



cmos028fdsoi Technology

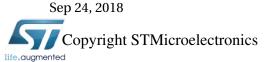
EG/EGLVT LLE WPE models

DK1.2_RF_mmW

Comparison with DK1.1_RF_mmW model(s)

LLE - EG/EGLVT WRE

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Technology R&D Crolles Site – TDP/TDS/SPICE Modeling



General information on EG/EGLVT LLE WPE models

- Maximum supply voltage is 1.8 V.
- Validity domain is defined as follows:
 - ✓ Drawn gate length varies from 150nm to 10um.
 - ✓ Drawn transistor width varies from 160nm to 10um.
 - ✓ Device temperature varies from -40 °C to 125 °C.



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Output parameters definitions

- Model(s): eglvtnfet_acc, eglvtpfet_acc, egnfet_acc, egpfet_acc
 - ✓ Vt_lin: Threshold voltage defined as Vgs value for which drain current is ivt*M*1*W/(1*L+0+1*p_la) at Vds = 0.05V.
 - ✓ Isat : Drain current at Vgs = 1.8V, Vds = VddV.
 - ✓ Vt_sat: Threshold voltage defined as Vgs value for which drain current is ivt*M*1*W/(1*L+0+1*p_la) at Vds = vds_satV.
 - ✓ Ilin : Drain current at Vgs = 1.8V, Vds = 0.05V.
 - ✓ Logioff: log10(Ioffsat).





eglvtnfet_acc Electrical characteristics scaling







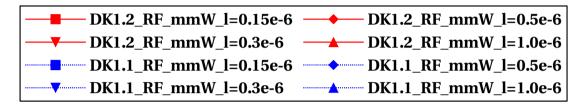
WPE effect w.r.t d0 - Lscaling at W=2u

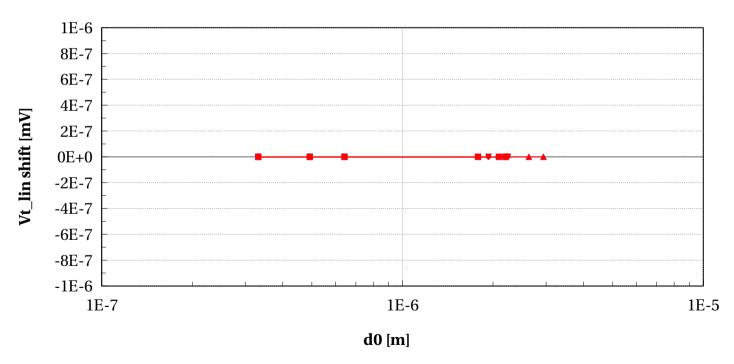






eglvtnfet_acc, Vt_lin shift [mV] vs d0 [m]



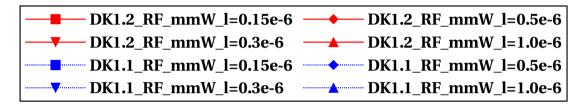


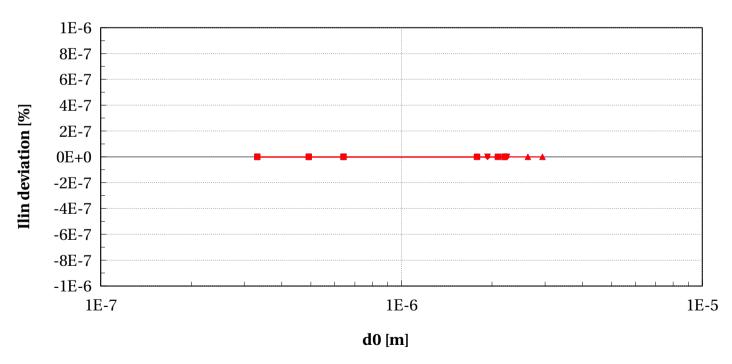






eglvtnfet_acc, Ilin deviation [%] vs d0 [m]



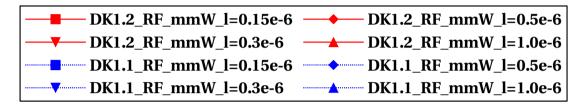


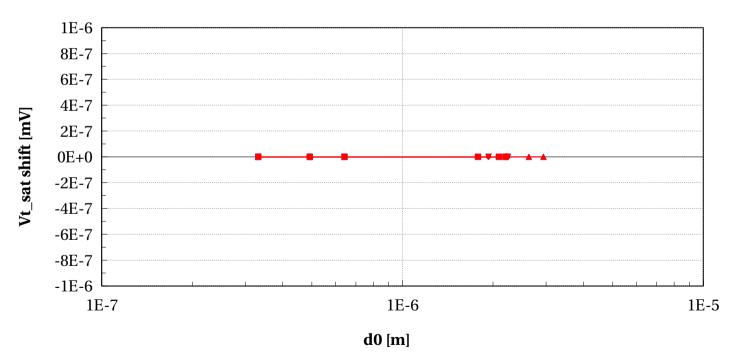






eglvtnfet_acc, Vt_sat shift [mV] vs d0 [m]



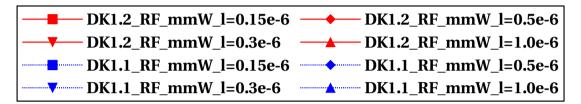


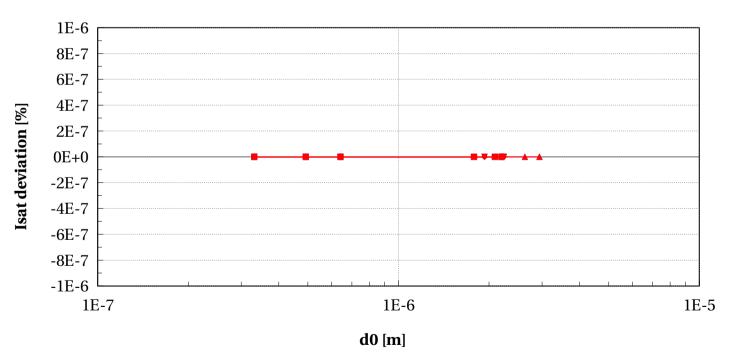






eglvtnfet_acc, Isat deviation [%] vs d0 [m]



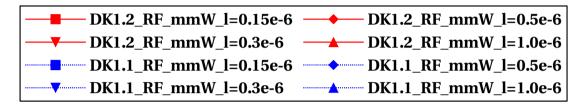


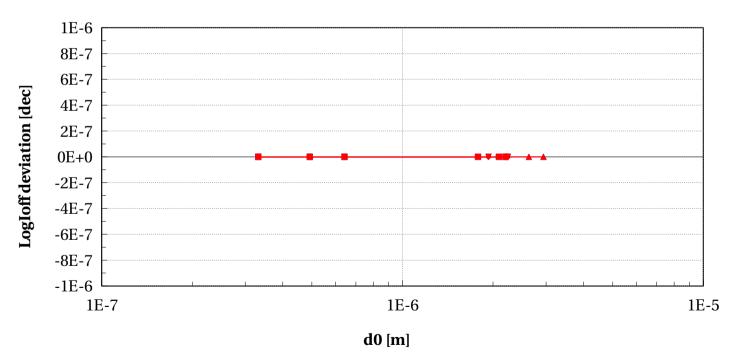






eglvtnfet_acc, LogIoff deviation [dec] vs d0 [m]











WPE effect w.r.t d0 - Lscaling at W=0.34u

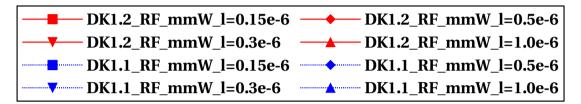


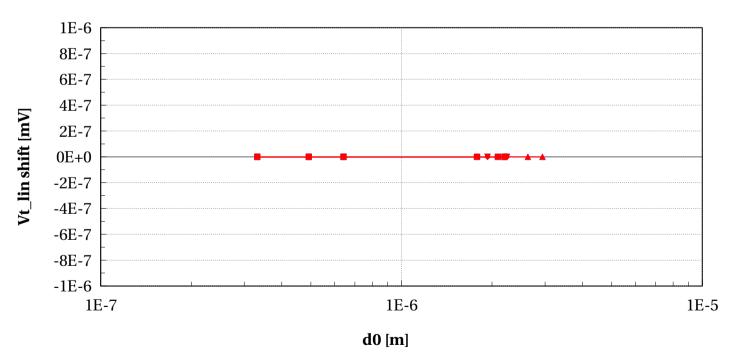


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eglvtnfet_acc, Vt_lin shift [mV] vs d0 [m]



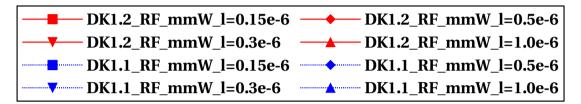


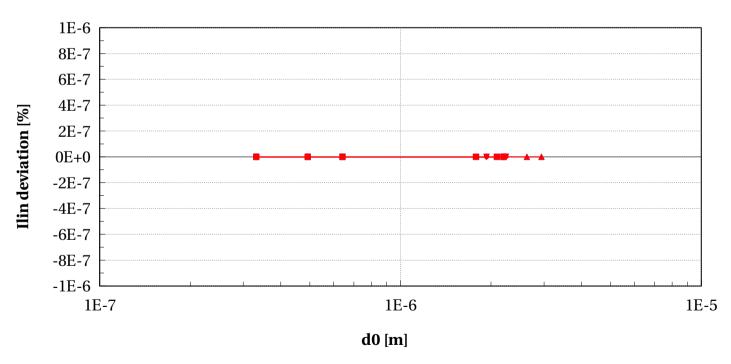






eglvtnfet_acc, Ilin deviation [%] vs d0 [m]





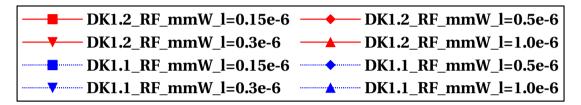


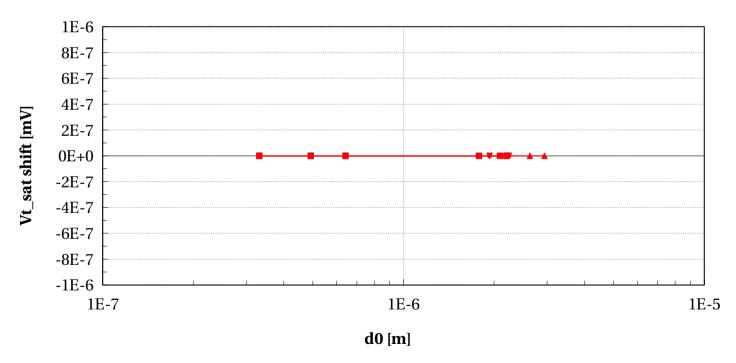




eglvtnfet_acc, Vt_sat shift [mV] vs d0 [m]

temp==25 and d1==10e-6 and W==0.34e-6





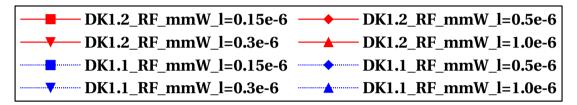


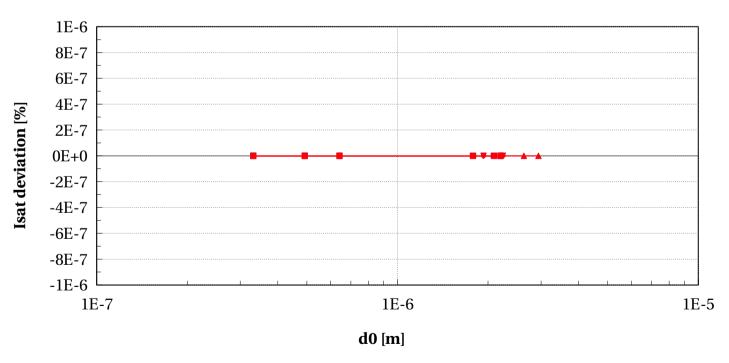




eglvtnfet_acc, Isat deviation [%] vs d0 [m]

temp==25 and d1==10e-6 and W==0.34e-6



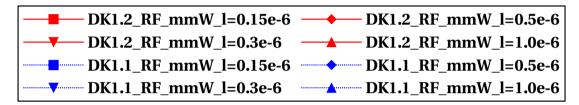


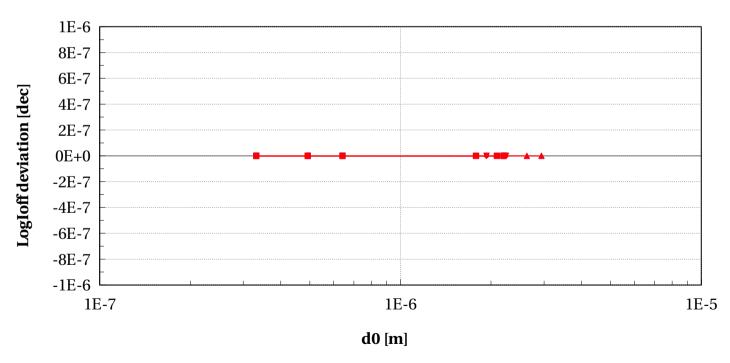






eglvtnfet_acc, LogIoff deviation [dec] vs d0 [m]











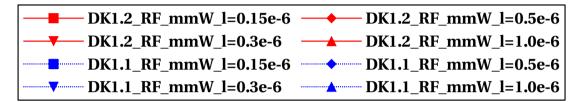
WPE effect w.r.t d0 - Lscaling at W=0.16u

