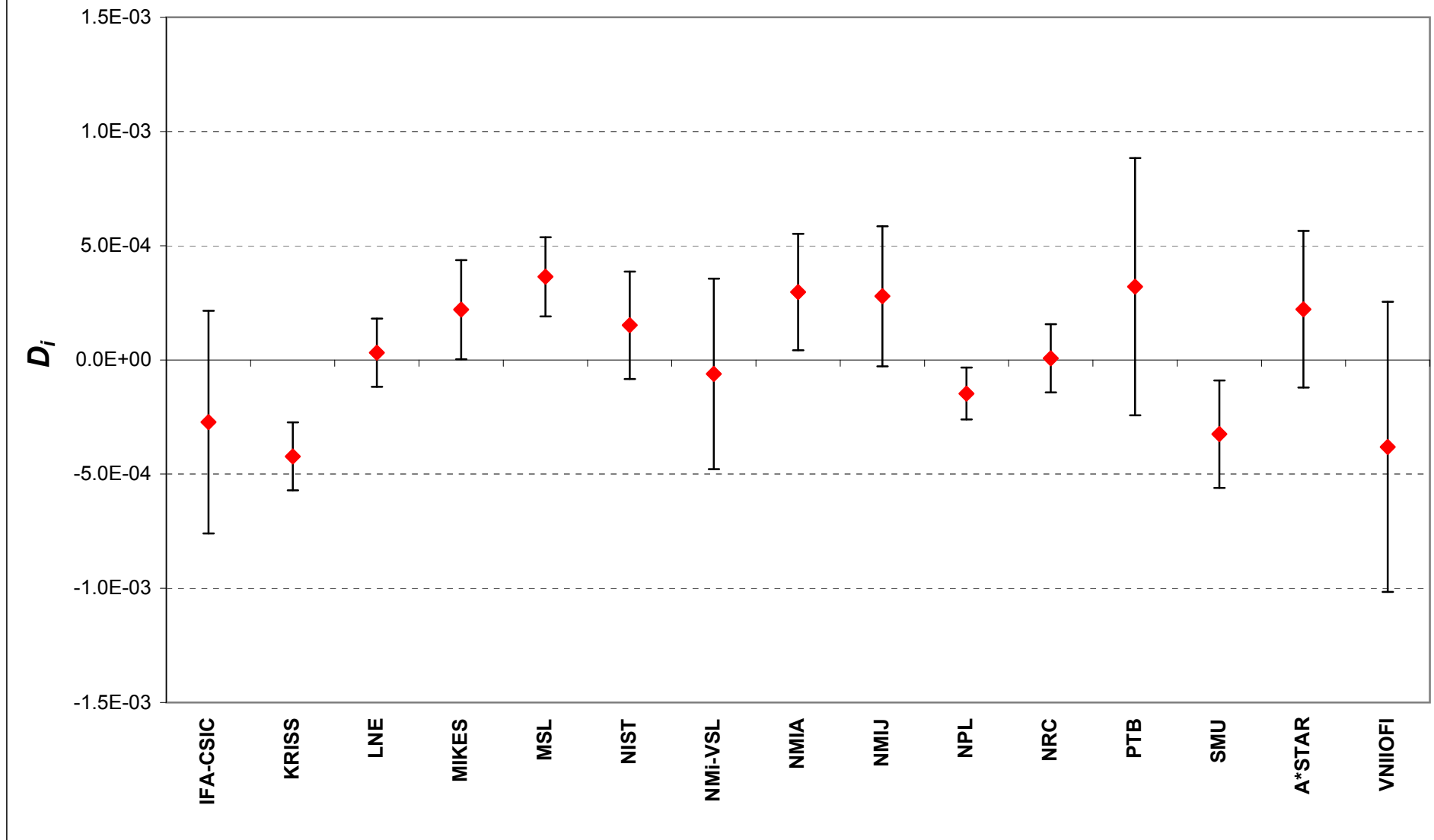
Lab <i>i</i>	Wavelength: 1000 nm	
	$D_i$	$U_i$
IFA-CSIC	-1.466E-05	1.664E-04
KRISS	-4.091E-05	1.598E-04
LNE	1.840E-06	1.355E-04
MIKES	6.590E-06	1.616E-04
MSL	2.034E-05	9.770E-05
NIST	2.084E-05	1.546E-04
NMi-VSL	2.381E-04	4.256E-04
NMIA	3.284E-05	1.526E-04
NMIJ	5.034E-05	1.017E-03
NPL	-1.566E-05	4.644E-05
NRC	-2.841E-05	4.572E-05
PTB	1.582E-04	2.158E-04
SMU	-	-
A*STAR	-1.660E-06	1.113E-04
VNIIOFI	-4.516E-05	5.951E-04

**CCPR-K6 Spectral regular transmittance - Filter C -  $\lambda = 380$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**

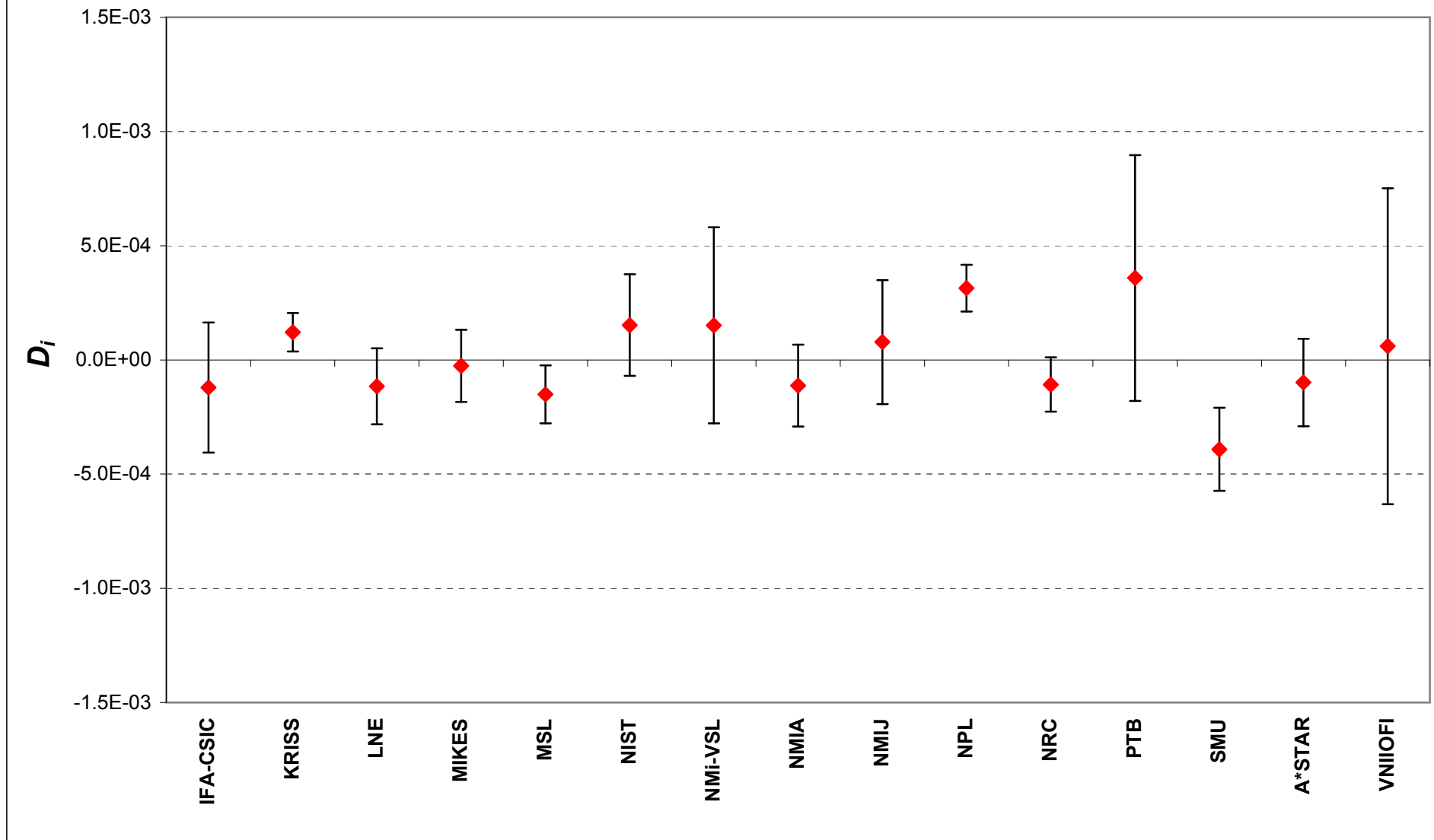




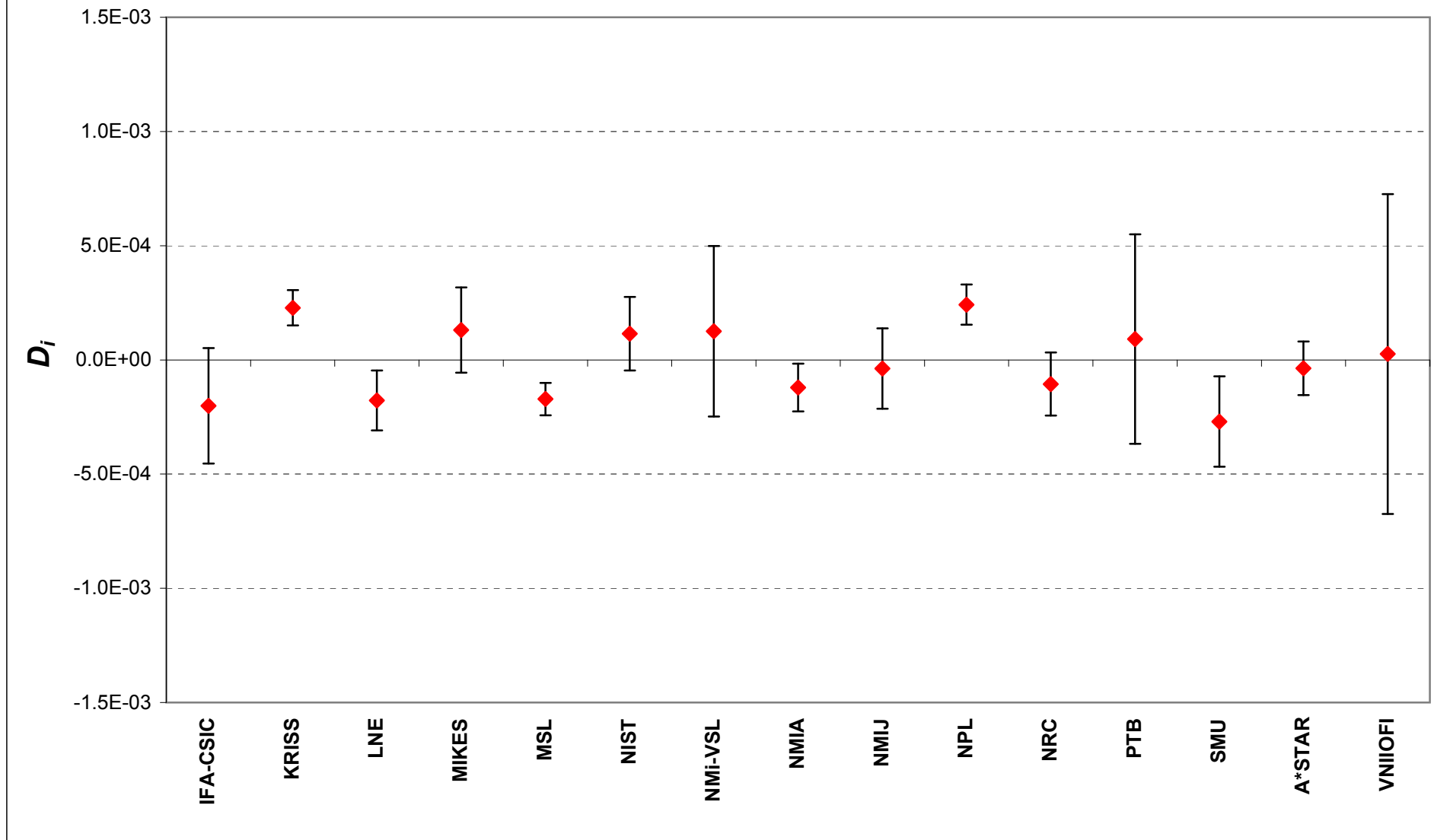
**CCPR-K6 Spectral regular transmittance - Filter C -  $\lambda = 400$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



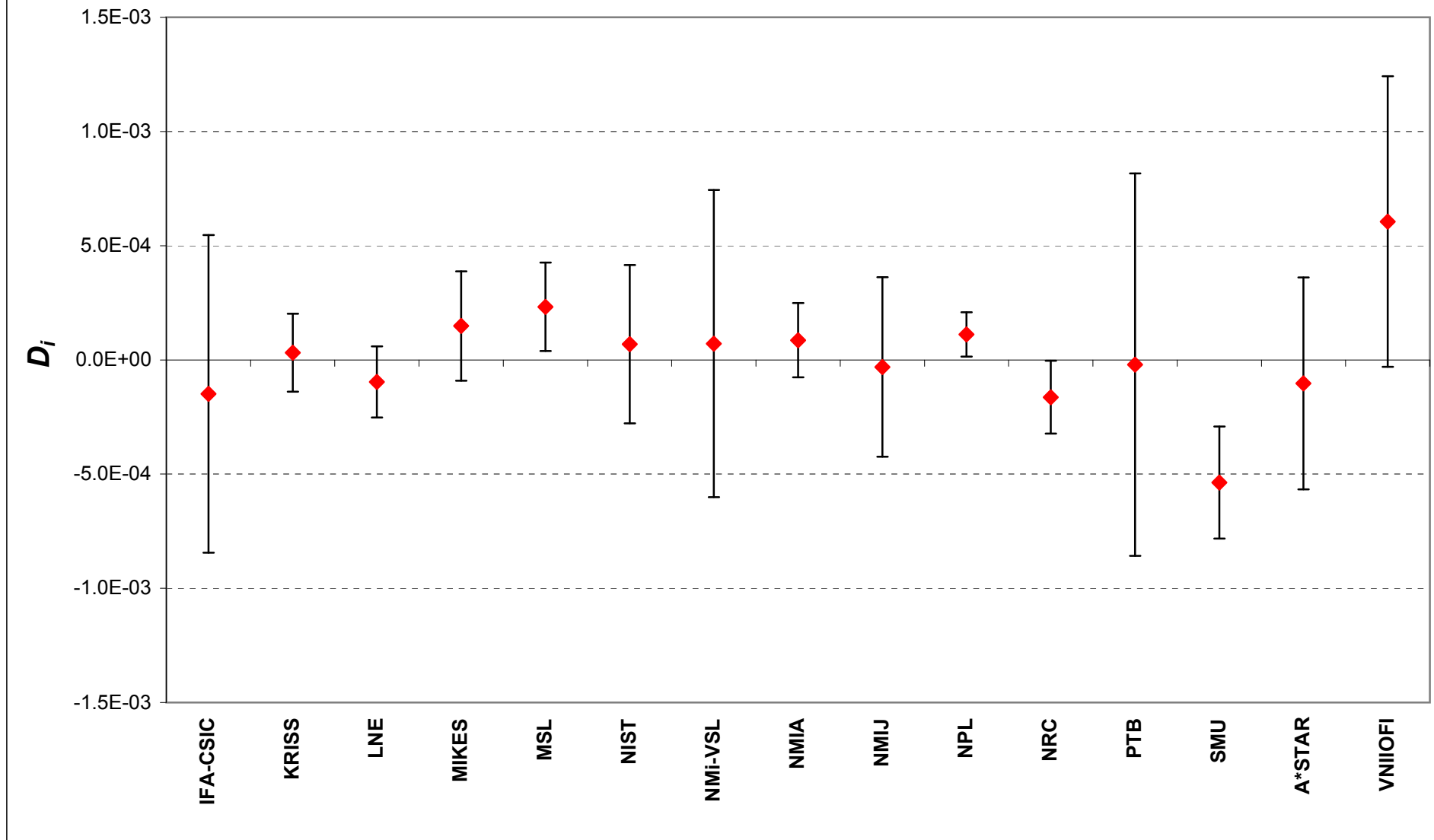
**CCPR-K6 Spectral regular transmittance - Filter C -  $\lambda = 500$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



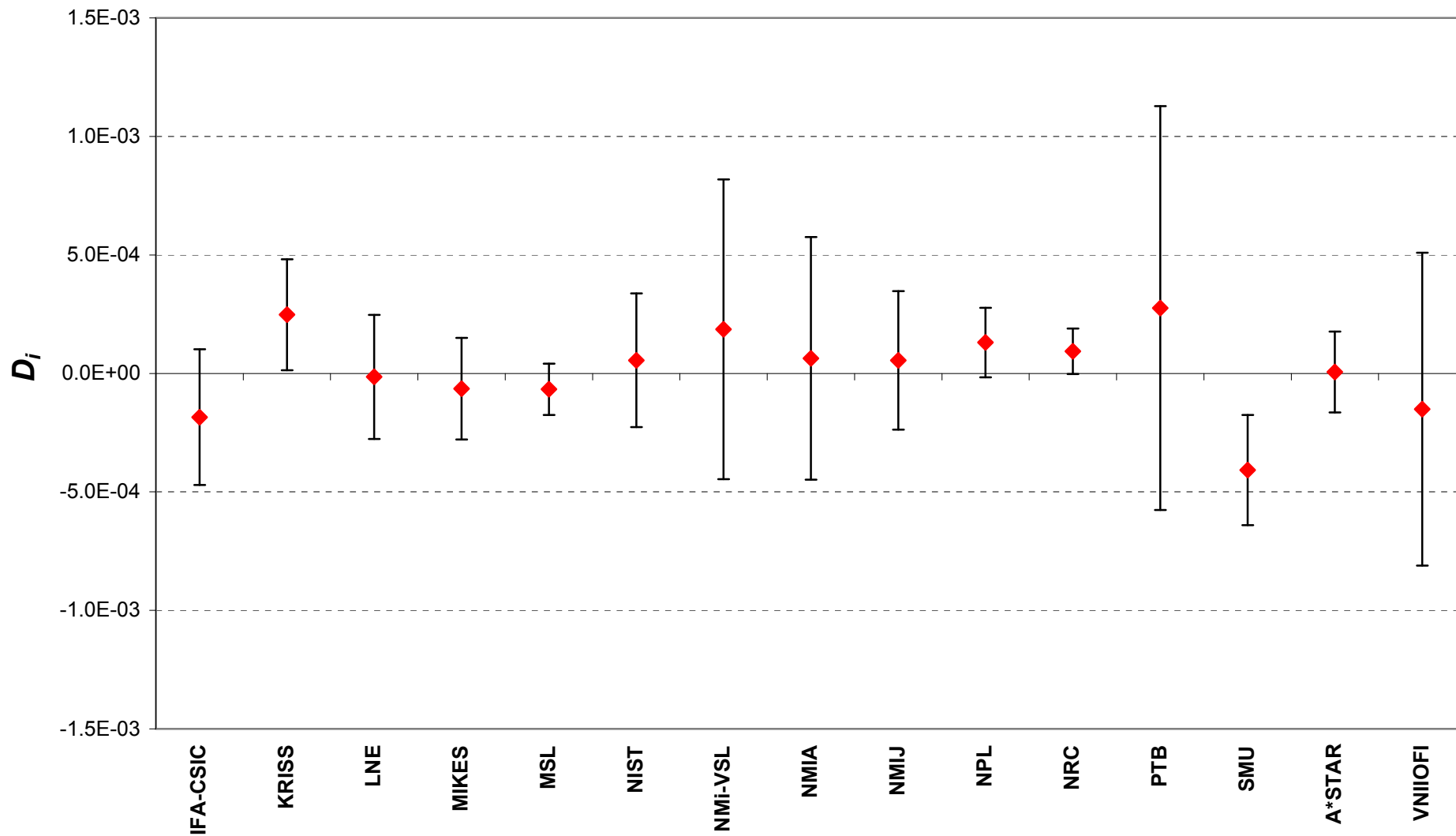
**CCPR-K6 Spectral regular transmittance - Filter C -  $\lambda = 600$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



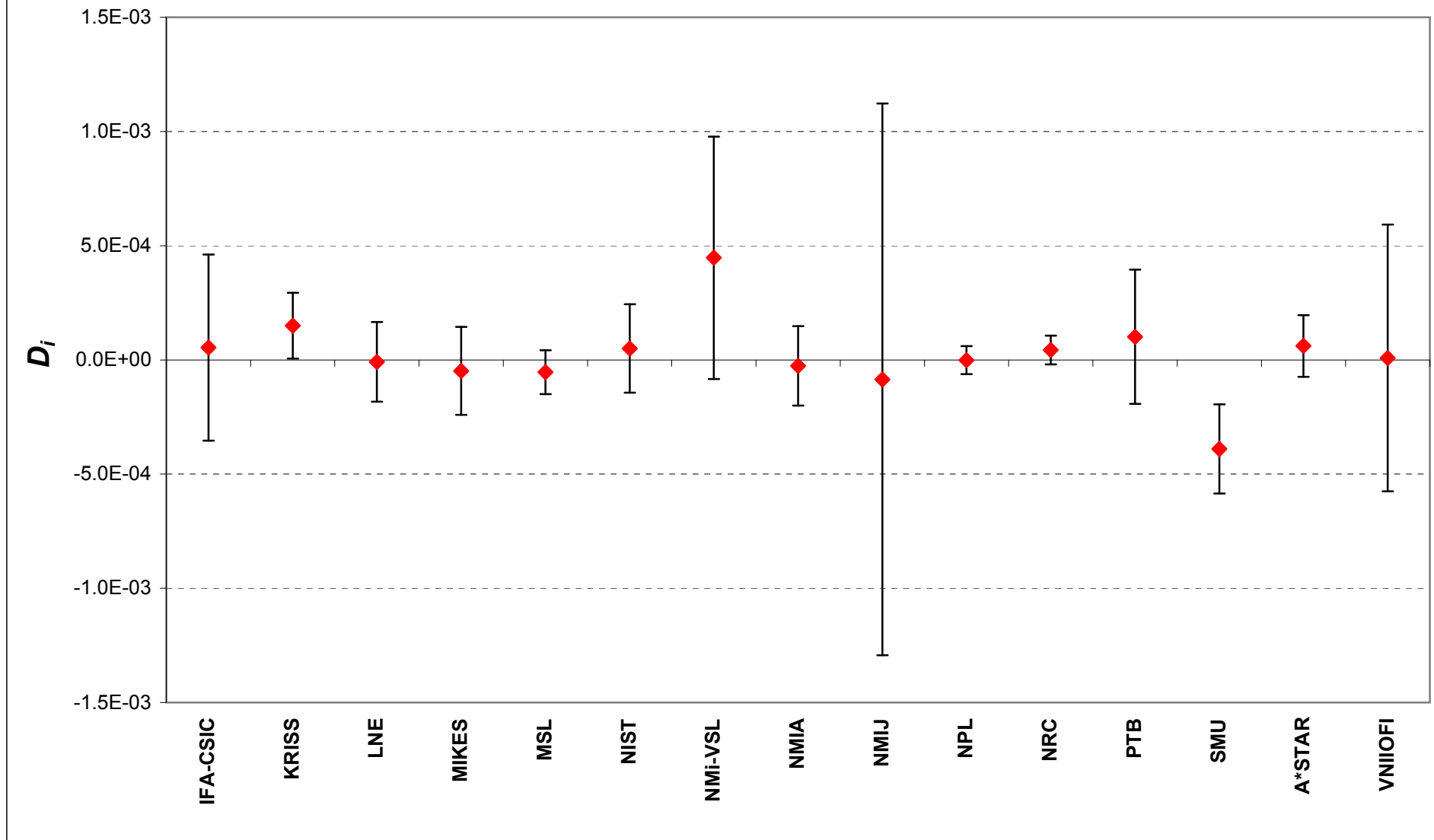
**CCPR-K6 Spectral regular transmittance - Filter C -  $\lambda = 700$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