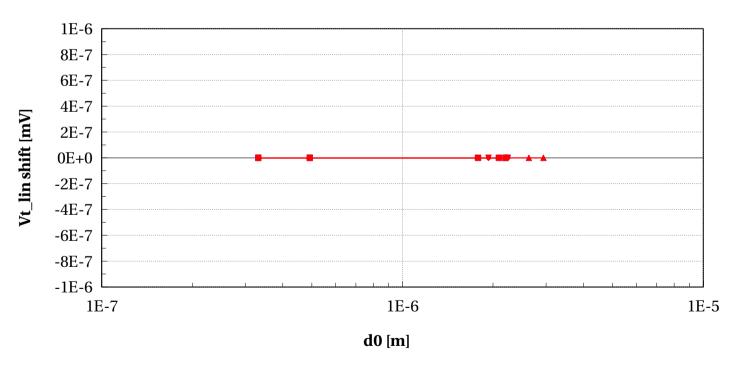






eglvtnfet_acc, Vt_lin shift [mV] vs d0 [m]



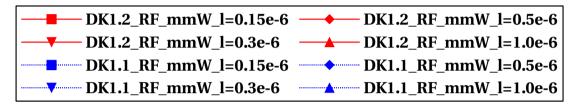


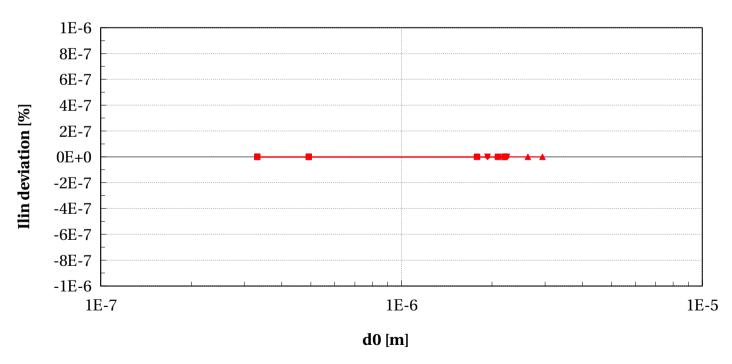






eglvtnfet_acc, Ilin deviation [%] vs d0 [m]



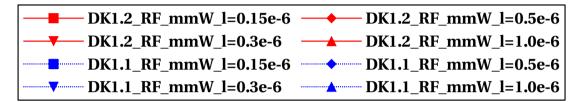


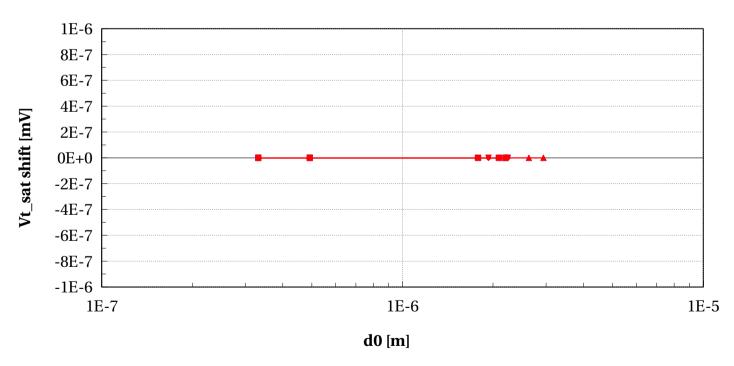






eglvtnfet_acc, Vt_sat shift [mV] vs d0 [m]



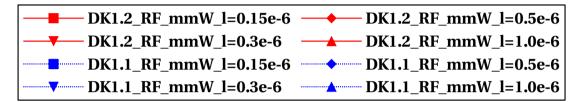


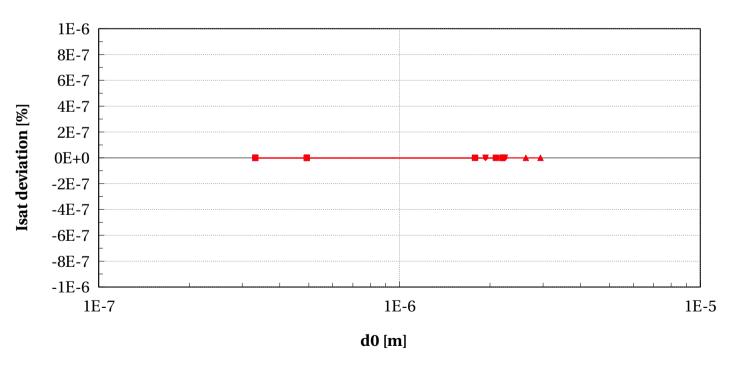






eglvtnfet_acc, Isat deviation [%] vs d0 [m]



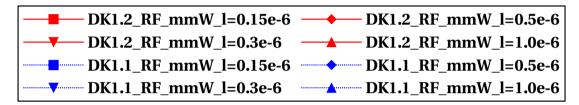


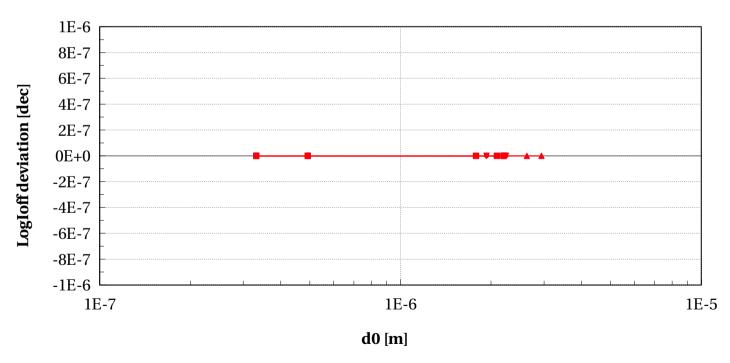






eglvtnfet_acc, LogIoff deviation [dec] vs d0 [m]











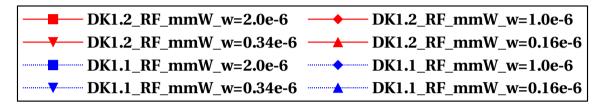
WPE effect w.r.t d0 - Wscaling at L=0.15u

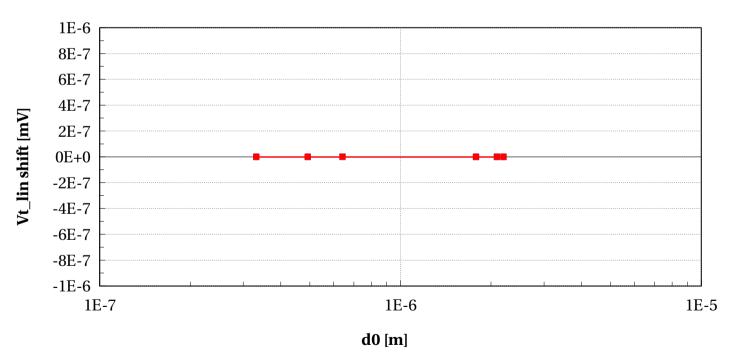






eglvtnfet_acc, Vt_lin shift [mV] vs d0 [m]



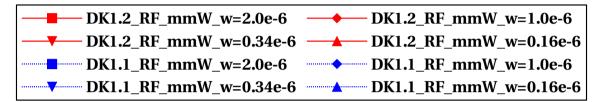


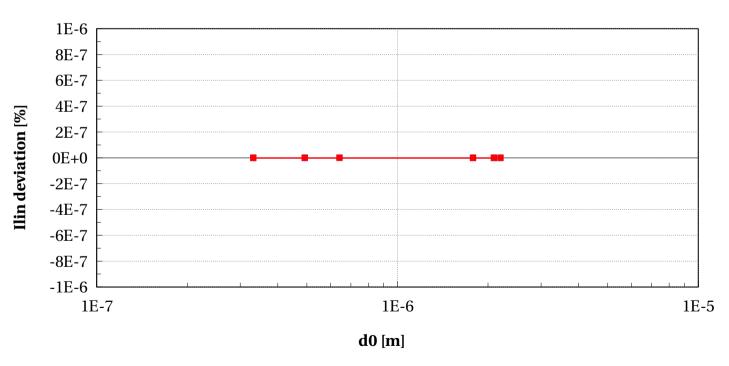






eglvtnfet_acc, Ilin deviation [%] vs d0 [m]



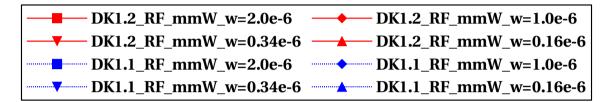


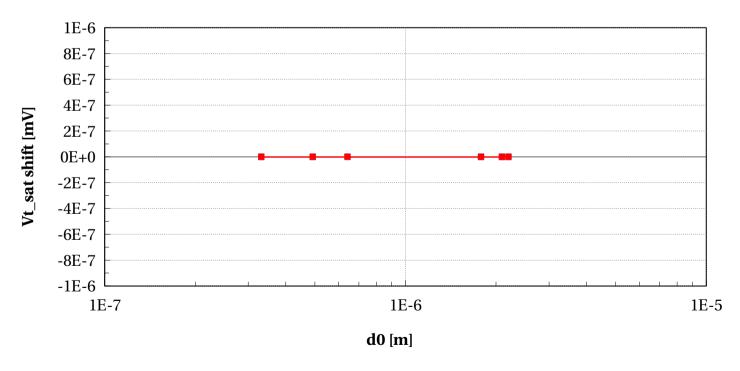






eglvtnfet_acc, Vt_sat shift [mV] vs d0 [m]



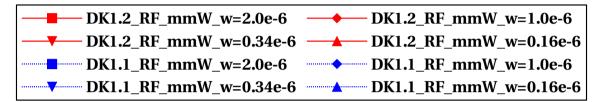


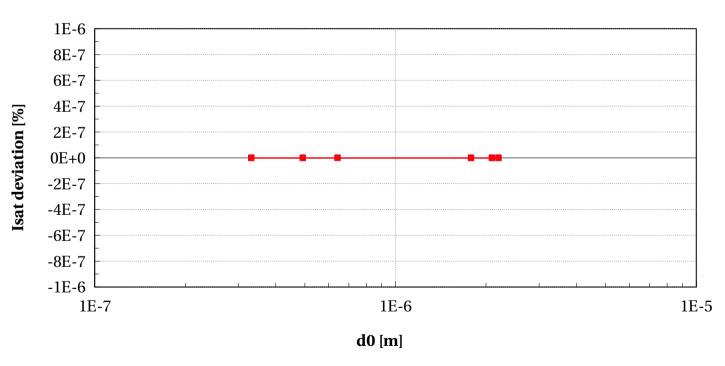






eglvtnfet_acc, Isat deviation [%] vs d0 [m]



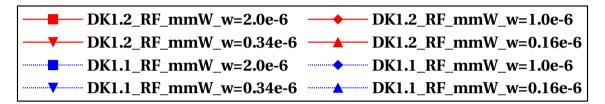


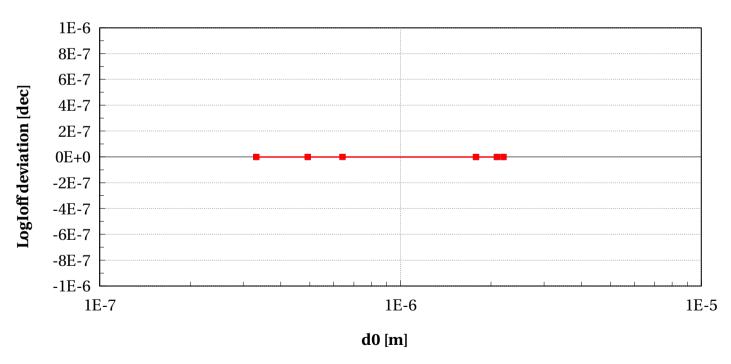






eglvtnfet_acc, LogIoff deviation [dec] vs d0 [m]











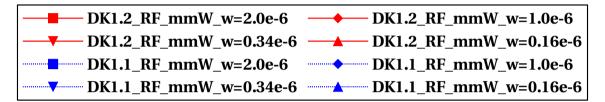
WPE effect w.r.t d0 - Wscaling at L=1u

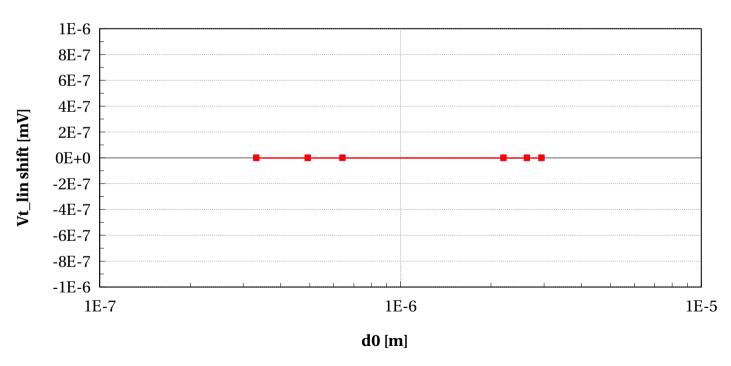






eglvtnfet_acc, Vt_lin shift [mV] vs d0 [m]



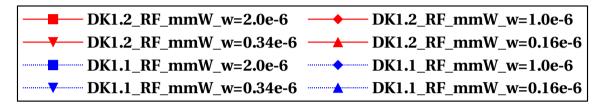


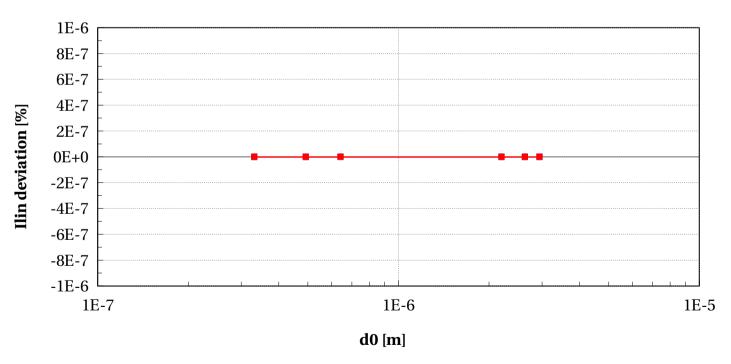






eglvtnfet_acc, Ilin deviation [%] vs d0 [m]