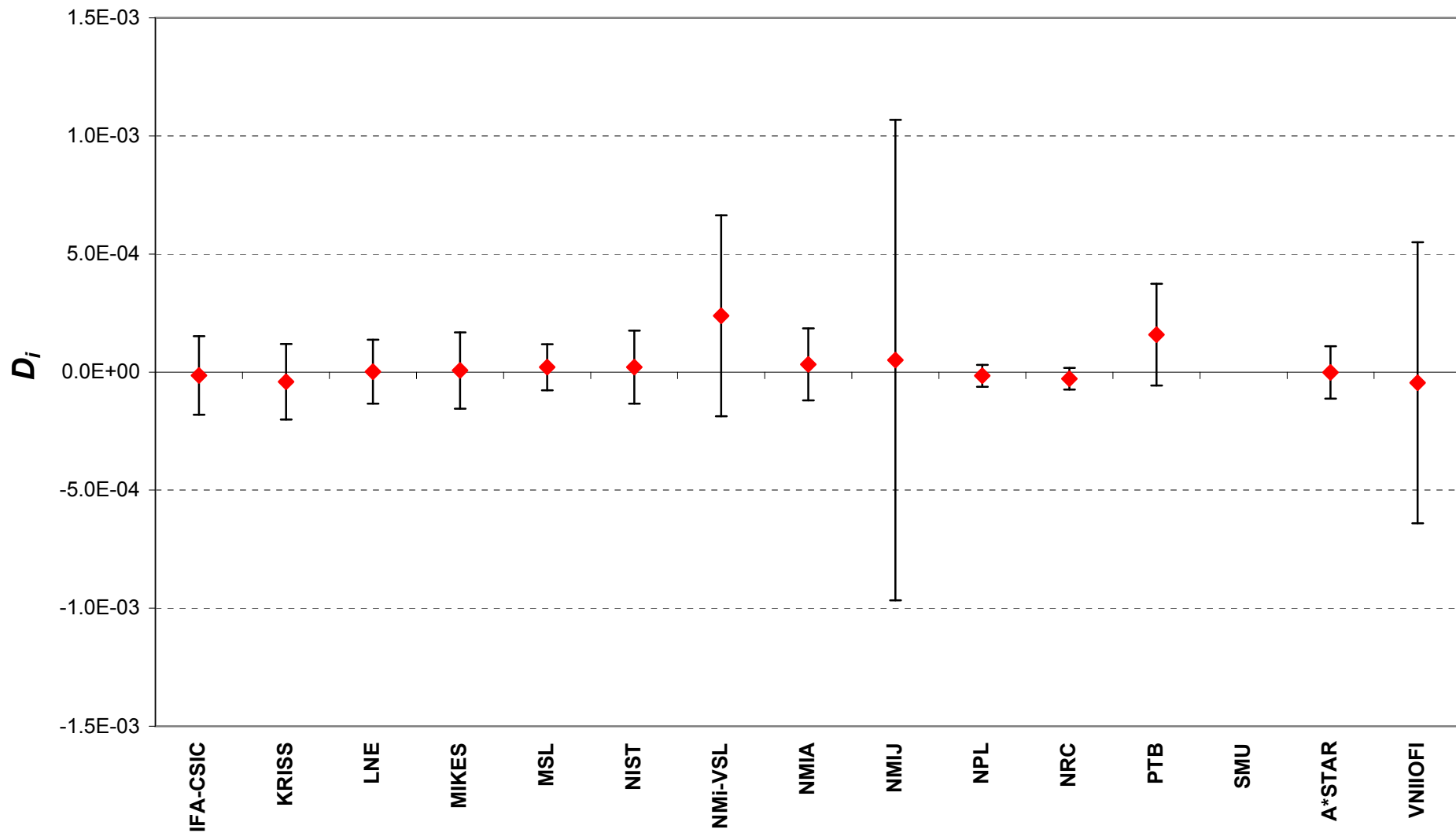
**CCPR-K6 Spectral regular transmittance - Filter C -  $\lambda = 800$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



**CCPR-K6 Spectral regular transmittance - Filter C -  $\lambda = 900$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



**CCPR-K6 Spectral regular transmittance - Filter C -  $\lambda = 1000$  nm**  
Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )



## Key comparison CCPR-K6

MEASURAND : Spectral regular transmittance

Lab <i>i</i>	Wavelength: 380 nm	
	$D_i$	$U_i$
IFA-CSIC	-4.886E-05	4.246E-05
KRISS	-1.091E-05	1.973E-05
LNE	1.599E-06	2.950E-05
MIKES	4.697E-05	3.430E-05
MSL	1.939E-05	2.818E-05
NIST	2.038E-05	6.193E-05
NMi-VSL	-2.030E-06	5.614E-05
NMIA	2.710E-05	1.180E-04
NMIJ	-1.319E-05	7.743E-05
NPL	-2.057E-05	2.651E-05
NRC	-3.214E-06	1.157E-05
PTB	-1.438E-05	3.213E-05
SMU	6.978E-06	1.638E-05
A*STAR	8.932E-06	3.042E-05
VNIIOFI	-2.294E-05	6.540E-04

Lab <i>i</i>	Wavelength: 500 nm	
	$D_i$	$U_i$
IFA-CSIC	-7.035E-06	2.736E-05
KRISS	3.273E-05	3.566E-05
LNE	-8.555E-06	2.257E-05
MIKES	1.288E-05	1.565E-05
MSL	-1.500E-05	4.447E-05
NIST	4.406E-05	4.532E-05
NMi-VSL	-7.313E-07	5.254E-05
NMIA	-2.287E-05	6.204E-05
NMIJ	-9.400E-06	6.726E-05
NPL	2.495E-06	2.190E-05
NRC	-9.793E-06	1.975E-05
PTB	-8.246E-06	5.608E-05
SMU	-2.728E-05	4.861E-05
A*STAR	-7.462E-06	3.268E-05
VNIIOFI	-1.655E-05	5.983E-04

## Degrees of equivalence for Filter D

Nominal transmittance at 546 nm: 1 %

All reported values are absolute

Lab <i>i</i>	Wavelength: 400 nm	
	$D_i$	$U_i$
IFA-CSIC	-9.919E-05	6.334E-05
KRISS	-6.535E-05	2.764E-05
LNE	1.185E-05	2.368E-05
MIKES	5.037E-05	2.714E-05
MSL	6.313E-05	3.393E-05
NIST	4.052E-05	5.484E-05
NMi-VSL	-3.011E-05	3.603E-05
NMIA	-3.655E-06	8.989E-05
NMIJ	2.362E-06	7.571E-05
NPL	-2.602E-05	2.041E-05
NRC	1.194E-05	2.570E-05
PTB	-1.745E-05	3.942E-05
SMU	-2.091E-05	4.586E-05
A*STAR	5.844E-05	5.000E-05
VNIIOFI	-6.162E-05	6.622E-04

Lab <i>i</i>	Wavelength: 600 nm	
	$D_i$	$U_i$
IFA-CSIC	-4.026E-05	2.762E-05
KRISS	4.727E-05	2.816E-05
LNE	-4.101E-05	2.917E-05
MIKES	2.298E-05	2.407E-05
MSL	-2.657E-05	4.437E-05
NIST	3.458E-05	3.412E-05
NMi-VSL	1.215E-05	6.303E-05
NMIA	-3.690E-05	6.277E-05
NMIJ	-7.012E-06	8.439E-05
NPL	2.055E-05	1.850E-05
NRC	-1.320E-05	2.760E-05
PTB	-2.865E-05	5.616E-05
SMU	-2.572E-05	4.387E-05
A*STAR	3.476E-06	5.176E-05
VNIIOFI	4.505E-07	6.281E-04



## Key comparison CCPR-K6

MEASURAND : Spectral regular transmittance

Lab <i>i</i>	Wavelength: 700 nm	
	$D_i$	$U_i$
IFA-CSIC	-5.891E-05	1.068E-04
KRISS	6.940E-05	9.470E-05
LNE	-3.374E-05	5.525E-05
MIKES	1.007E-04	5.097E-05
MSL	2.035E-05	1.147E-04
NIST	5.957E-05	9.329E-05
NMi-VSL	2.424E-05	1.449E-04
NMIA	2.300E-05	1.183E-04
NMIJ	-1.200E-05	1.028E-04
NPL	6.769E-06	4.430E-05
NRC	-3.783E-05	4.611E-05
PTB	-7.294E-05	1.296E-04
SMU	-1.114E-04	8.845E-05
A*STAR	-1.813E-05	1.840E-04
VNIIOFI	2.112E-04	5.707E-04

Lab <i>i</i>	Wavelength: 900 nm	
	$D_i$	$U_i$
IFA-CSIC	5.728E-06	4.580E-05
KRISS	-2.911E-05	2.990E-05
LNE	4.104E-06	4.531E-05
MIKES	1.145E-05	3.923E-05
MSL	-1.645E-05	8.108E-05
NIST	2.597E-05	5.219E-05
NMi-VSL	-6.347E-06	1.118E-04
NMIA	8.644E-05	1.639E-04
NMIJ	1.664E-05	1.178E-03
NPL	-1.361E-06	2.630E-05
NRC	1.962E-05	1.900E-05
PTB	5.666E-05	9.084E-05
SMU	-7.880E-05	7.454E-05
A*STAR	-1.012E-05	4.632E-05
VNIIOFI	-1.093E-05	6.081E-04

## Degrees of equivalence for Filter D

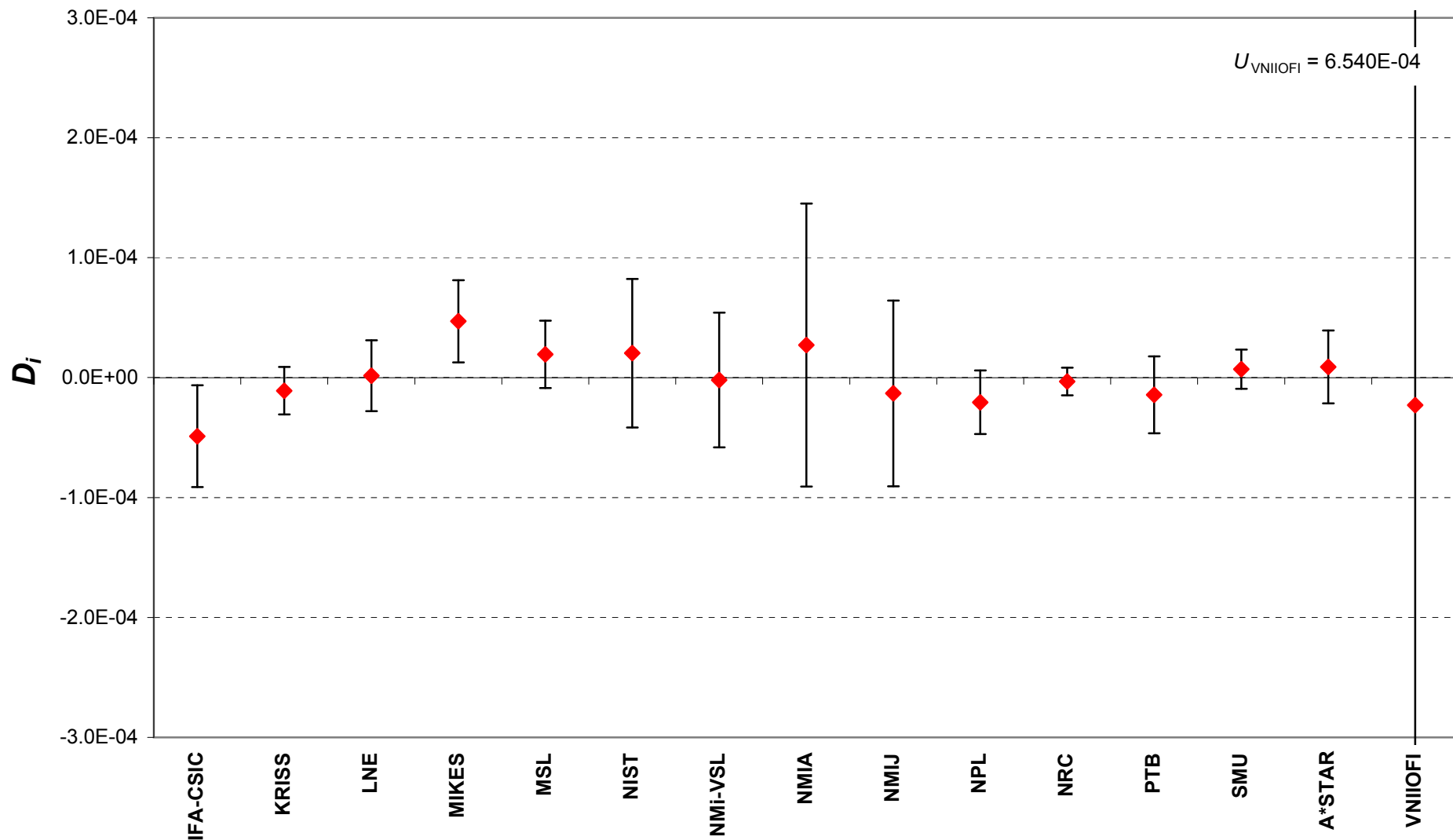
Nominal transmittance at 546 nm: 1 %

All reported values are absolute

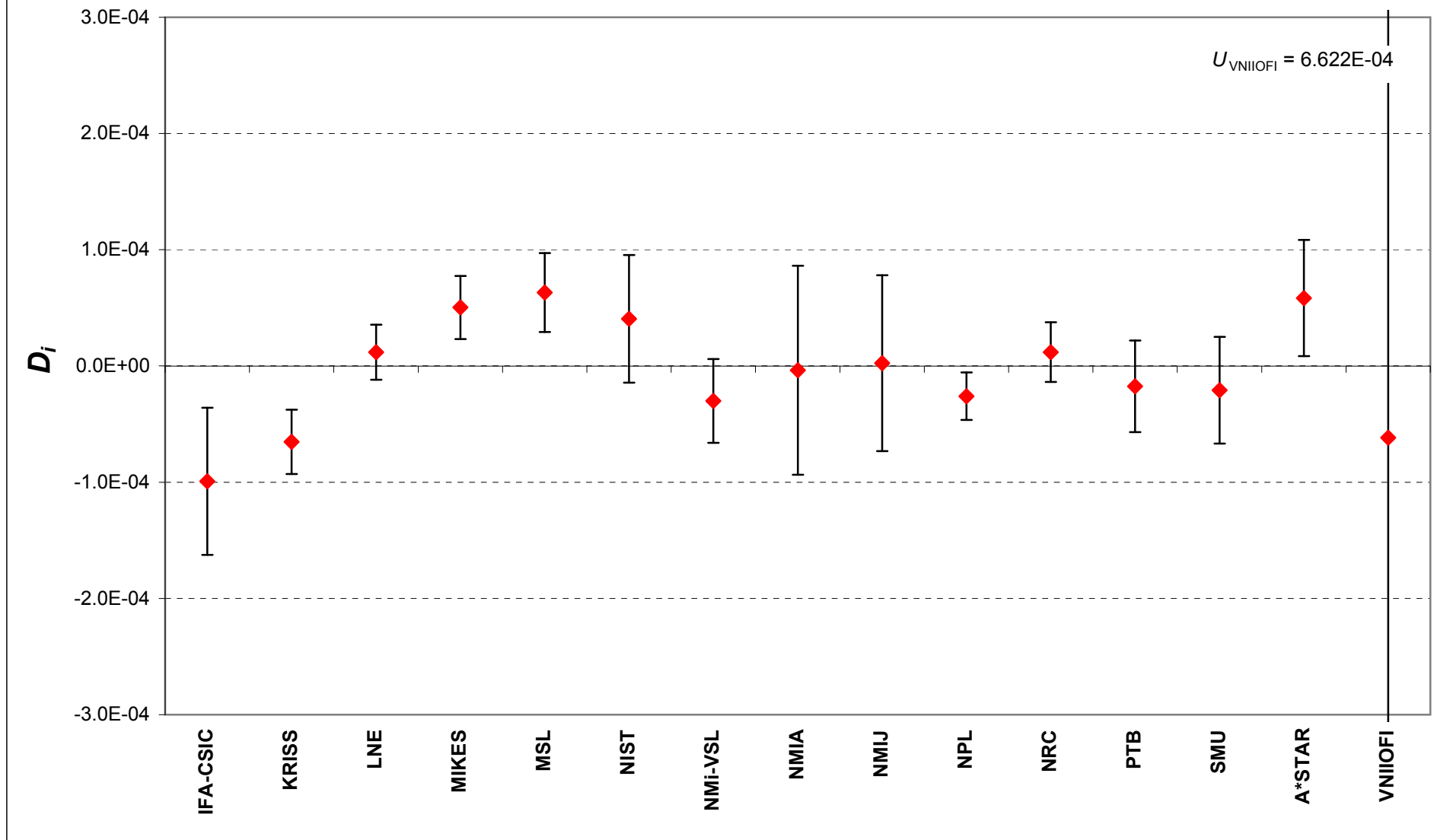
Lab <i>i</i>	Wavelength: 800 nm	
	$D_i$	$U_i$
IFA-CSIC	-9.859E-05	5.253E-05
KRISS	4.899E-05	3.588E-05
LNE	-6.546E-06	6.089E-05
MIKES	1.464E-05	5.321E-05
MSL	-3.032E-06	1.049E-04
NIST	-2.094E-05	1.538E-04
NMi-VSL	9.077E-05	1.743E-04
NMIA	2.369E-05	2.961E-04
NMIJ	2.793E-05	8.228E-05
NPL	3.675E-05	3.963E-05
NRC	1.163E-05	3.733E-05
PTB	2.990E-05	2.253E-04
SMU	-1.164E-04	9.684E-05
A*STAR	-6.850E-06	6.734E-05
VNIIOFI	7.777E-06	6.029E-04

Lab <i>i</i>	Wavelength: 1000 nm	
	$D_i$	$U_i$
IFA-CSIC	9.942E-05	4.055E-05
KRISS	-6.370E-05	2.626E-05
LNE	3.835E-06	3.548E-05
MIKES	2.101E-05	3.323E-05
MSL	2.035E-07	6.676E-05
NIST	-3.192E-06	4.811E-05
NMi-VSL	-3.646E-05	8.361E-05
NMIA	7.118E-05	9.597E-05
NMIJ	-2.537E-05	1.030E-03
NPL	-1.192E-05	3.150E-05
NRC	4.595E-06	1.799E-05
PTB	4.045E-05	7.154E-05
SMU	-	-
A*STAR	-6.843E-06	2.597E-05
VNIIOFI	-6.447E-06	6.161E-04

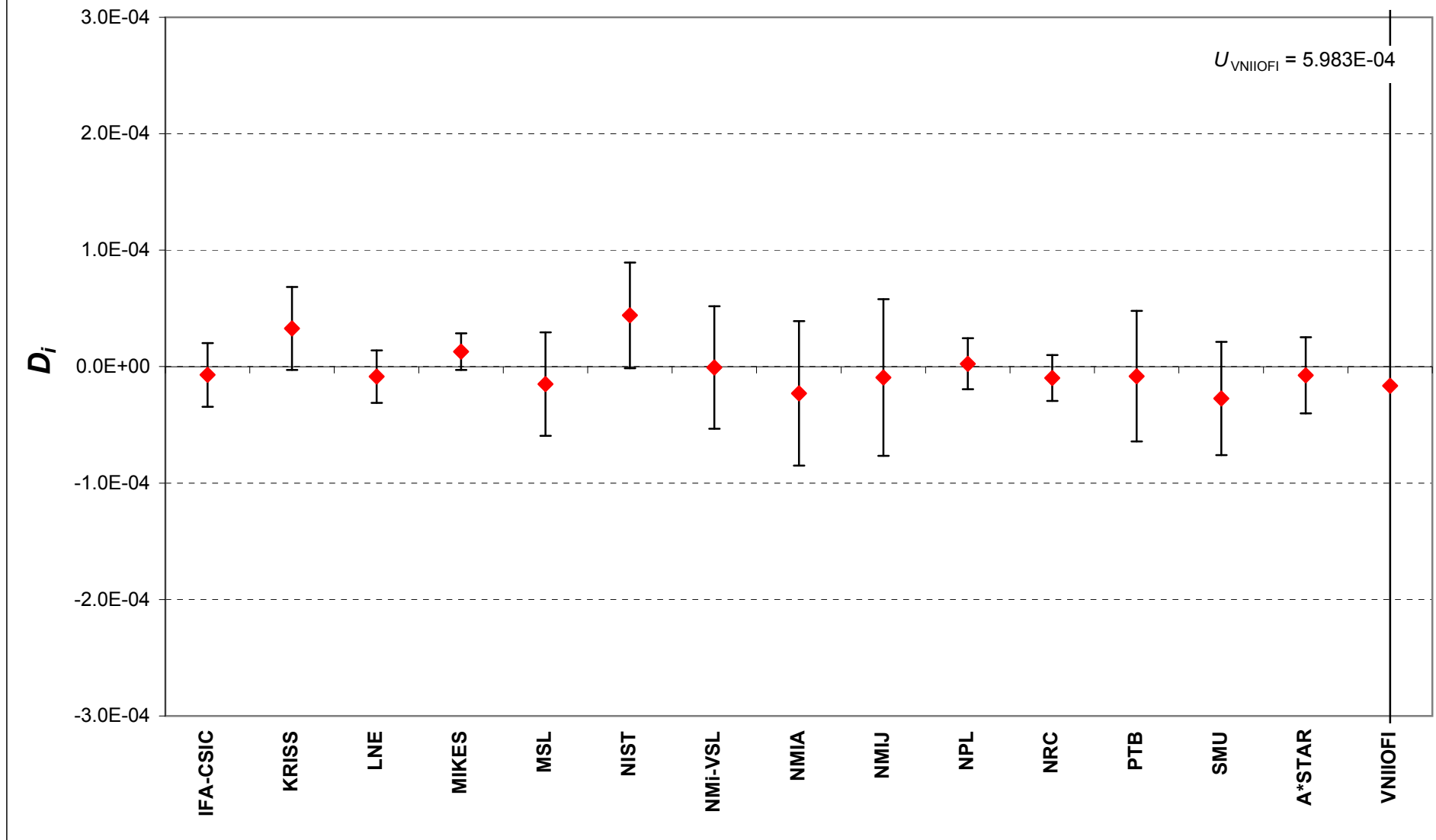
**CCPR-K6 Spectral regular transmittance - Filter D -  $\lambda = 380$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



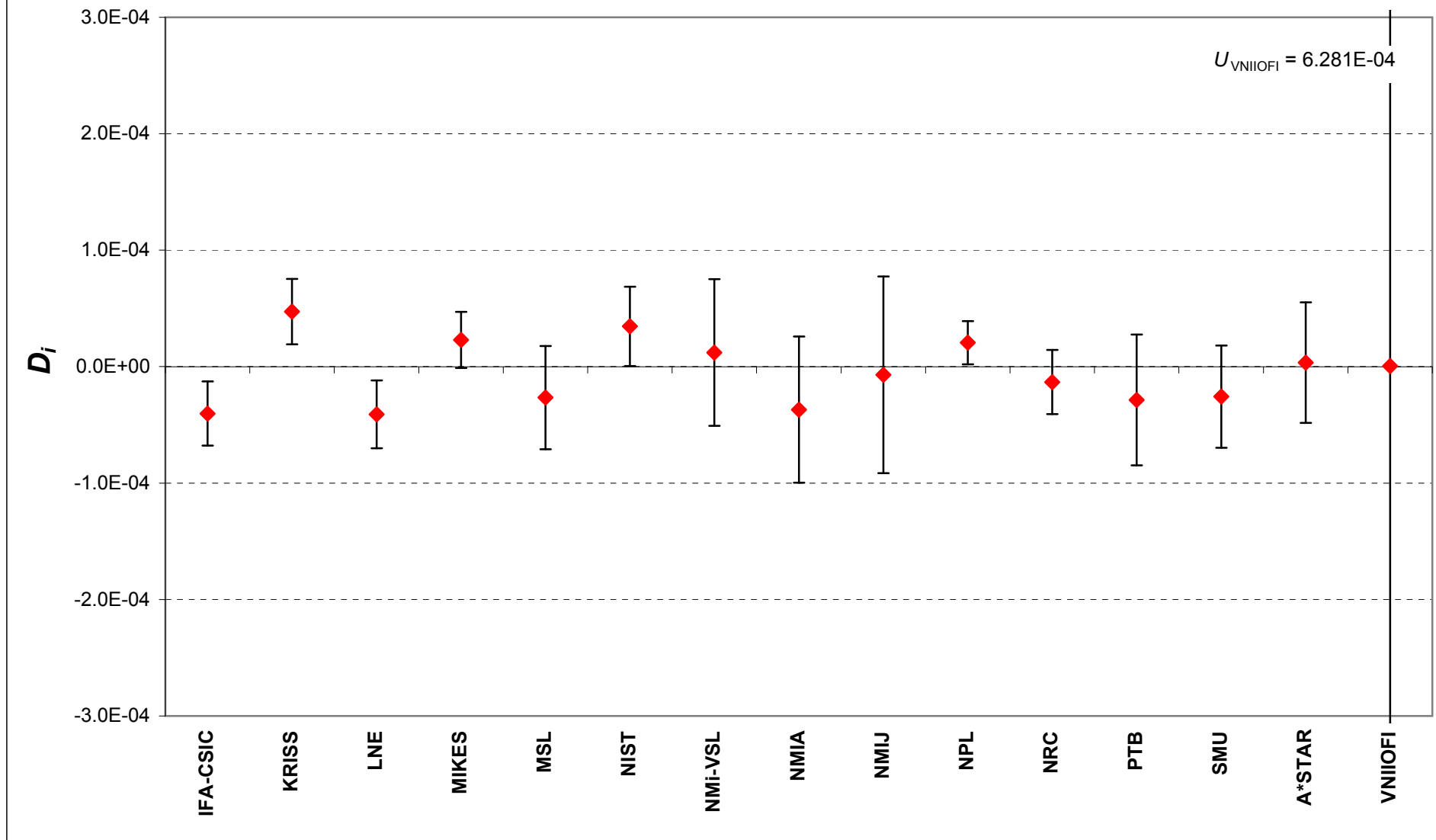
**CCPR-K6 Spectral regular transmittance - Filter D -  $\lambda = 400$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