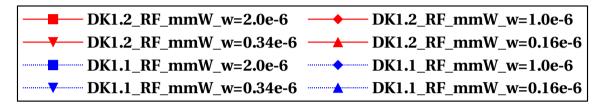


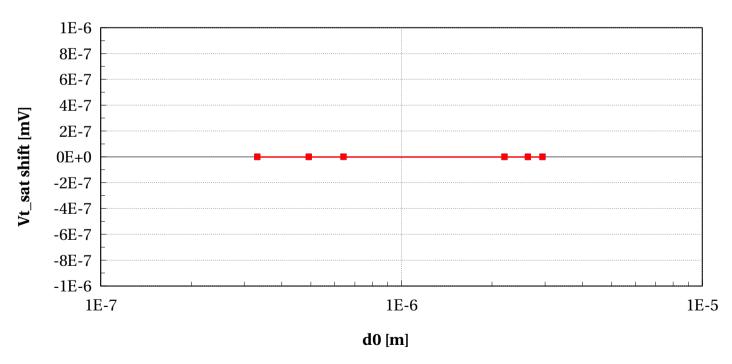






eglvtnfet_acc, Vt_sat shift [mV] vs d0 [m]



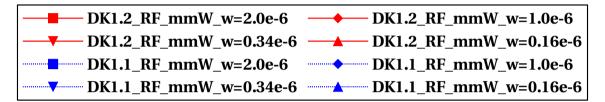


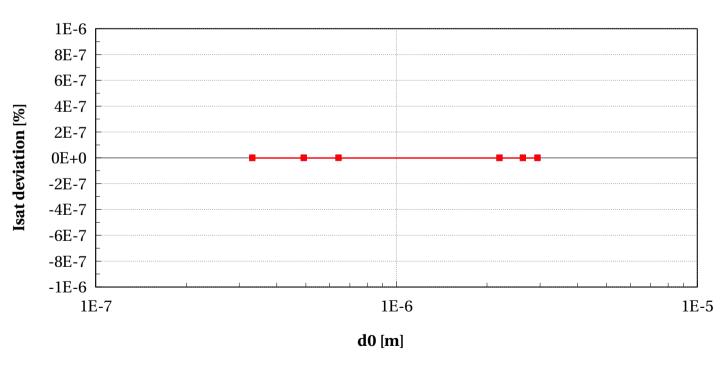






eglvtnfet_acc, Isat deviation [%] vs d0 [m]



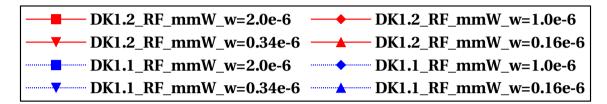


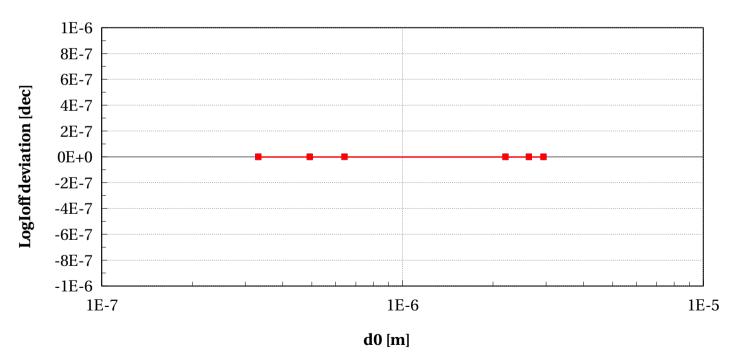






eglvtnfet_acc, LogIoff deviation [dec] vs d0 [m]











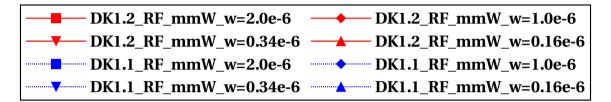
WPE effect w.r.t d1 - Wscaling at L=0.15u

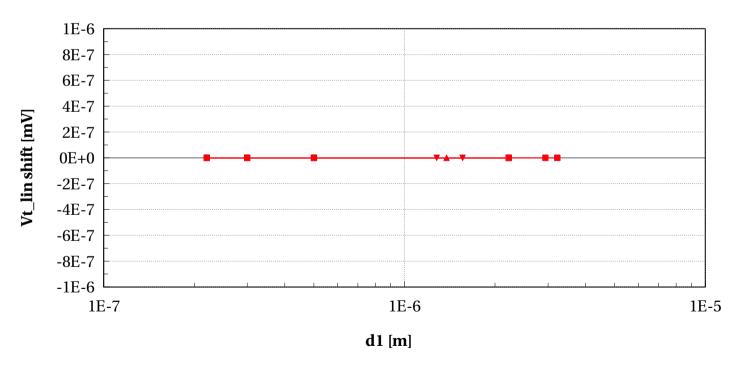






eglvtnfet_acc, Vt_lin shift [mV] vs d1 [m]



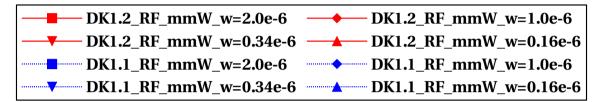


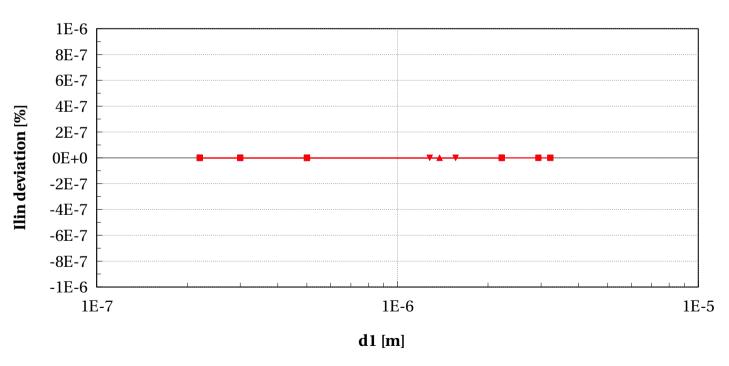






eglvtnfet_acc, Ilin deviation [%] vs d1 [m]



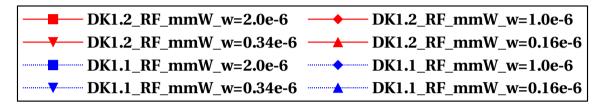


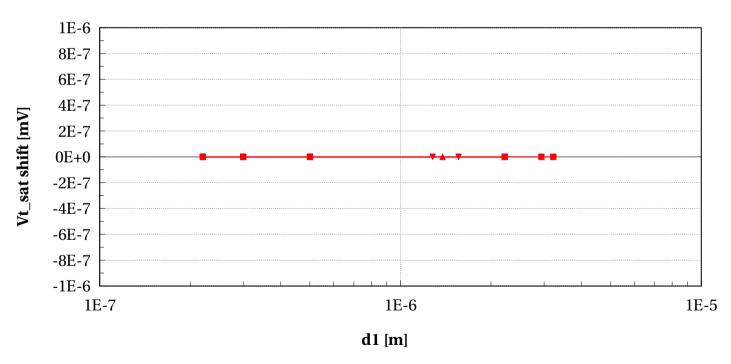






eglvtnfet_acc, Vt_sat shift [mV] vs d1 [m]



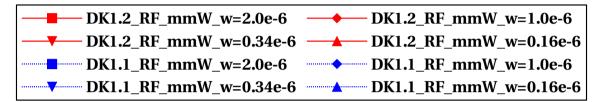


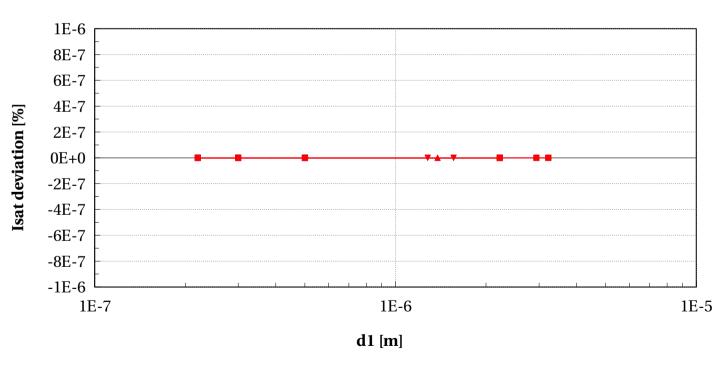






eglvtnfet_acc, Isat deviation [%] vs d1 [m]



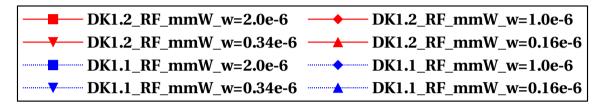


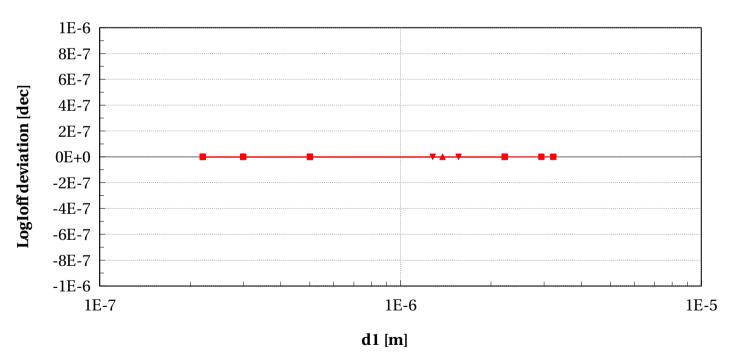






eglvtnfet_acc, LogIoff deviation [dec] vs d1 [m]











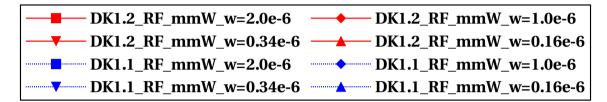
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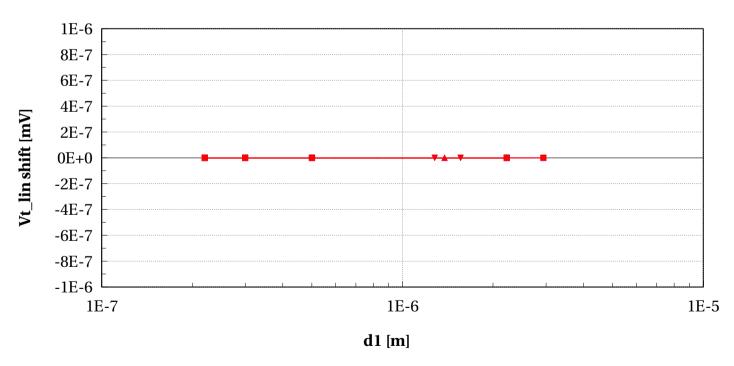






eglvtnfet_acc, Vt_lin shift [mV] vs d1 [m]



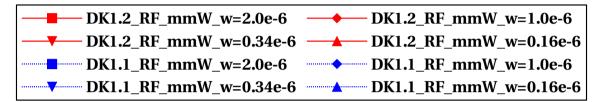


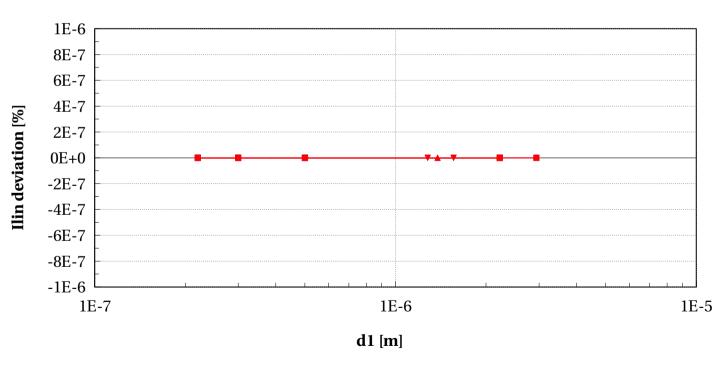






eglvtnfet_acc, Ilin deviation [%] vs d1 [m]





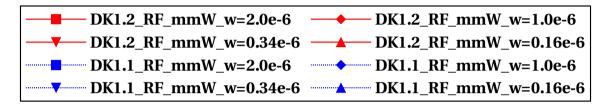


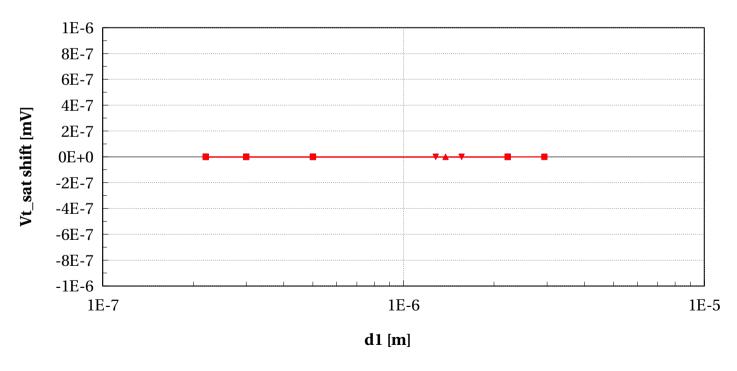




eglvtnfet_acc, Vt_sat shift [mV] vs d1 [m]

temp==25 and d0==10e-6 and L==0.3e-6





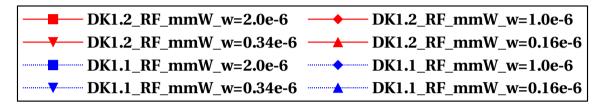


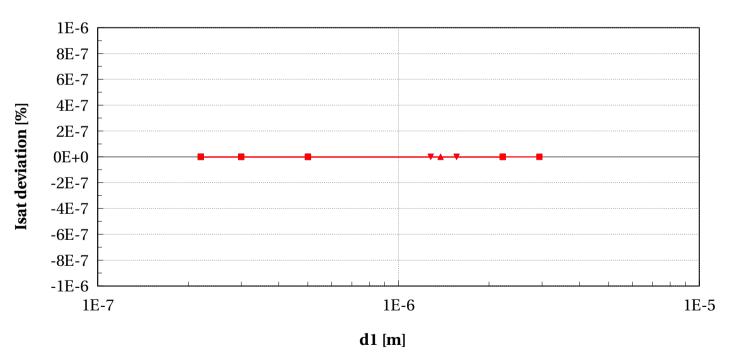


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eglvtnfet_acc, Isat deviation [%] vs d1 [m]



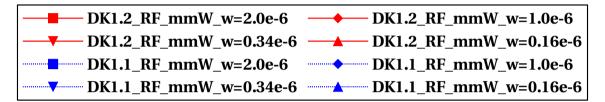


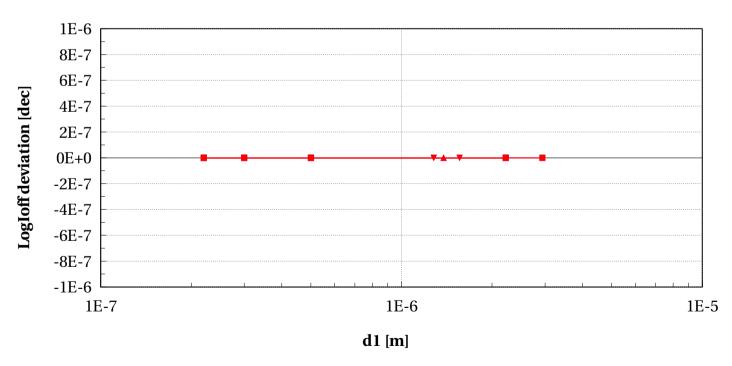






eglvtnfet_acc, LogIoff deviation [dec] vs d1 [m]



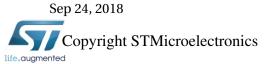








WPE effect w.r.t d1 - Wscaling at L=1u

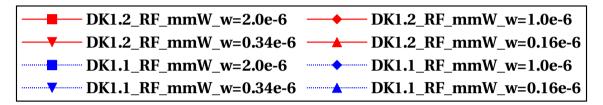


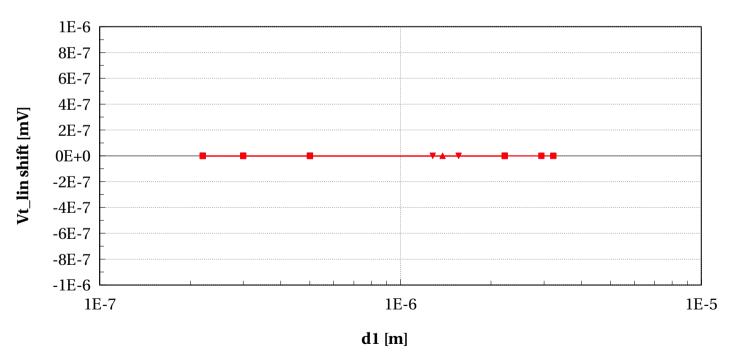




eglvtnfet_acc, Vt_lin shift [mV] vs d1 [m]

temp==25 and d0==10e-6 and L==1e-6





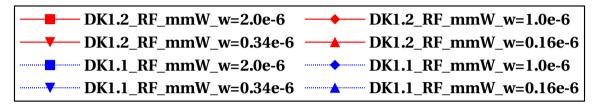


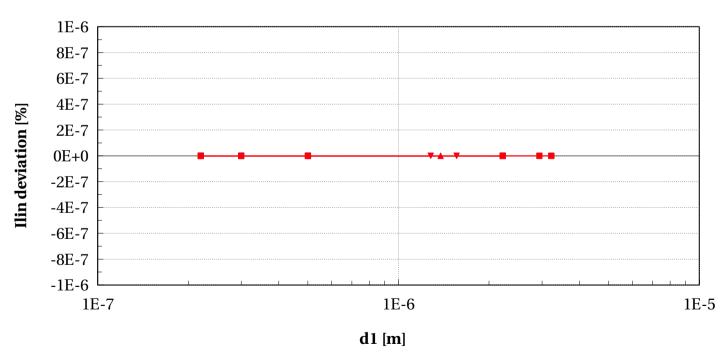




eglvtnfet_acc, Ilin deviation [%] vs d1 [m]

temp==25 and d0==10e-6 and L==1e-6



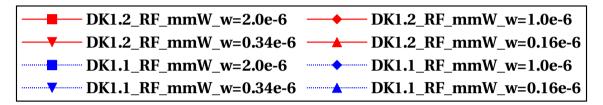


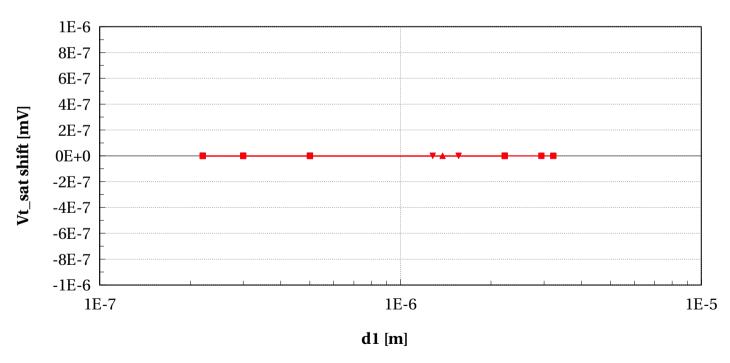




eglvtnfet_acc, Vt_sat shift [mV] vs d1 [m]

temp==25 and d0==10e-6 and L==1e-6





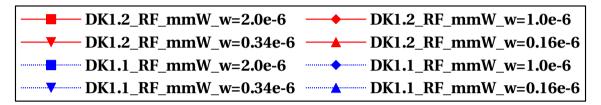


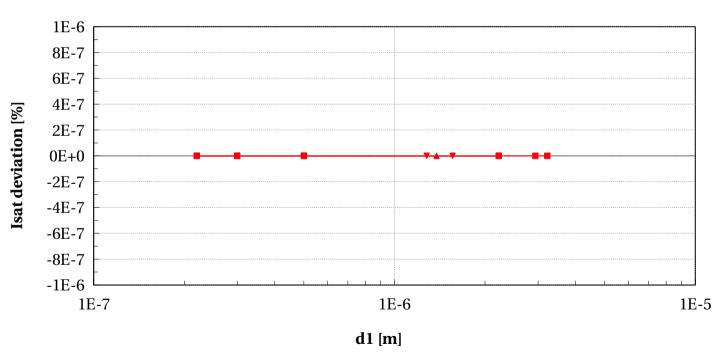




eglvtnfet_acc, Isat deviation [%] vs d1 [m]

temp==25 and d0==10e-6 and L==1e-6



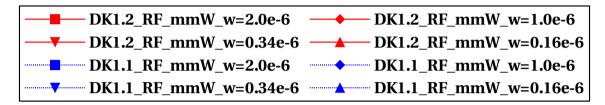


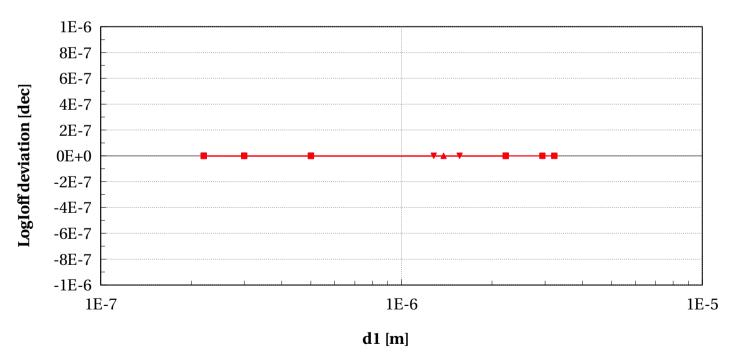






eglvtnfet_acc, LogIoff deviation [dec] vs d1 [m]











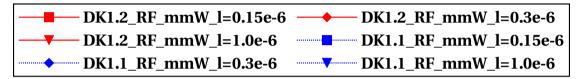
WPE effect w.r.t d1 - Lscaling at W=0.16u

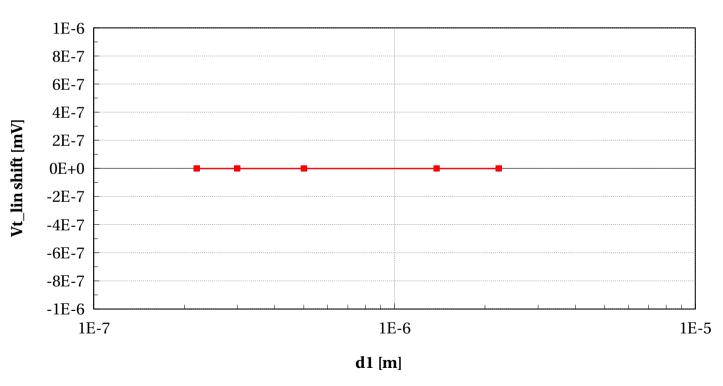






eglvtnfet_acc, Vt_lin shift [mV] vs d1 [m]



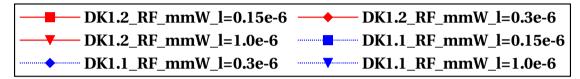


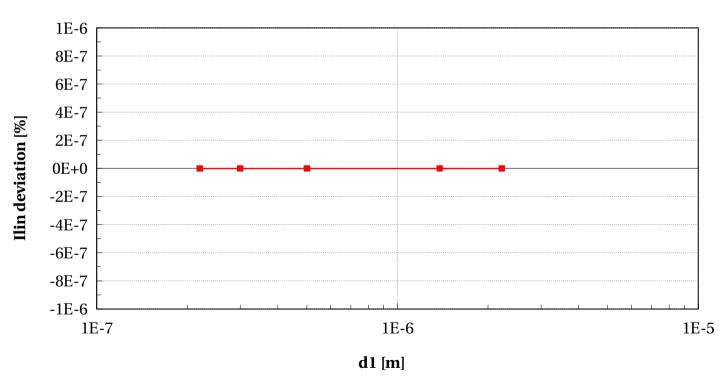






eglvtnfet_acc, Ilin deviation [%] vs d1 [m]



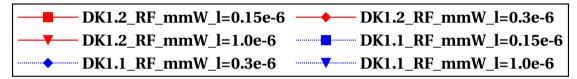


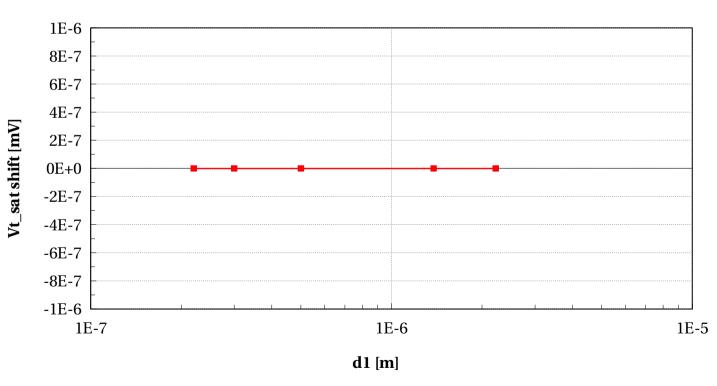






eglvtnfet_acc, Vt_sat shift [mV] vs d1 [m]





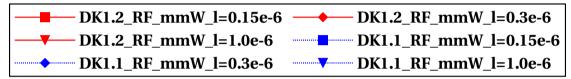


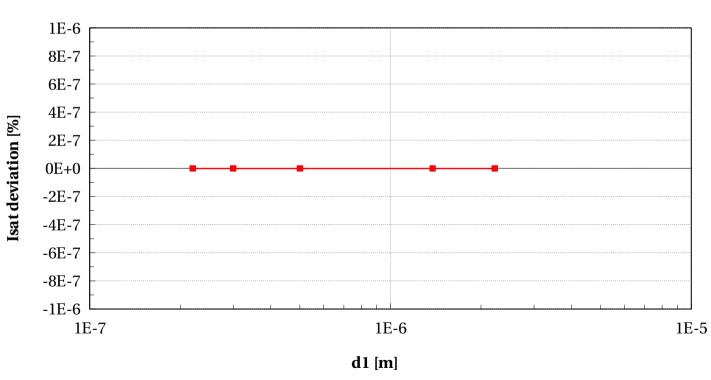




eglvtnfet_acc, Isat deviation [%] vs d1 [m]

temp==25 and d0==10e-6 and W==0.16e-6





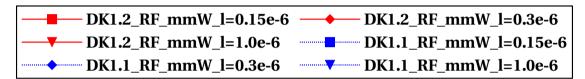


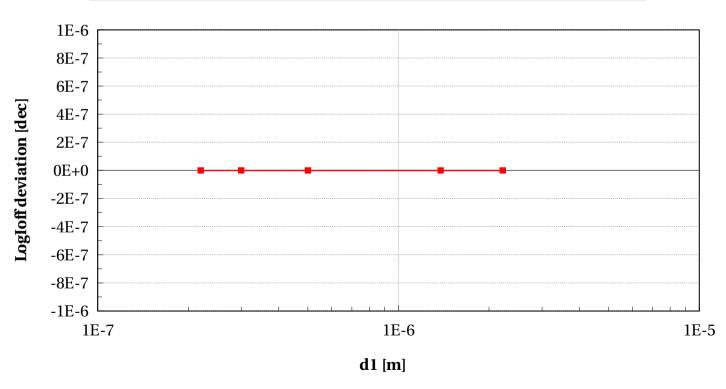


dormieub



eglvtnfet_acc, LogIoff deviation [dec] vs d1 [m]