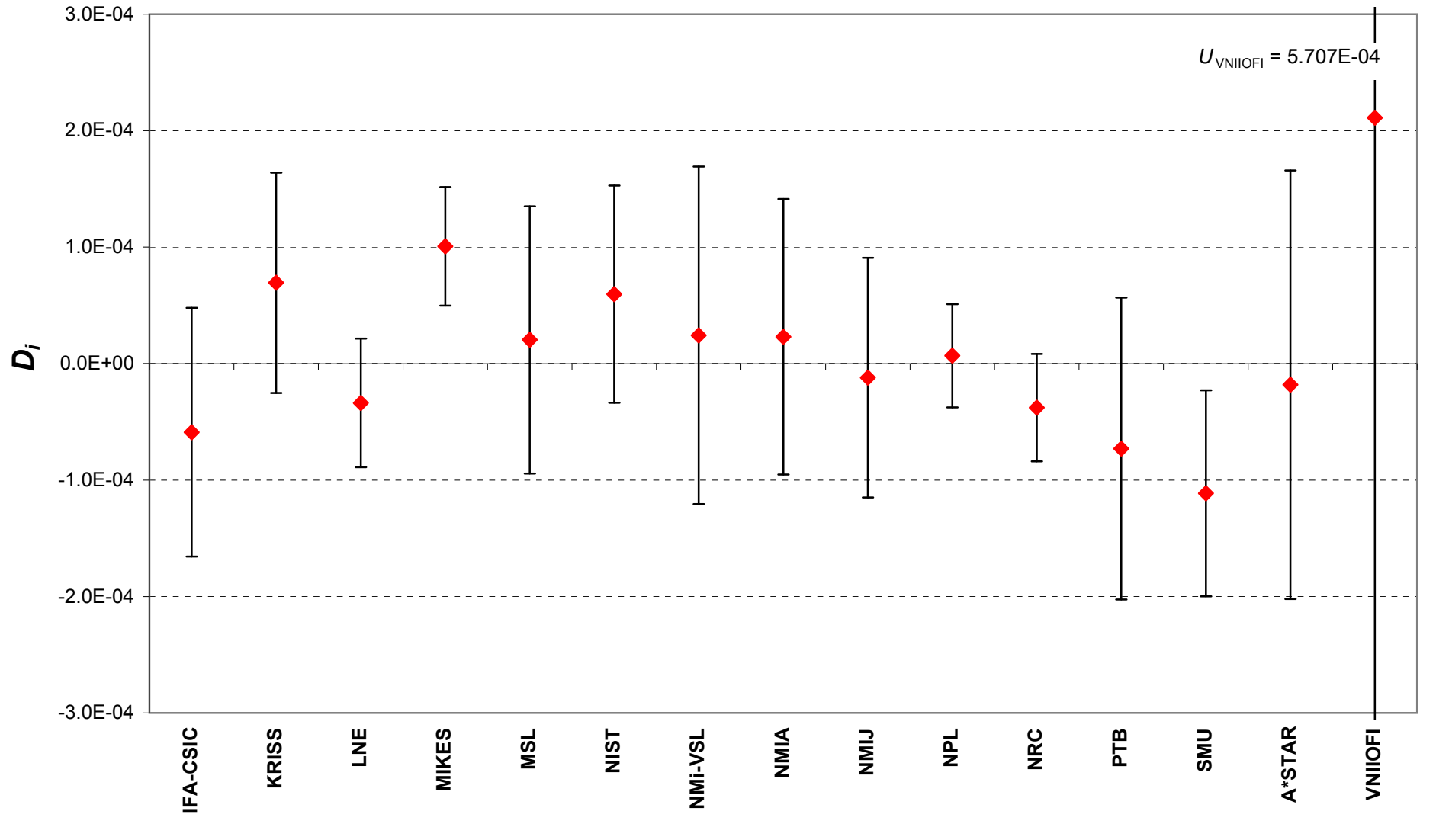
**CCPR-K6 Spectral regular transmittance - Filter D -  $\lambda = 500$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



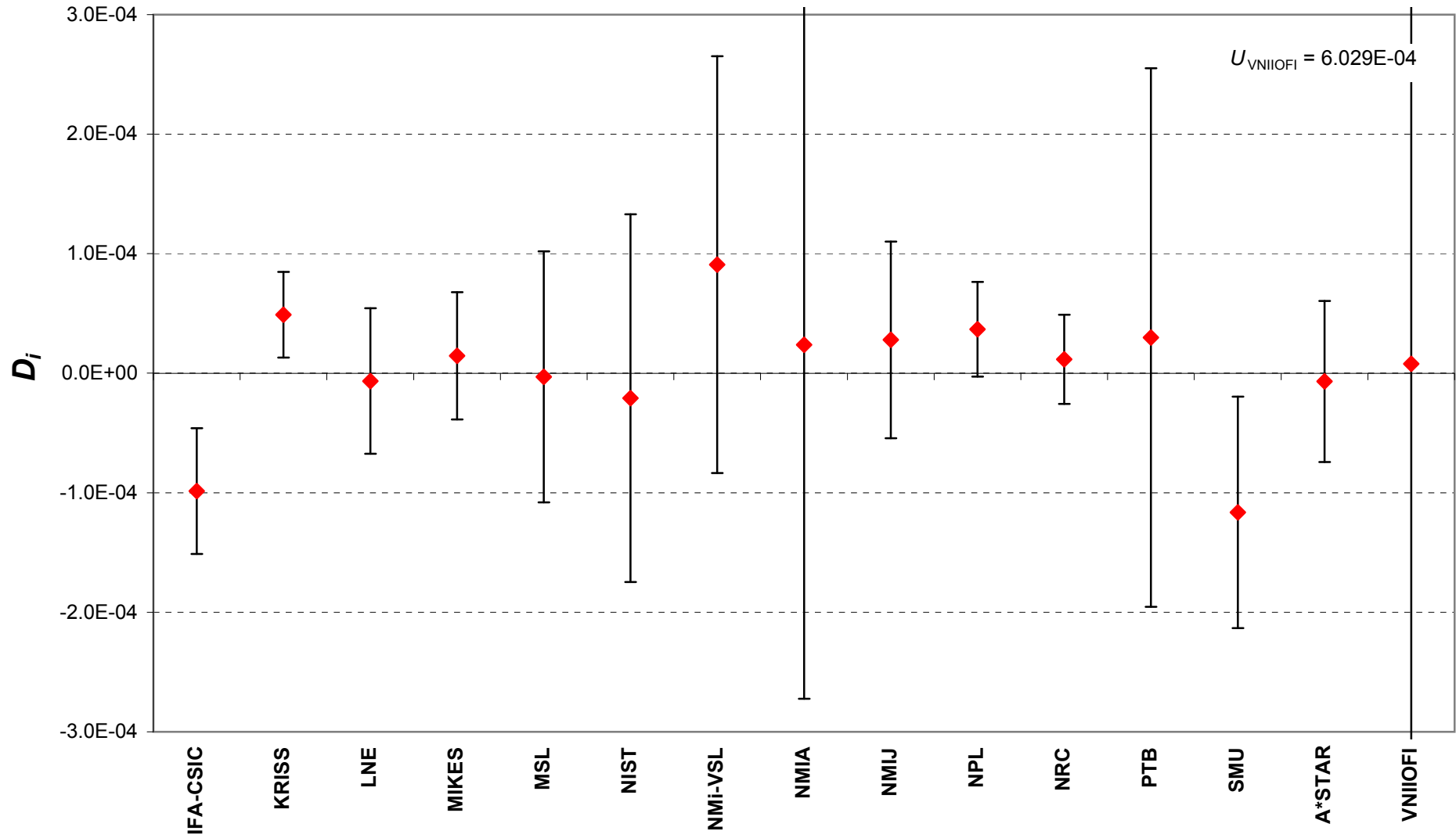
**CCPR-K6 Spectral regular transmittance - Filter D -  $\lambda = 600$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



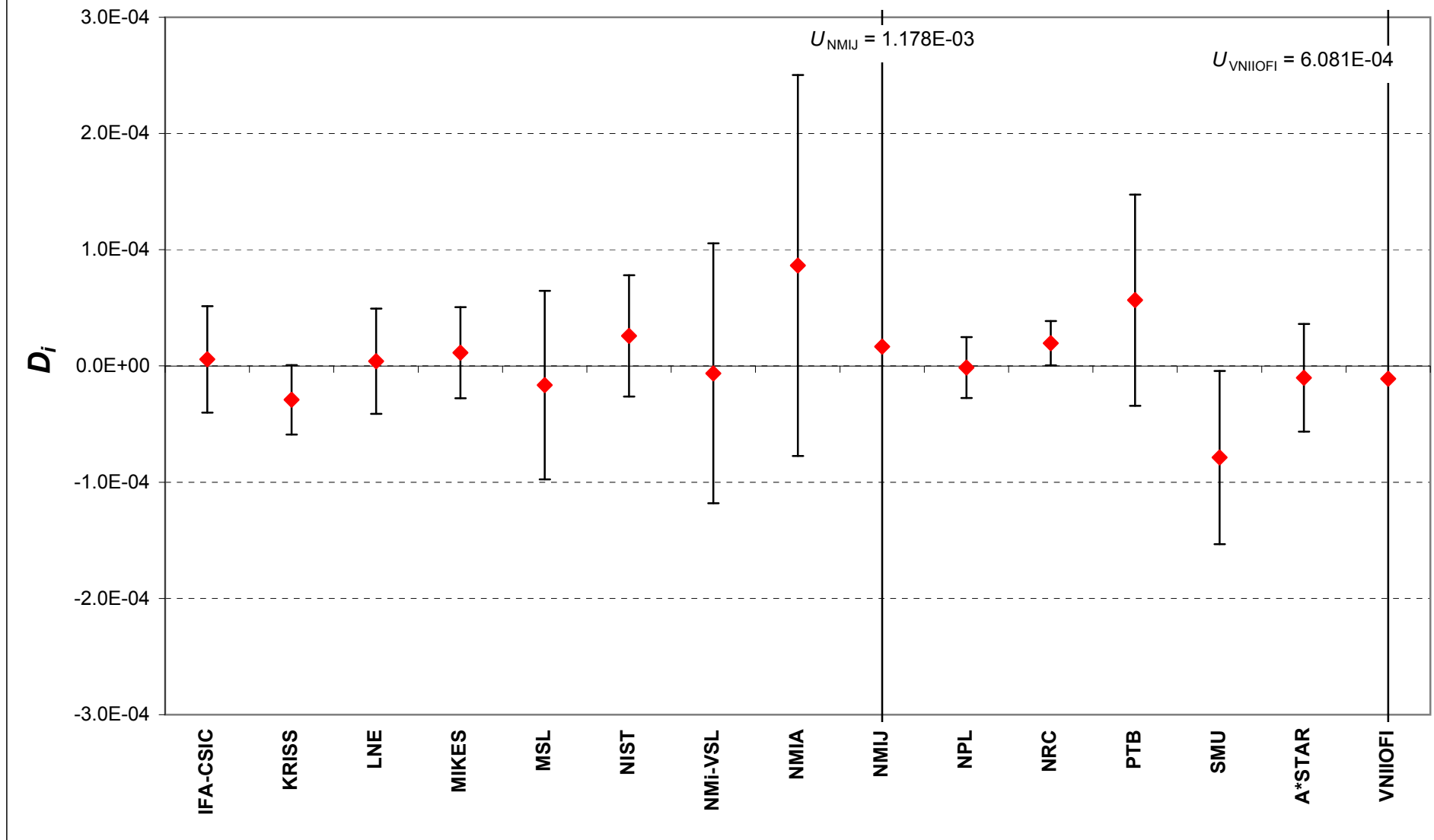
**CCPR-K6 Spectral regular transmittance - Filter D -  $\lambda = 700$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



**CCPR-K6 Spectral regular transmittance - Filter D -  $\lambda = 800$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**