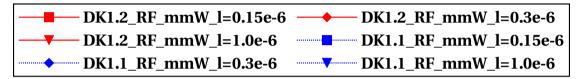
WPE effect w.r.t d1 - Lscaling at W=2u

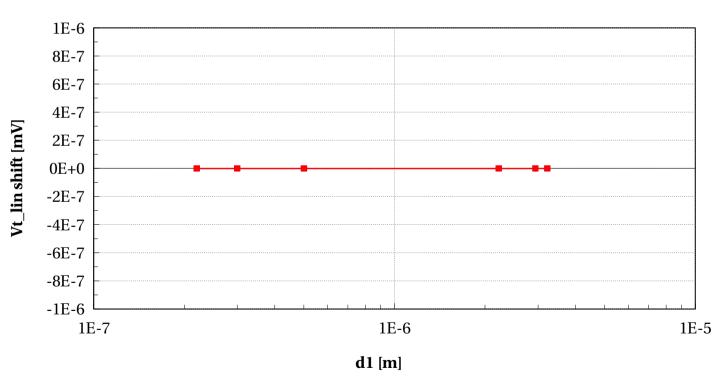






eglvtnfet_acc, Vt_lin shift [mV] vs d1 [m]



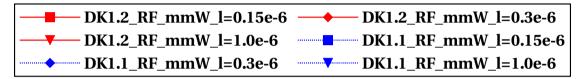


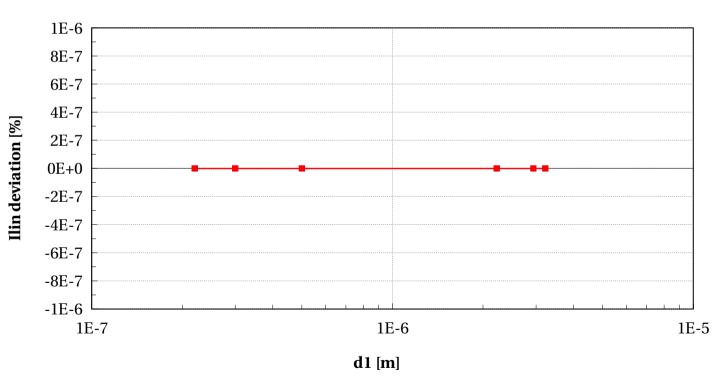






eglvtnfet_acc, Ilin deviation [%] vs d1 [m]



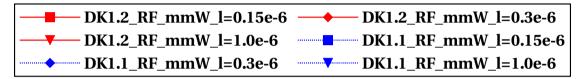


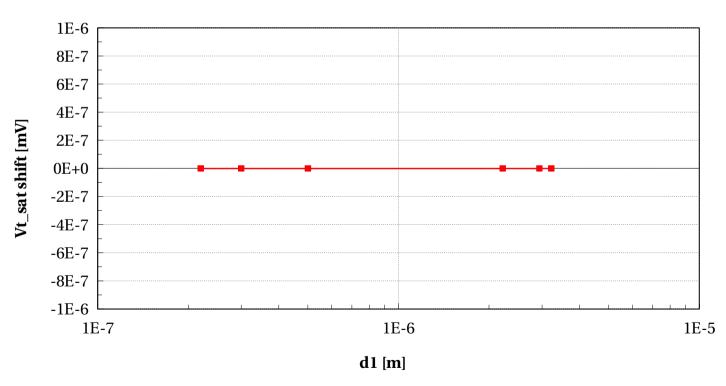






eglvtnfet_acc, Vt_sat shift [mV] vs d1 [m]





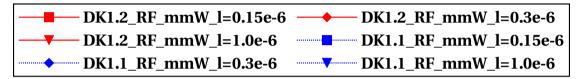


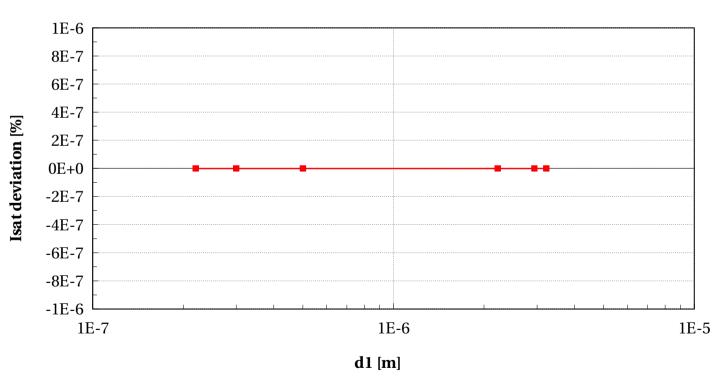




eglvtnfet_acc, Isat deviation [%] vs d1 [m]

temp==25 and d0==10e-6 and W==2e-6





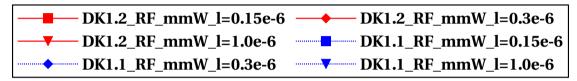


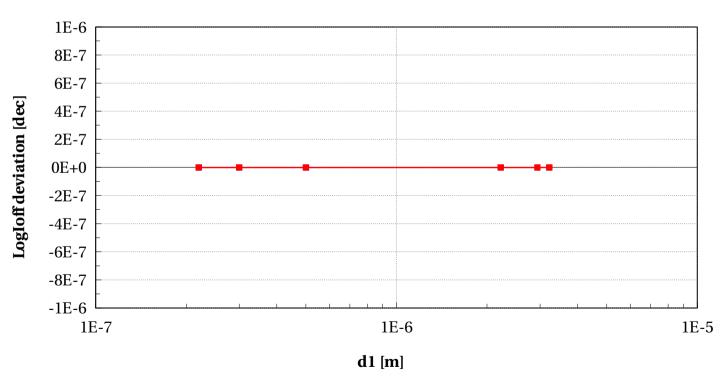


dormieub



eglvtnfet_acc, LogIoff deviation [dec] vs d1 [m]











eglvtpfet_acc Electrical characteristics scaling







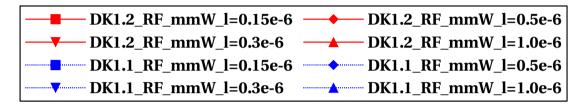
WPE effect w.r.t d0 - Lscaling at W=2u

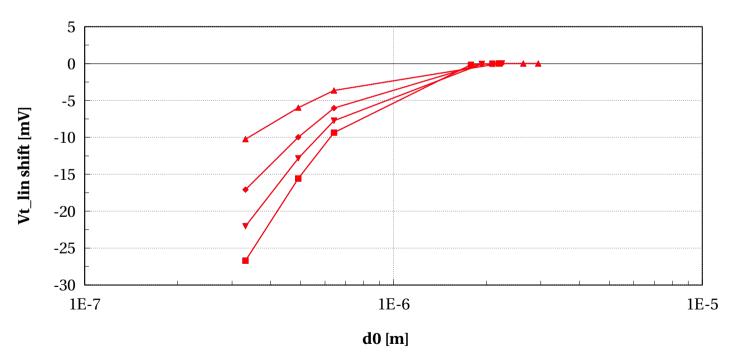






eglvtpfet_acc, Vt_lin shift [mV] vs d0 [m]





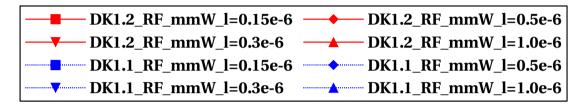


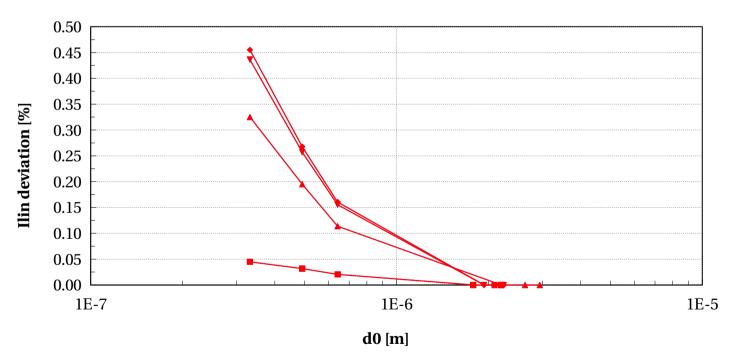




eglvtpfet_acc, Ilin deviation [%] vs d0 [m]

temp==25 and d1==10e-6 and W==2e-6





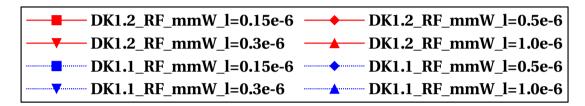


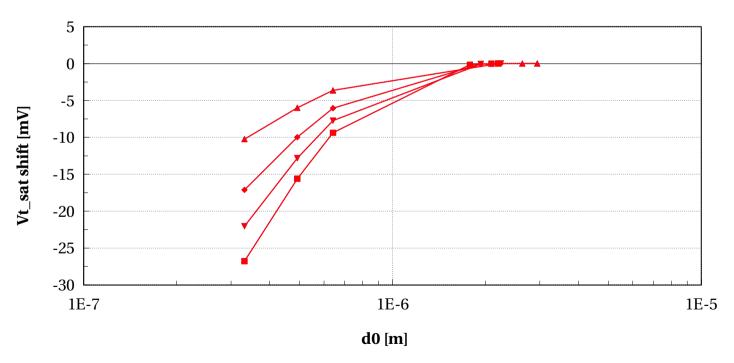




eglvtpfet_acc, Vt_sat shift [mV] vs d0 [m]

temp==25 and d1==10e-6 and W==2e-6



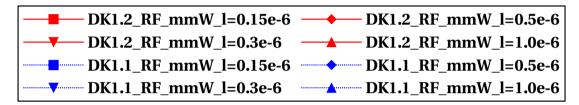


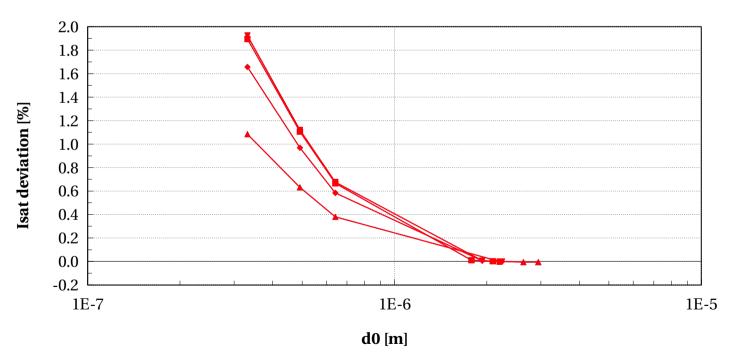






eglvtpfet_acc, Isat deviation [%] vs d0 [m]



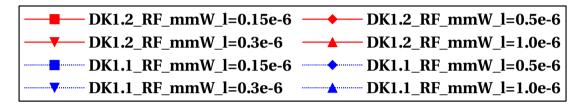


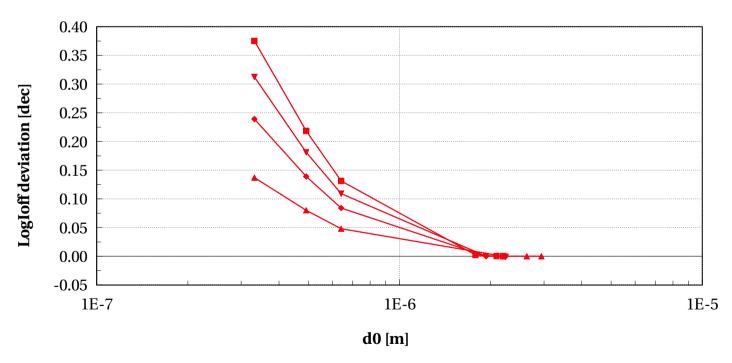






eglvtpfet_acc, LogIoff deviation [dec] vs d0 [m]











WPE effect w.r.t d0 - Lscaling at W=0.34u

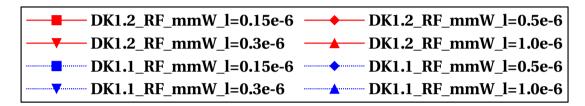


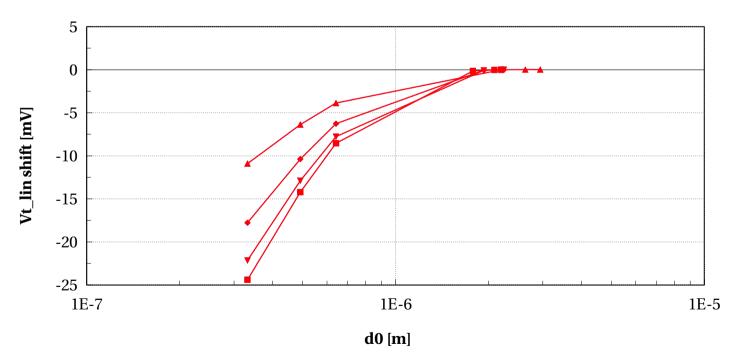


dormieub



eglvtpfet_acc, Vt_lin shift [mV] vs d0 [m]



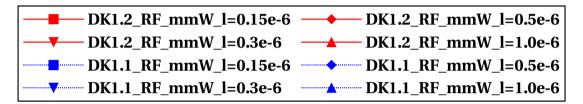


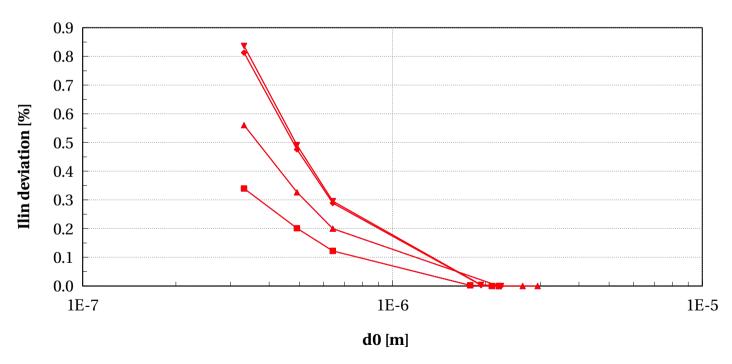






eglvtpfet_acc, Ilin deviation [%] vs d0 [m]



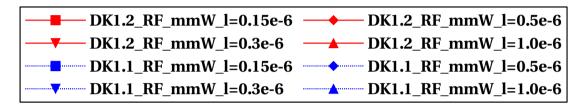


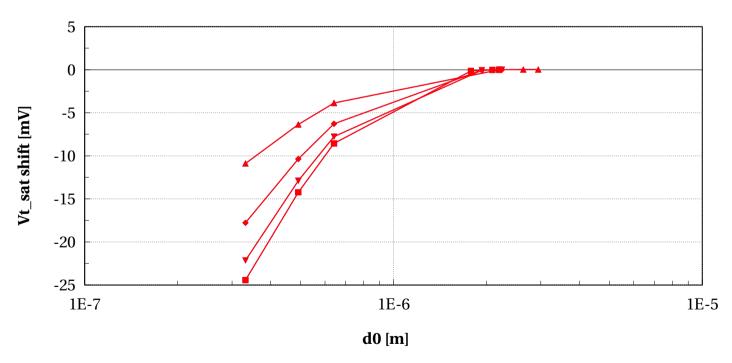






eglvtpfet_acc, Vt_sat shift [mV] vs d0 [m]





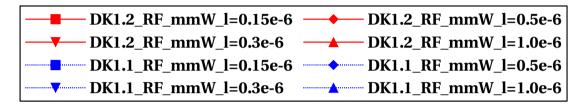


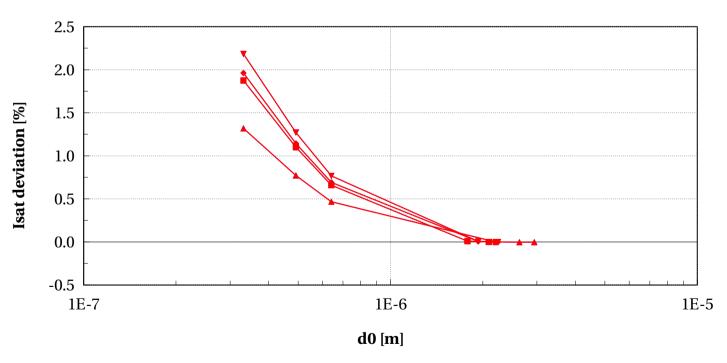




eglvtpfet_acc, Isat deviation [%] vs d0 [m]

temp==25 and d1==10e-6 and W==0.34e-6



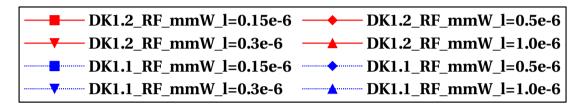


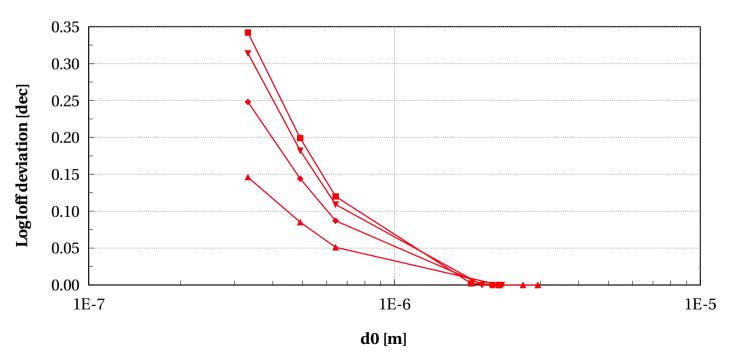






eglvtpfet_acc, LogIoff deviation [dec] vs d0 [m]











WPE effect w.r.t d0 - Lscaling at W=0.16u

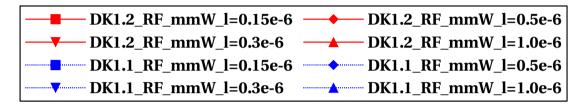


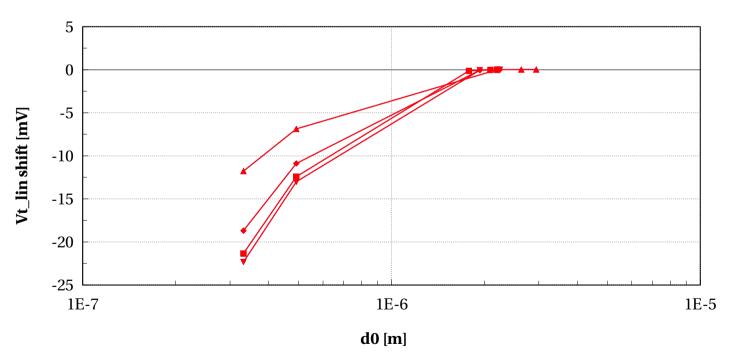


dormieub



eglvtpfet_acc, Vt_lin shift [mV] vs d0 [m]



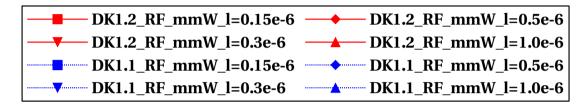


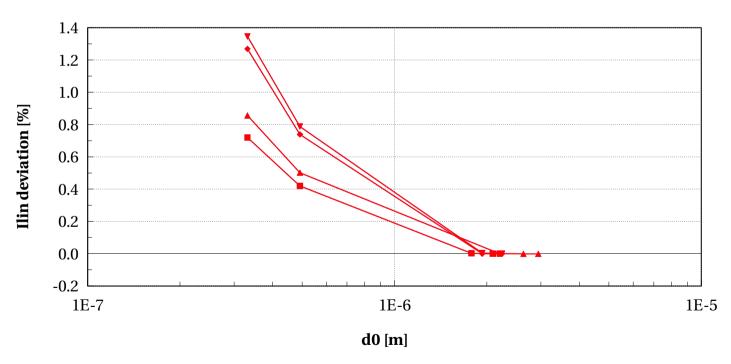






eglvtpfet_acc, Ilin deviation [%] vs d0 [m]





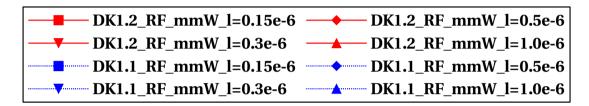


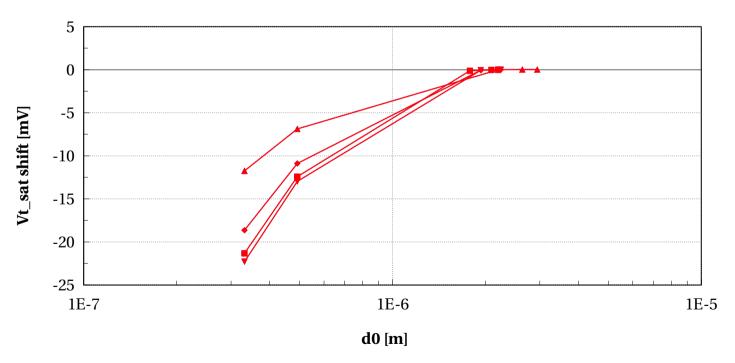




eglvtpfet_acc, Vt_sat shift [mV] vs d0 [m]

temp==25 and d1==10e-6 and W==0.16e-6





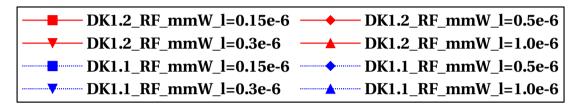


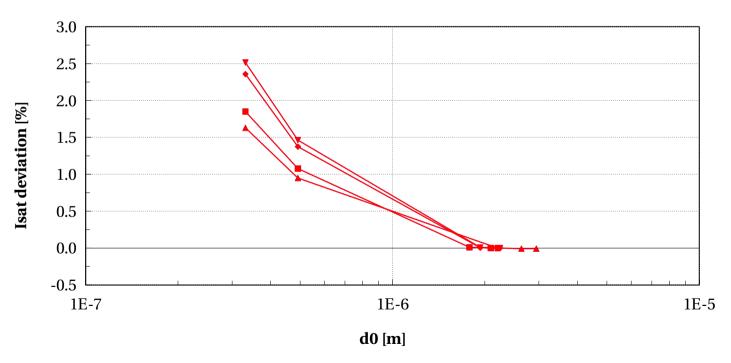




eglvtpfet_acc, Isat deviation [%] vs d0 [m]

temp==25 and d1==10e-6 and W==0.16e-6



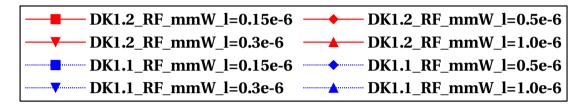


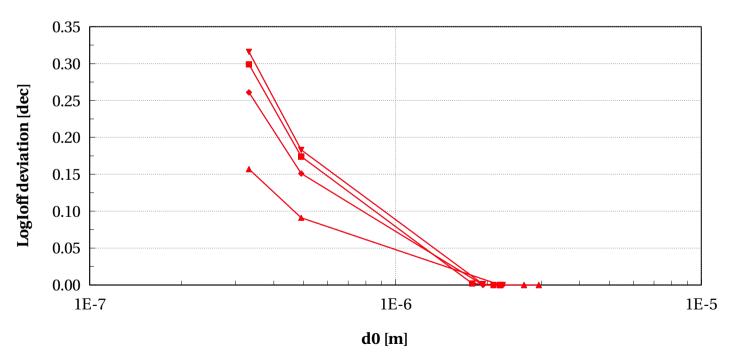






eglvtpfet_acc, LogIoff deviation [dec] vs d0 [m]











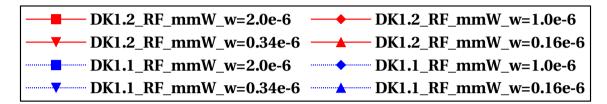
WPE effect w.r.t d0 - Wscaling at L=0.15u

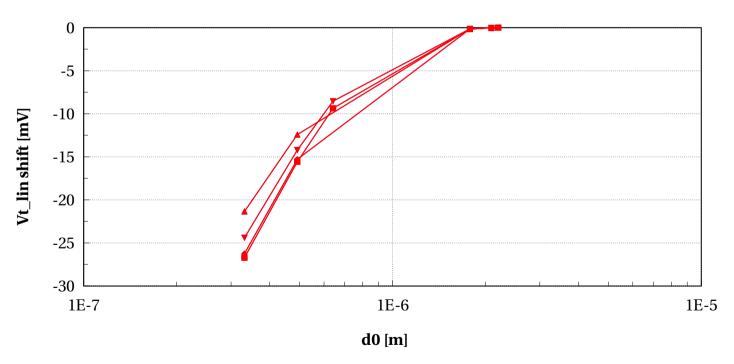






eglvtpfet_acc, Vt_lin shift [mV] vs d0 [m]



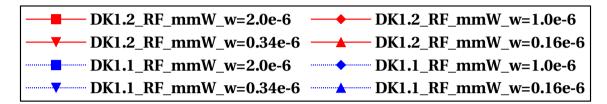


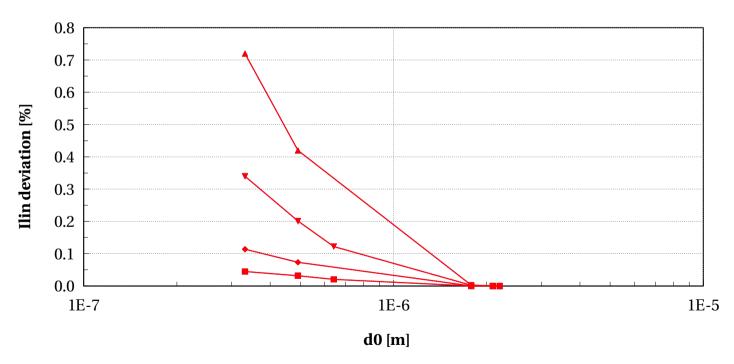






eglvtpfet_acc, Ilin deviation [%] vs d0 [m]



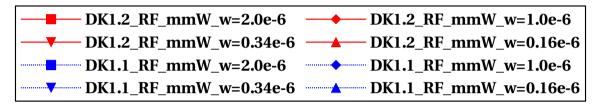


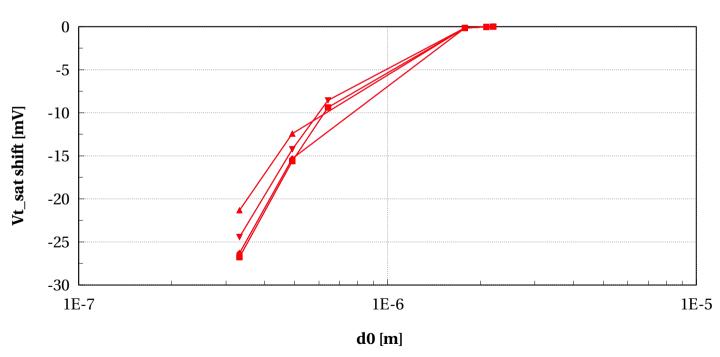






eglvtpfet_acc, Vt_sat shift [mV] vs d0 [m]



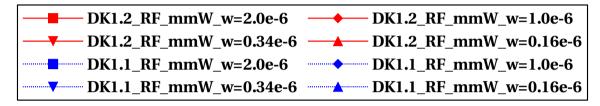


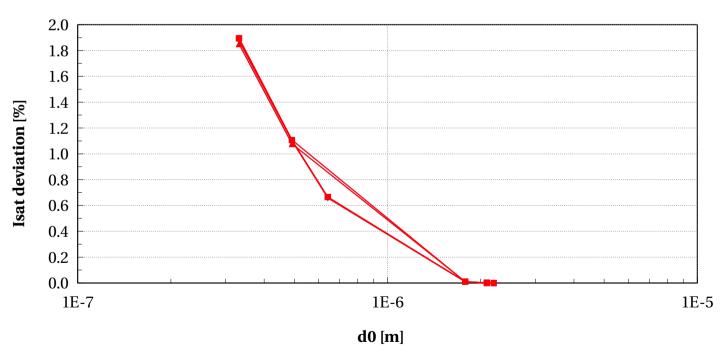






eglvtpfet_acc, Isat deviation [%] vs d0 [m]