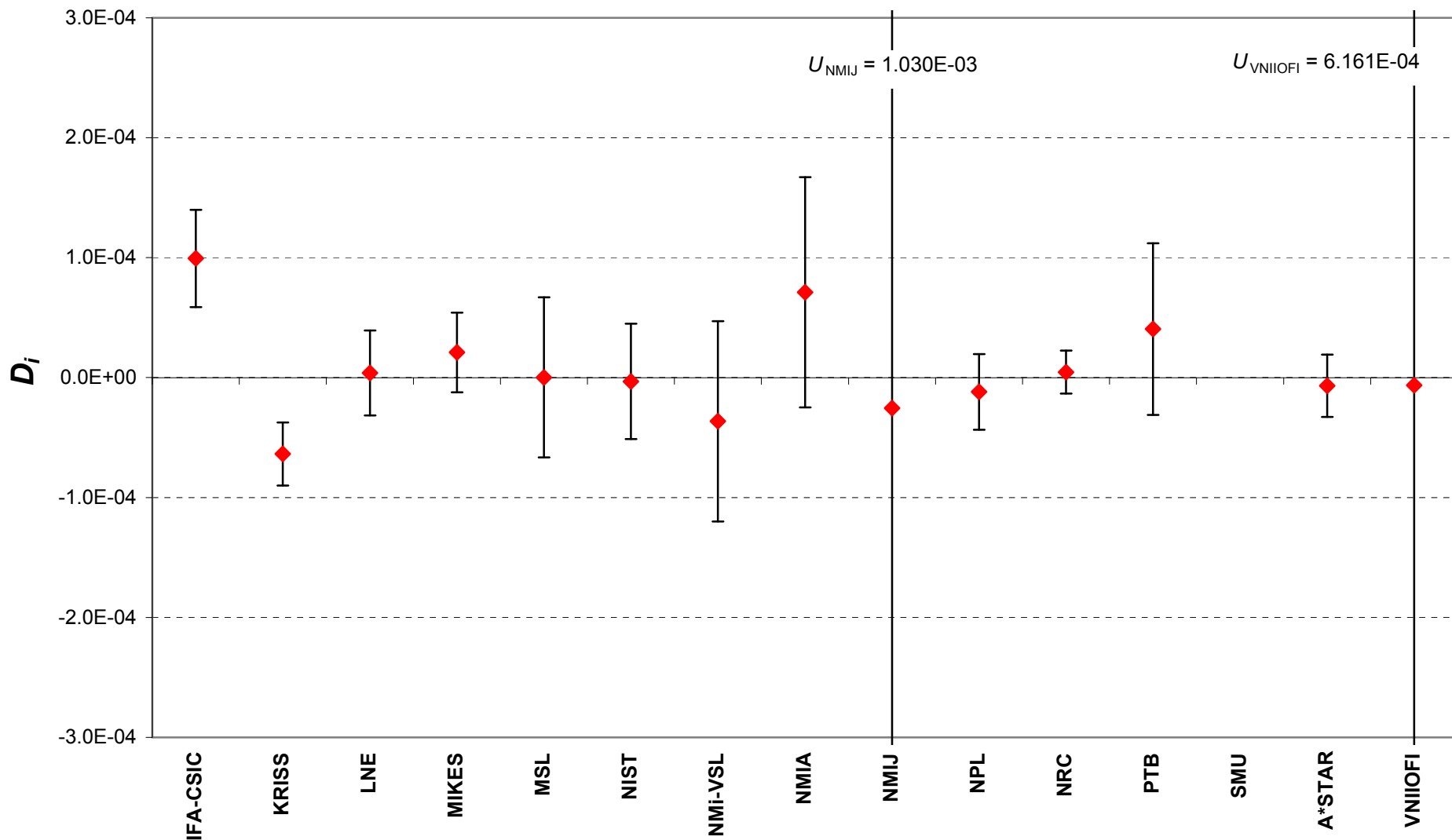


**CCPR-K6 Spectral regular transmittance - Filter D -  $\lambda = 900$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**





**CCPR-K6 Spectral regular transmittance - Filter D -  $\lambda = 1000$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



## Key comparison CCPR-K6

MEASURAND : Spectral regular transmittance

Lab <i>i</i>	Wavelength: 380 nm	
	$D_i$	$U_i$
IFA-CSIC	7.840E-05	1.016E-04
KRISS	2.498E-06	1.257E-05
LNE	-1.049E-06	1.406E-05
MIKES	2.338E-07	1.906E-05
MSL	1.256E-06	1.766E-05
NIST	4.332E-06	4.205E-05
NMi-VSL	-1.630E-06	2.028E-05
NMIA	-	-
NMIJ	-5.783E-07	6.407E-05
NPL	-1.921E-06	8.463E-06
NRC	-4.058E-06	2.034E-05
PTB	-7.642E-06	1.813E-05
SMU	6.279E-06	1.333E-05
A*STAR	6.442E-09	1.411E-05
VNIIOFI	9.914E-05	6.583E-04

Lab <i>i</i>	Wavelength: 500 nm	
	$D_i$	$U_i$
IFA-CSIC	-2.985E-05	2.078E-05
KRISS	1.537E-06	3.779E-06
LNE	-2.954E-06	6.142E-06
MIKES	3.731E-06	6.680E-06
MSL	-1.711E-06	1.744E-05
NIST	4.460E-06	6.231E-06
NMi-VSL	-6.609E-07	1.171E-05
NMIA	-1.145E-05	4.011E-05
NMIJ	-1.102E-05	6.617E-05
NPL	-4.516E-06	7.668E-06
NRC	-3.987E-07	9.786E-06
PTB	4.892E-07	8.100E-06
SMU	5.598E-06	9.222E-06
A*STAR	-2.633E-06	7.393E-06
VNIIOFI	-1.594E-05	6.140E-04

## Degrees of equivalence for Filter E

Nominal transmittance at 546 nm: 0.1 %

All reported values are absolute

Lab <i>i</i>	Wavelength: 400 nm	
	$D_i$	$U_i$
IFA-CSIC	6.807E-05	8.056E-05
KRISS	-1.978E-06	7.732E-06
LNE	6.444E-09	8.025E-06
MIKES	6.766E-07	8.462E-06
MSL	3.936E-06	1.769E-05
NIST	-2.309E-06	6.131E-05
NMi-VSL	-2.071E-06	3.839E-06
NMIA	-4.870E-05	5.824E-05
NMIJ	-1.455E-06	6.605E-05
NPL	-7.880E-07	9.120E-06
NRC	-3.766E-06	6.875E-06
PTB	-7.490E-07	9.127E-06
SMU	6.262E-06	6.969E-06
A*STAR	4.441E-06	7.735E-06
VNIIOFI	-3.343E-05	6.181E-04

Lab <i>i</i>	Wavelength: 600 nm	
	$D_i$	$U_i$
IFA-CSIC	4.551E-06	1.285E-05
KRISS	1.093E-05	3.255E-05
LNE	-8.210E-06	1.001E-05
MIKES	3.908E-06	1.069E-05
MSL	-4.349E-06	1.787E-05
NIST	4.635E-06	7.636E-06
NMi-VSL	-8.743E-07	1.209E-05
NMIA	-2.713E-06	4.225E-05
NMIJ	-1.356E-05	6.619E-05
NPL	-1.443E-06	7.597E-06
NRC	-4.165E-06	7.603E-06
PTB	-4.705E-06	1.111E-05
SMU	9.800E-06	1.157E-05
A*STAR	8.356E-07	6.426E-06
VNIIOFI	-4.087E-06	6.360E-04

## Key comparison CCPR-K6

MEASURAND : Spectral regular transmittance

## Degrees of equivalence for Filter E

Nominal transmittance at 546 nm: 0.1 %

All reported values are absolute

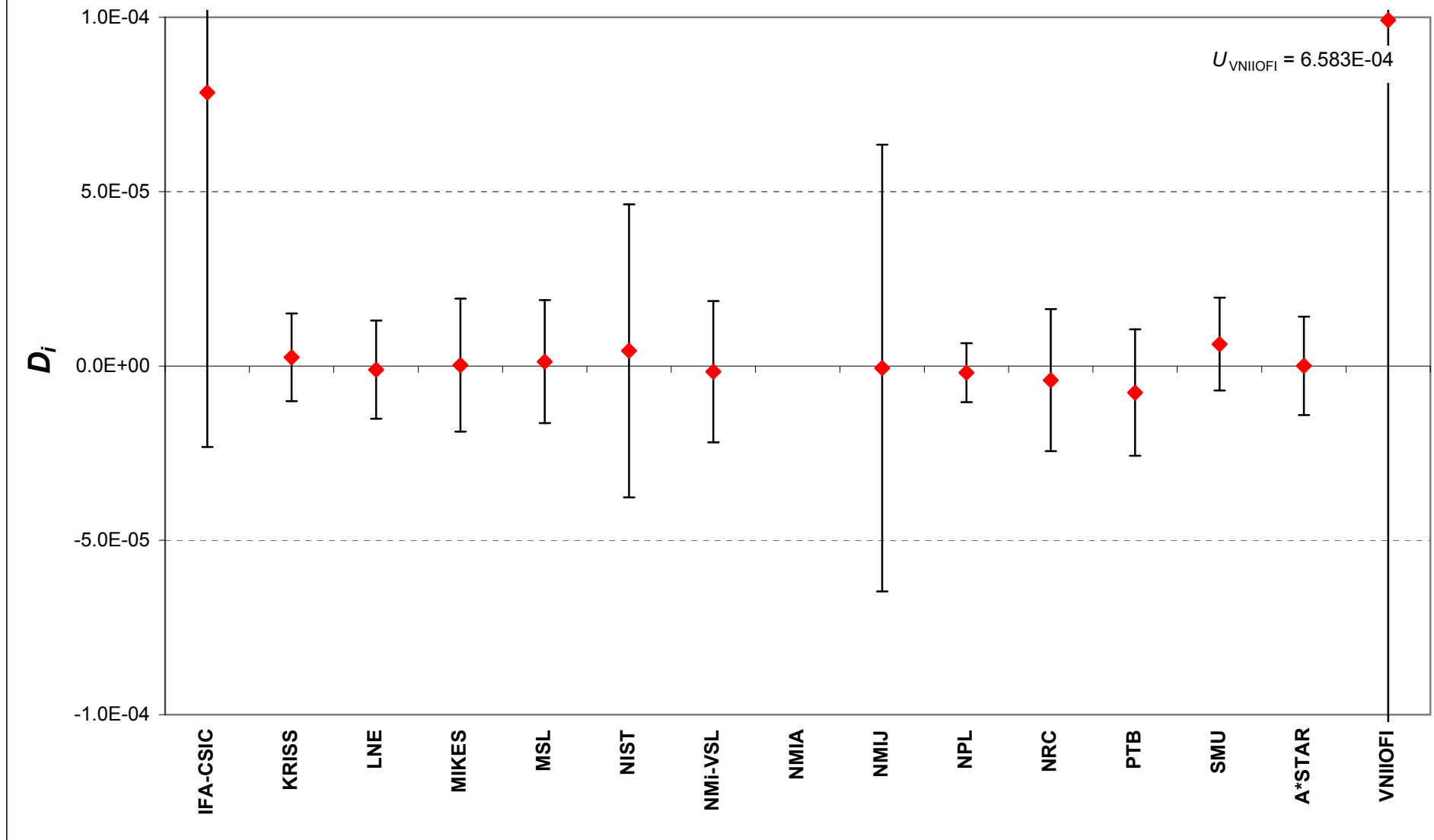
Lab <i>i</i>	Wavelength: 700 nm	
	$D_i$	$U_i$
IFA-CSIC	-1.505E-05	2.605E-05
KRISS	3.836E-05	5.074E-05
LNE	-7.620E-06	2.063E-05
MIKES	1.999E-05	2.054E-05
MSL	1.048E-05	3.039E-05
NIST	1.358E-05	3.559E-05
NMi-VSL	6.554E-07	3.719E-05
NMIA	-3.462E-05	6.849E-05
NMIJ	-1.616E-05	6.896E-05
NPL	-1.843E-06	2.550E-05
NRC	3.757E-06	1.827E-05
PTB	-1.373E-05	3.561E-05
SMU	-1.562E-05	3.033E-05
A*STAR	-5.719E-06	4.371E-05
VNIIOFI	4.379E-05	5.621E-04

Lab <i>i</i>	Wavelength: 800 nm	
	$D_i$	$U_i$
IFA-CSIC	6.389E-05	2.310E-05
KRISS	-5.613E-06	1.821E-05
LNE	-1.543E-05	2.232E-05
MIKES	-1.053E-05	1.949E-05
MSL	-6.210E-06	2.942E-05
NIST	8.533E-06	4.099E-05
NMi-VSL	-2.075E-05	6.438E-05
NMIA	2.677E-04	3.741E-04
NMIJ	-2.814E-05	6.845E-05
NPL	9.232E-06	1.994E-05
NRC	-4.962E-06	1.870E-05
PTB	-1.555E-05	5.734E-05
SMU	-5.503E-05	3.920E-05
A*STAR	-6.917E-06	3.124E-05
VNIIOFI	-1.768E-05	6.160E-04