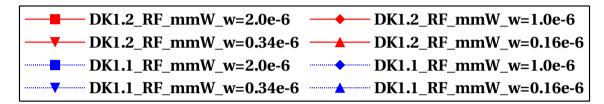


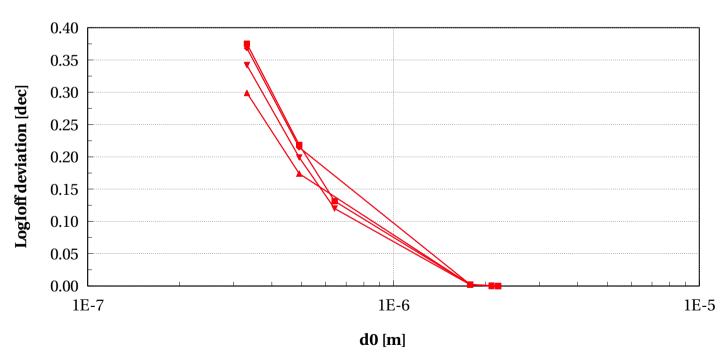






eglvtpfet_acc, LogIoff deviation [dec] vs d0 [m]











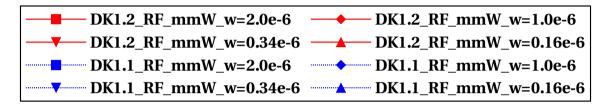
WPE effect w.r.t d0 - Wscaling at L=1u

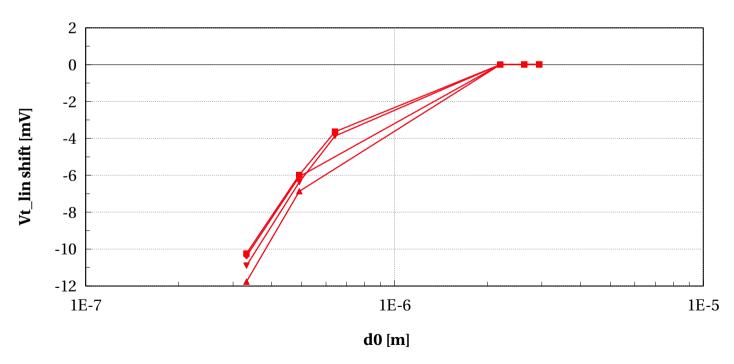






eglvtpfet_acc, Vt_lin shift [mV] vs d0 [m]



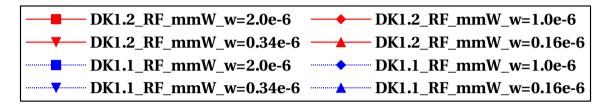


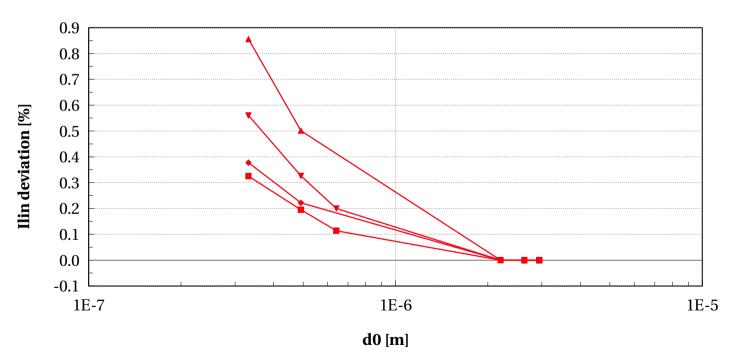






eglvtpfet_acc, Ilin deviation [%] vs d0 [m]



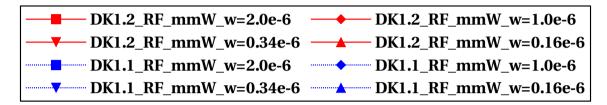


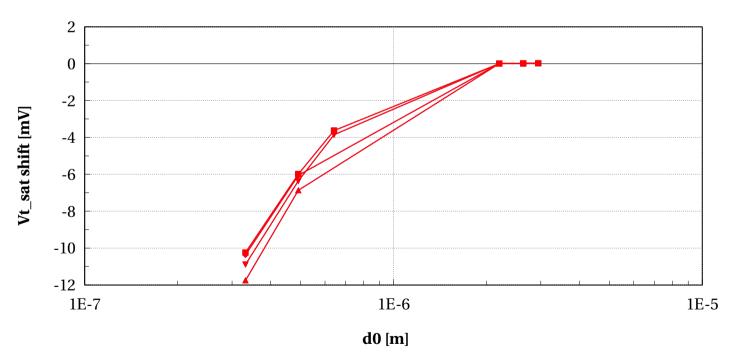






eglvtpfet_acc, Vt_sat shift [mV] vs d0 [m]



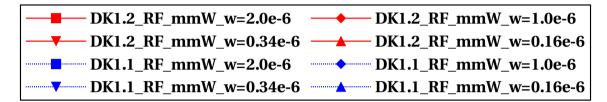


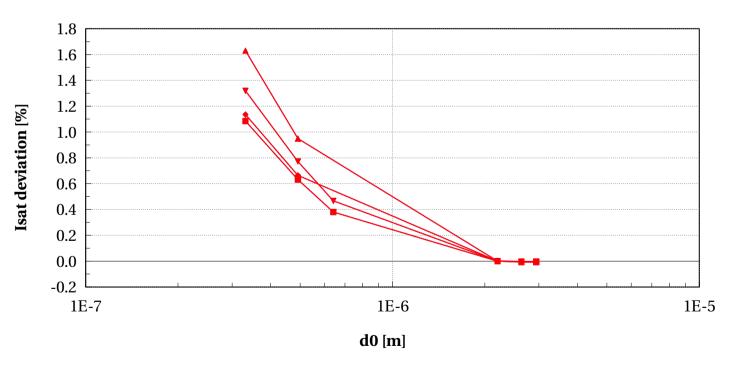






eglvtpfet_acc, Isat deviation [%] vs d0 [m]



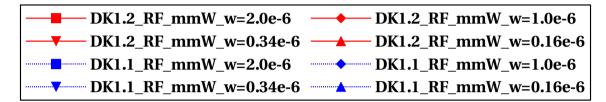


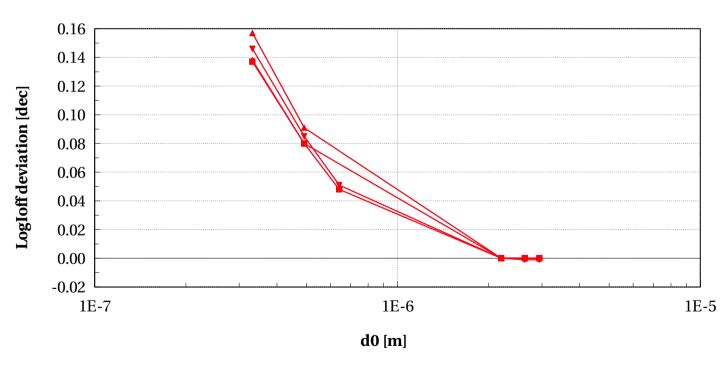






eglvtpfet_acc, LogIoff deviation [dec] vs d0 [m]











WPE effect w.r.t d1 - Wscaling at L=0.15u

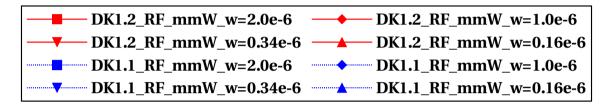


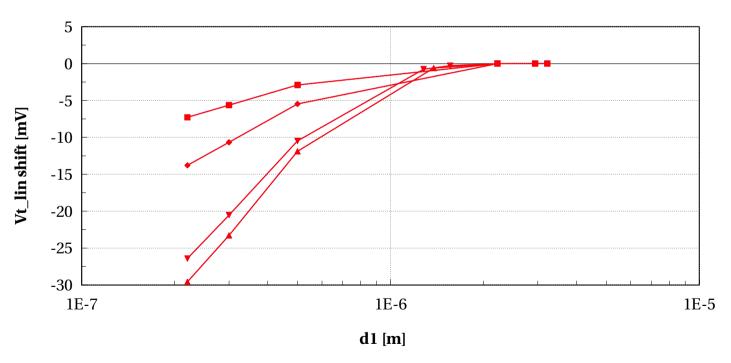


dormieub



eglvtpfet_acc, Vt_lin shift [mV] vs d1 [m]





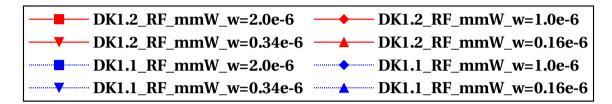


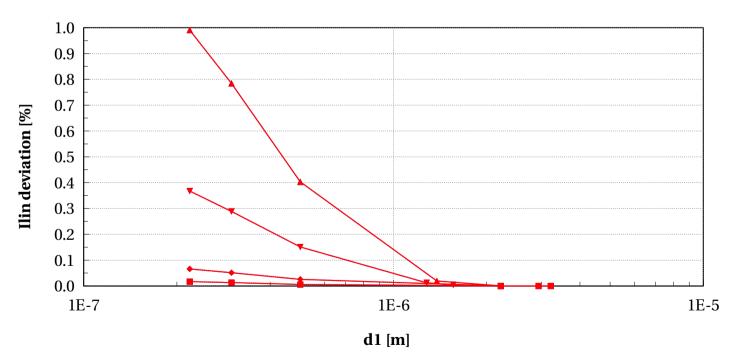




eglvtpfet_acc, Ilin deviation [%] vs d1 [m]

temp==25 and d0==10e-6 and L==0.15e-6





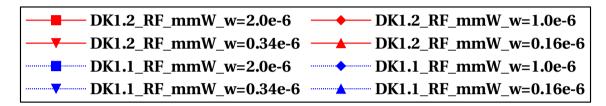


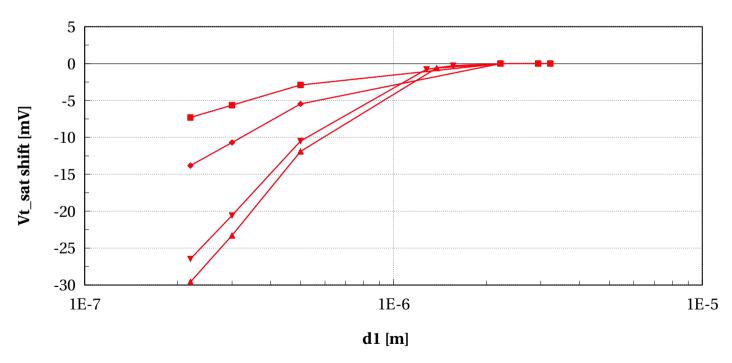


dormieub



eglvtpfet_acc, Vt_sat shift [mV] vs d1 [m]



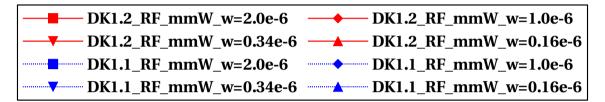


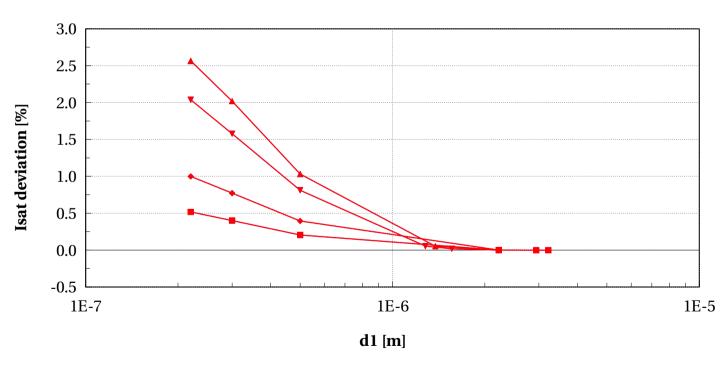






eglvtpfet_acc, Isat deviation [%] vs d1 [m]



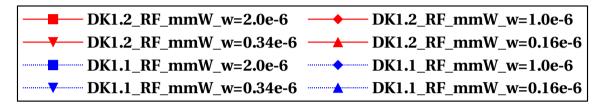


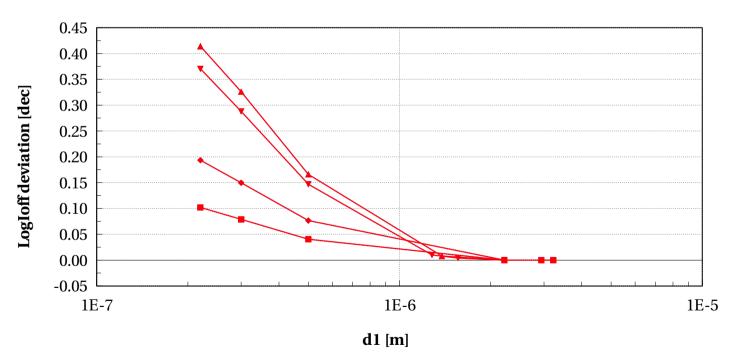






eglvtpfet_acc, LogIoff deviation [dec] vs d1 [m]











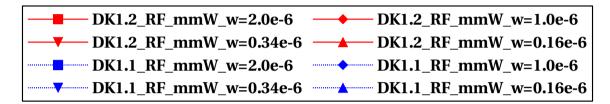
WPE effect w.r.t d1 - Wscaling at L=0.3u