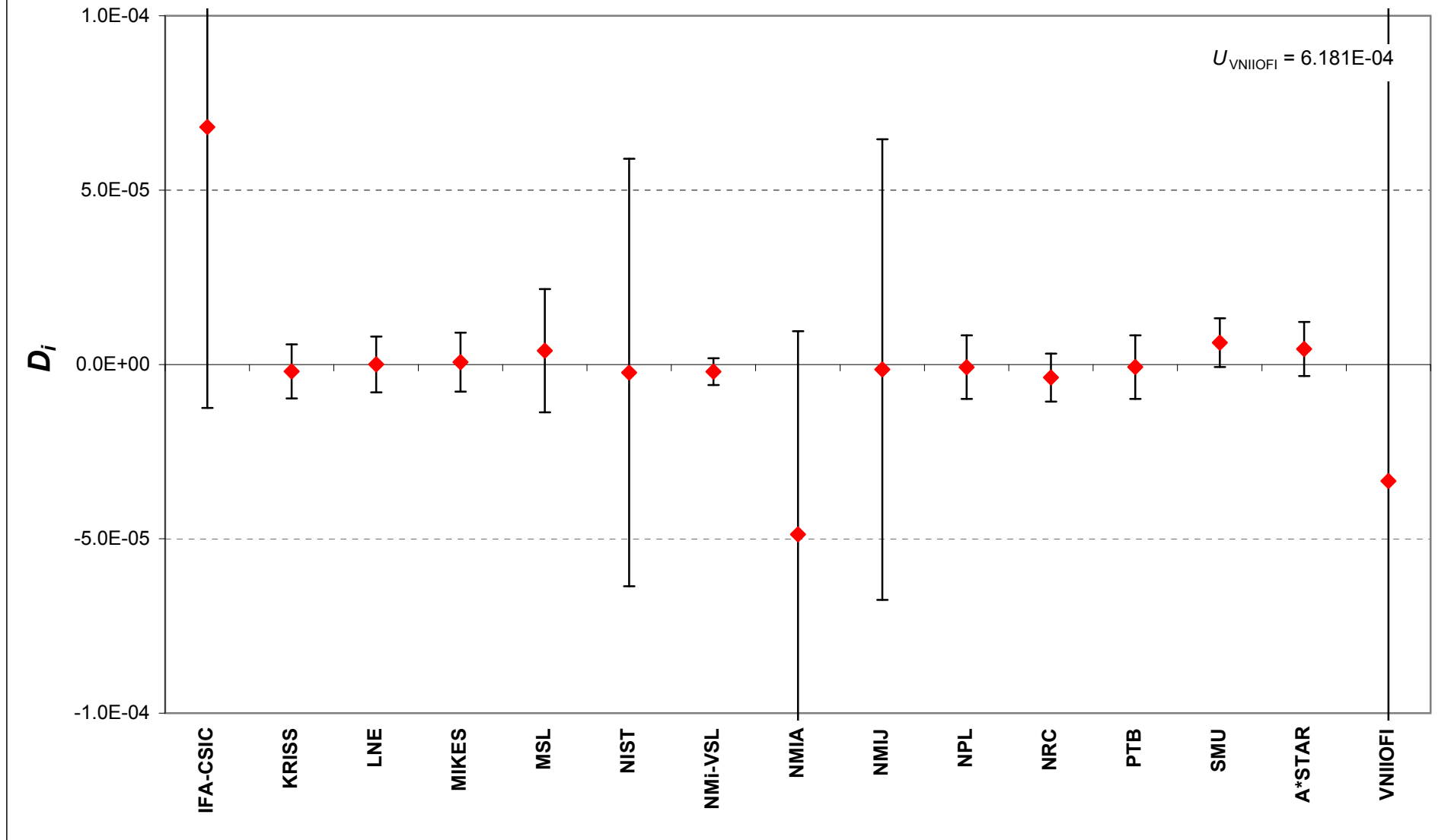
Lab <i>i</i>	Wavelength: 900 nm	
	$D_i$	$U_i$
IFA-CSIC	1.296E-05	2.033E-05
KRISS	-1.752E-05	1.222E-05
LNE	2.187E-06	1.757E-05
MIKES	6.480E-06	1.878E-05
MSL	3.958E-06	2.628E-05
NIST	1.270E-05	2.387E-05
NMi-VSL	-1.178E-05	5.560E-05
NMIA	3.380E-05	1.960E-04
NMIJ	-7.750E-06	1.194E-03
NPL	-3.229E-06	1.545E-05
NRC	1.733E-06	1.244E-05
PTB	5.115E-05	5.789E-05
SMU	-3.968E-05	3.648E-05
A*STAR	1.503E-06	2.146E-05
VNIIOFI	-2.235E-05	6.020E-04

Lab <i>i</i>	Wavelength: 1000 nm	
	$D_i$	$U_i$
IFA-CSIC	1.360E-05	2.422E-05
KRISS	-2.973E-05	1.127E-05
LNE	9.511E-06	1.559E-05
MIKES	1.752E-05	1.669E-05
MSL	1.619E-05	2.391E-05
NIST	8.853E-06	4.345E-05
NMi-VSL	-1.589E-05	4.696E-05
NMIA	-9.105E-05	1.019E-04
NMIJ	2.363E-05	1.006E-03
NPL	3.417E-06	1.981E-05
NRC	-3.953E-06	1.109E-05
PTB	2.113E-05	3.065E-05
SMU	-	-
A*STAR	-2.943E-06	1.793E-05
VNIIOFI	-1.473E-05	6.300E-04

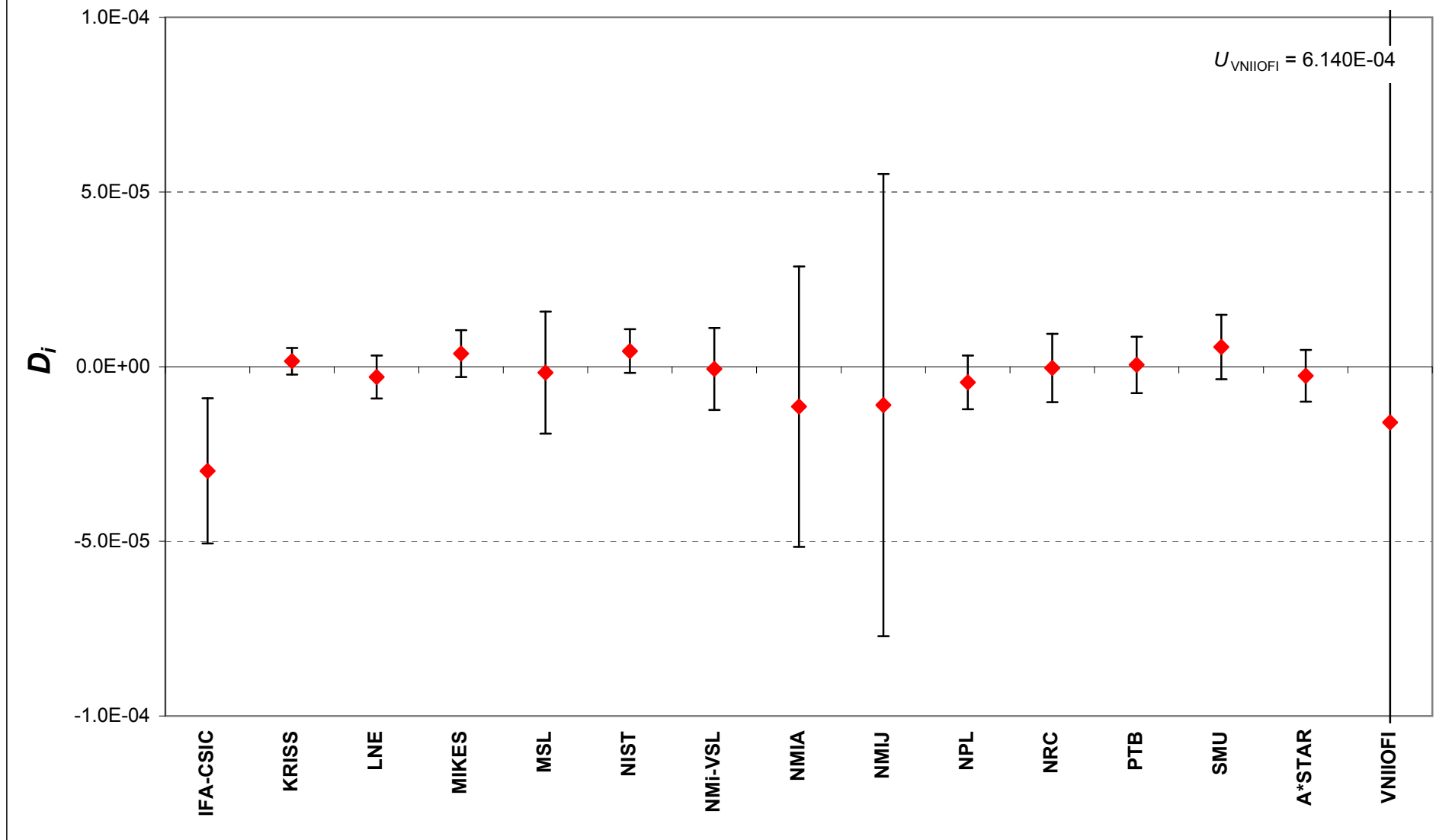
**CCPR-K6 Spectral regular transmittance - Filter E -  $\lambda = 380$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



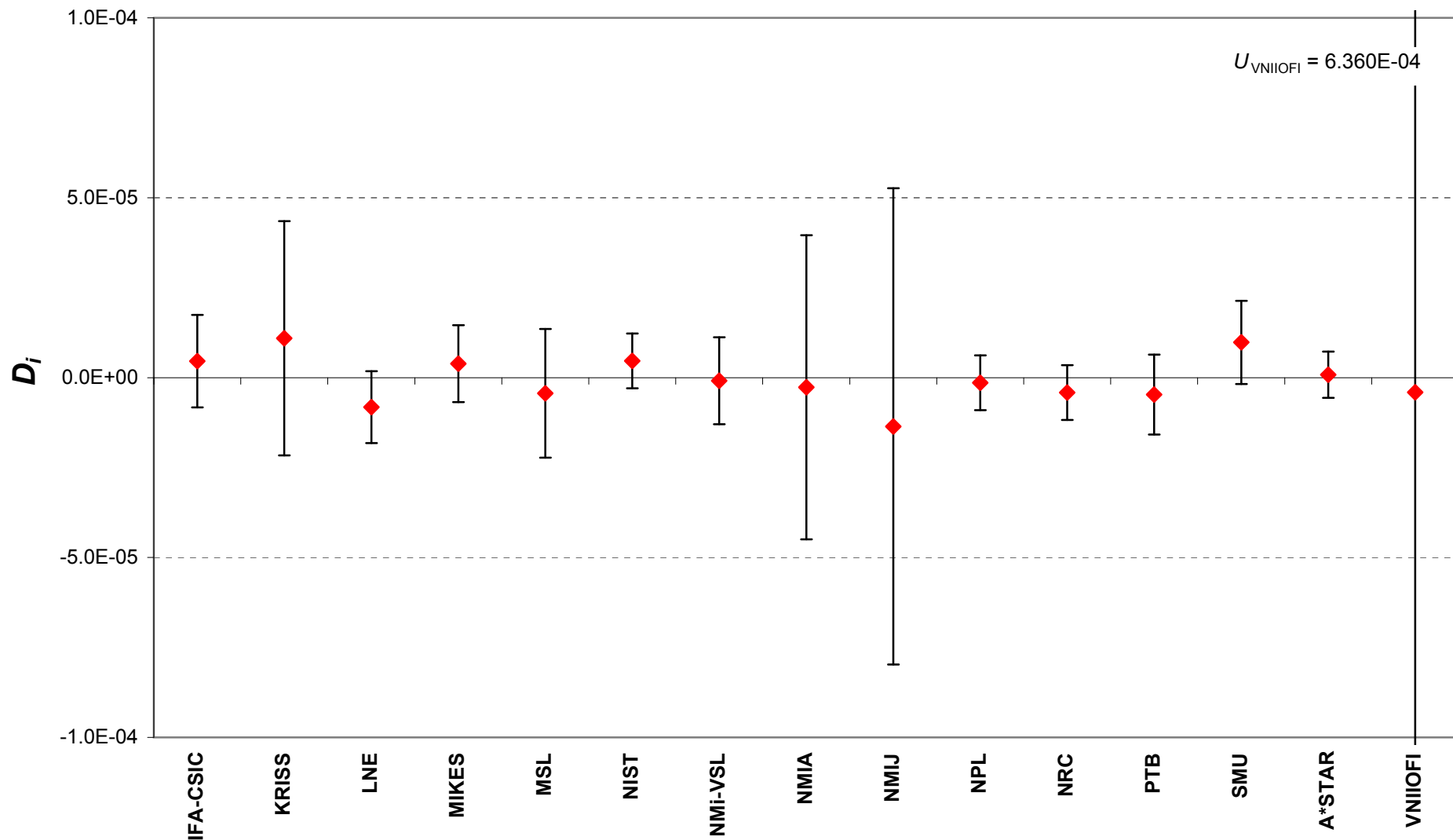
**CCPR-K6 Spectral regular transmittance - Filter E -  $\lambda = 400$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



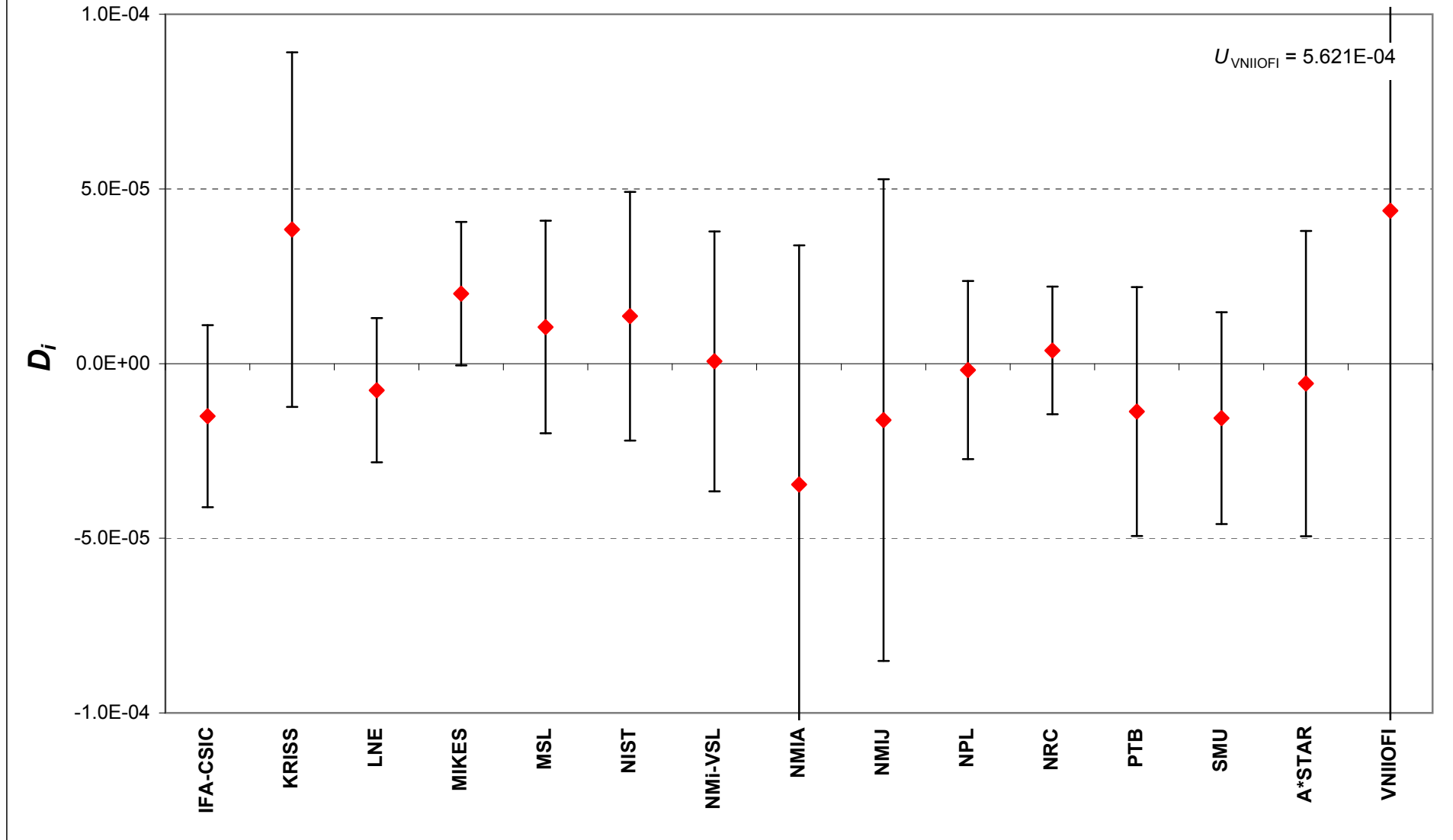
**CCPR-K6 Spectral regular transmittance - Filter E -  $\lambda = 500$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



**CCPR-K6 Spectral regular transmittance - Filter E -  $\lambda = 600$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**

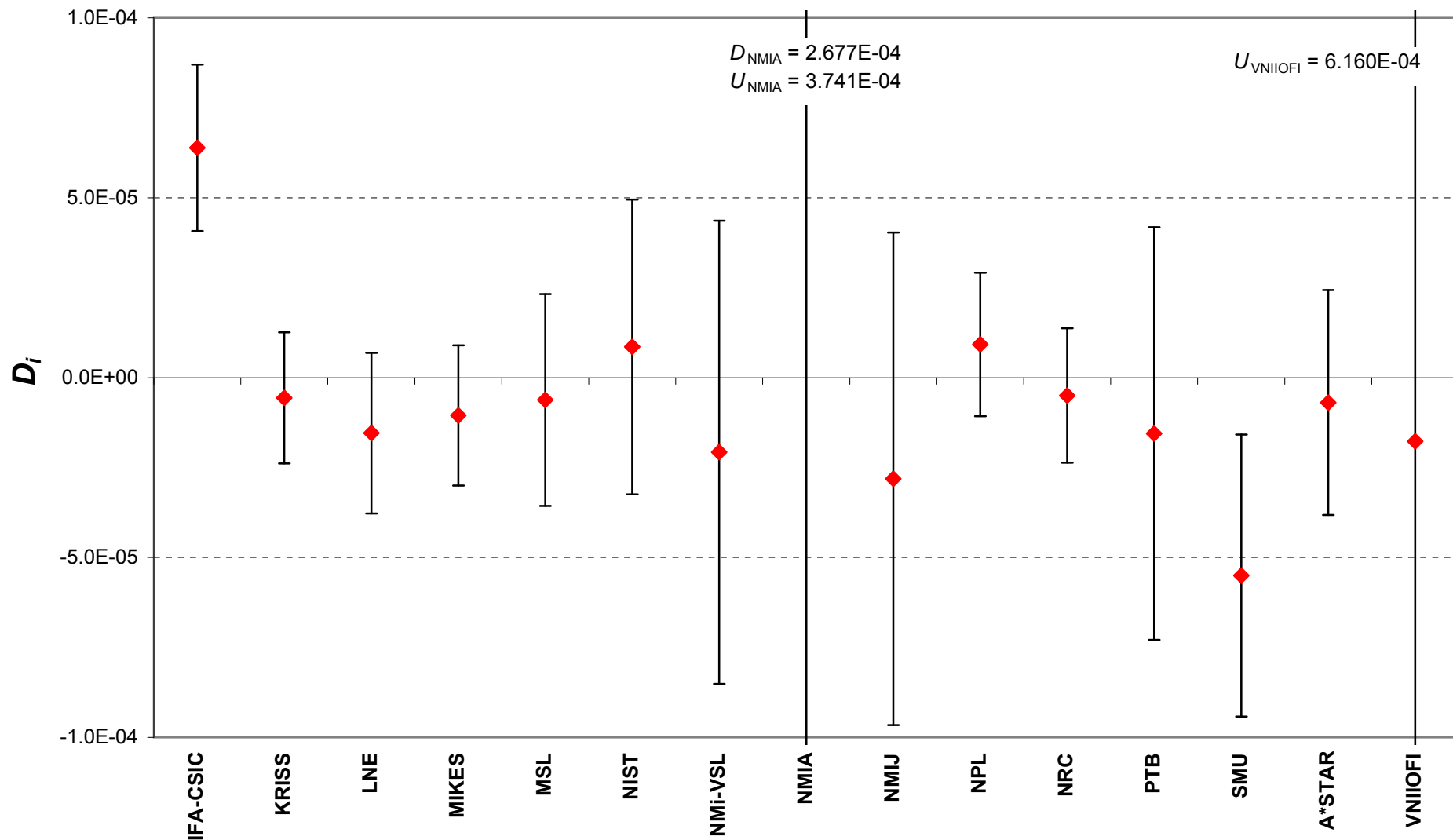


**CCPR-K6 Spectral regular transmittance - Filter E -  $\lambda = 700$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**

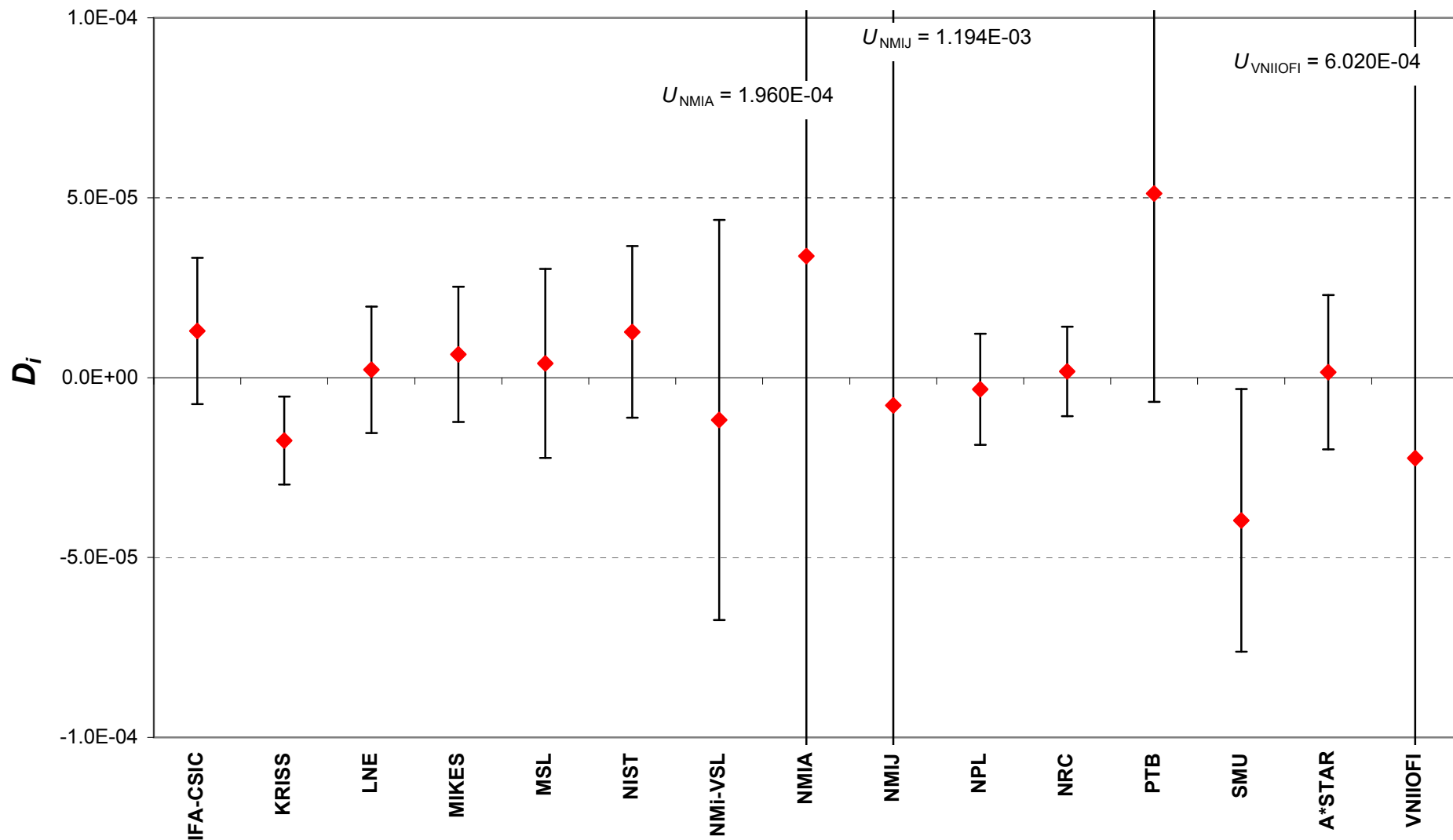




**CCPR-K6 Spectral regular transmittance - Filter E -  $\lambda = 800$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



**CCPR-K6 Spectral regular transmittance - Filter E -  $\lambda = 900$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**



**CCPR-K6 Spectral regular transmittance - Filter E -  $\lambda = 1000$  nm**  
**Degrees of equivalence,  $D_i$  and expanded uncertainty  $U_i$  ( $k = 2$ )**