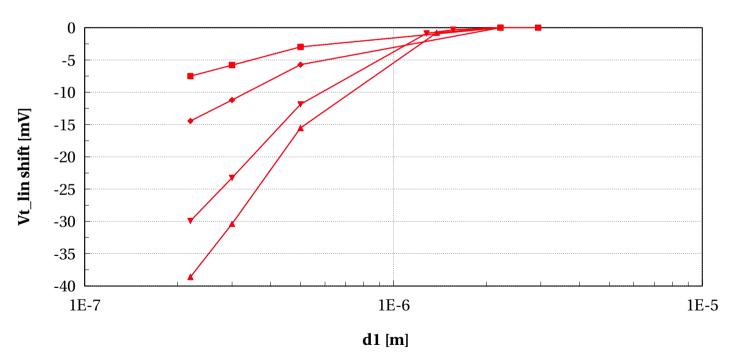


dormieub



eglvtpfet_acc, Vt_lin shift [mV] vs d1 [m]



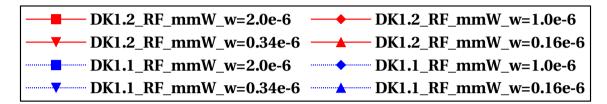


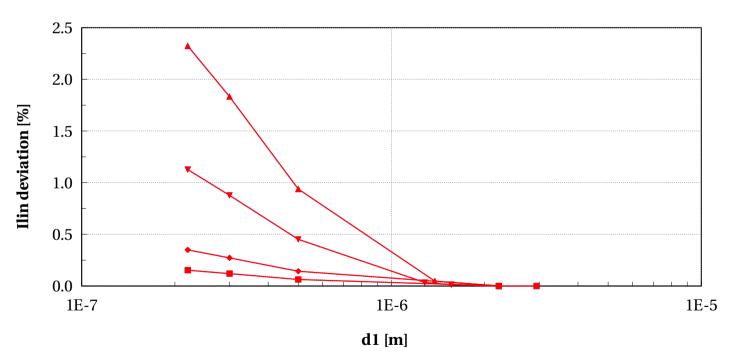






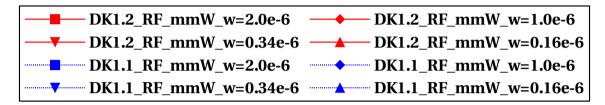
eglvtpfet_acc, Ilin deviation [%] vs d1 [m]

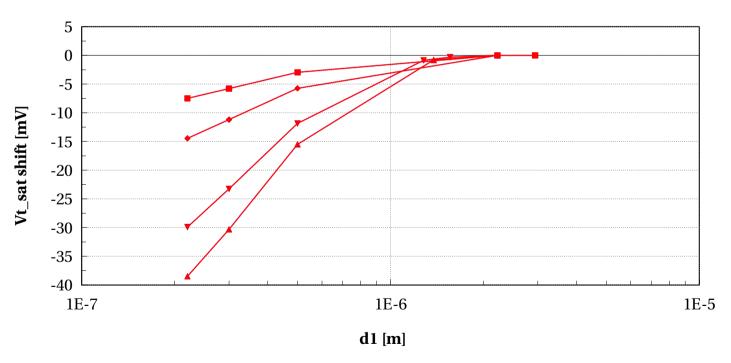






eglvtpfet_acc, Vt_sat shift [mV] vs d1 [m]



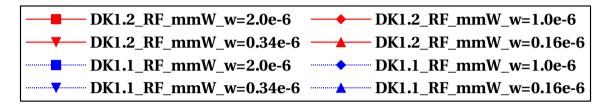


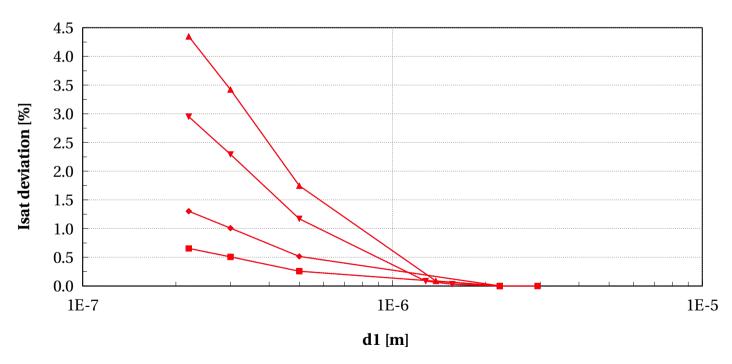






eglvtpfet_acc, Isat deviation [%] vs d1 [m]



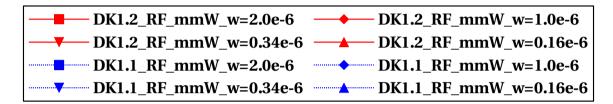


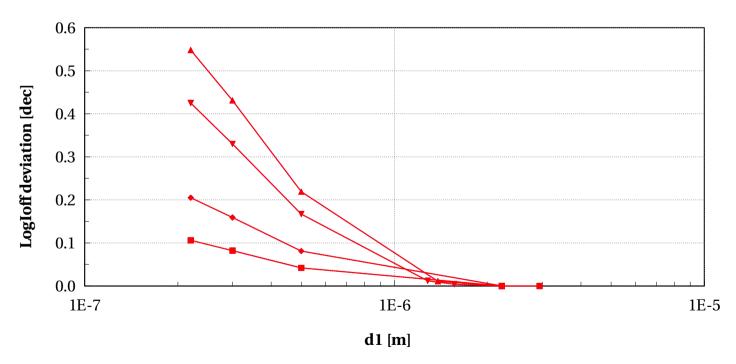






eglvtpfet_acc, LogIoff deviation [dec] vs d1 [m]











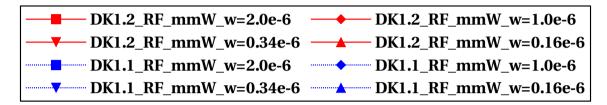
WPE effect w.r.t d1 - Wscaling at L=1u

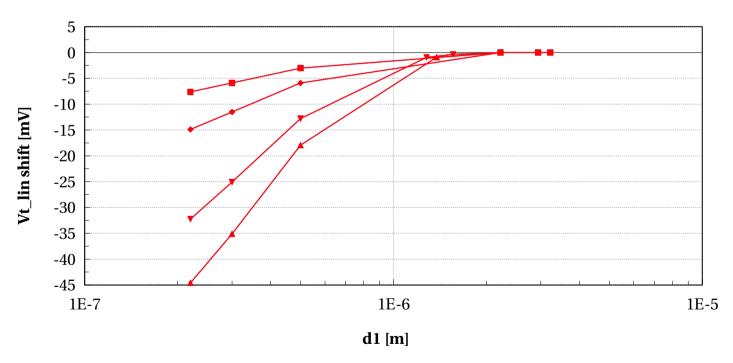






eglvtpfet_acc, Vt_lin shift [mV] vs d1 [m]

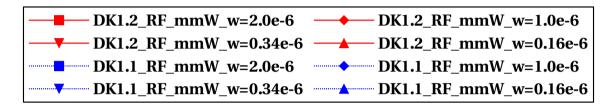


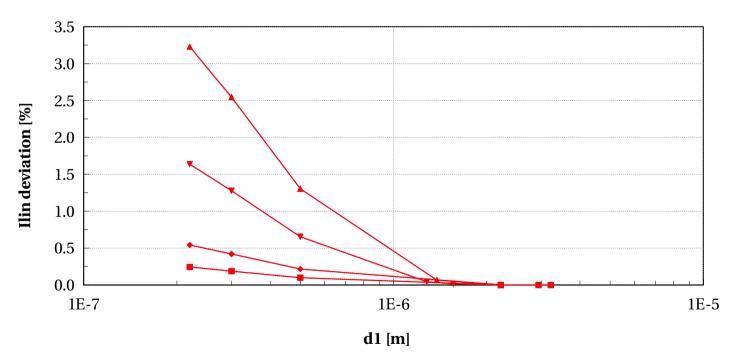






eglvtpfet_acc, Ilin deviation [%] vs d1 [m]





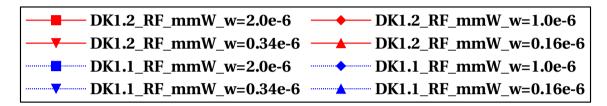


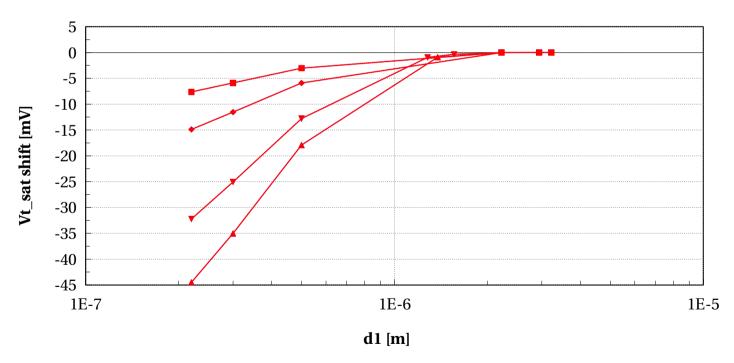




eglvtpfet_acc, Vt_sat shift [mV] vs d1 [m]

temp==25 and d0==10e-6 and L==1e-6





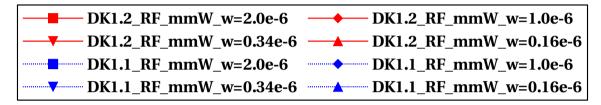


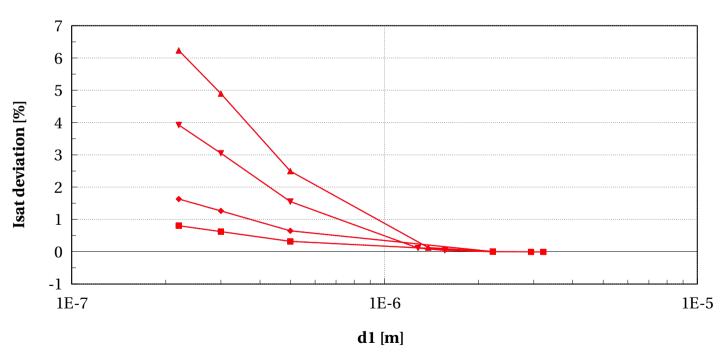




eglvtpfet_acc, Isat deviation [%] vs d1 [m]

temp==25 and d0==10e-6 and L==1e-6



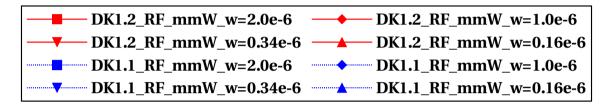


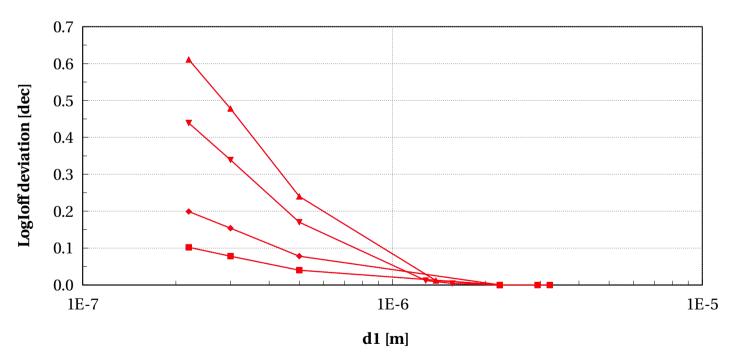






eglvtpfet_acc, LogIoff deviation [dec] vs d1 [m]











WPE effect w.r.t d1 - Lscaling at W=0.16u

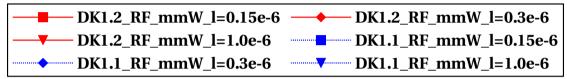


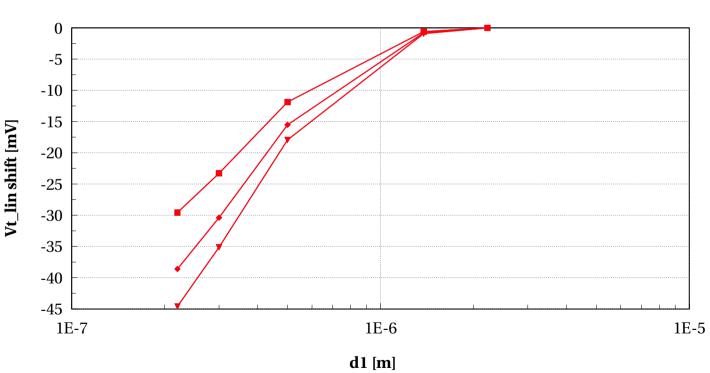


dormieub



eglvtpfet_acc, Vt_lin shift [mV] vs d1 [m]



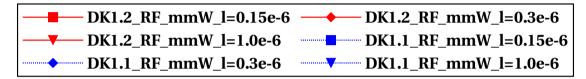


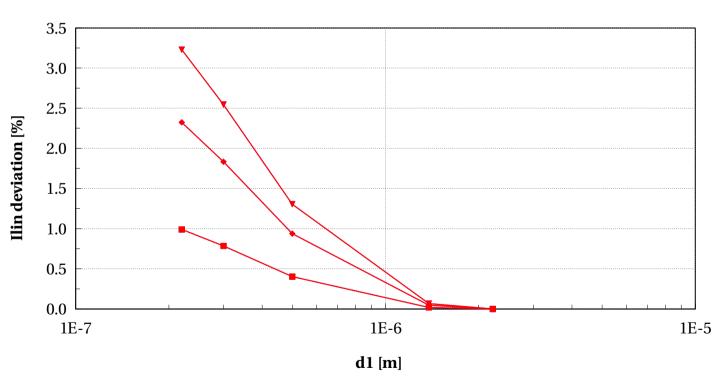






eglvtpfet_acc, Ilin deviation [%] vs d1 [m]



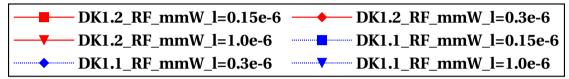


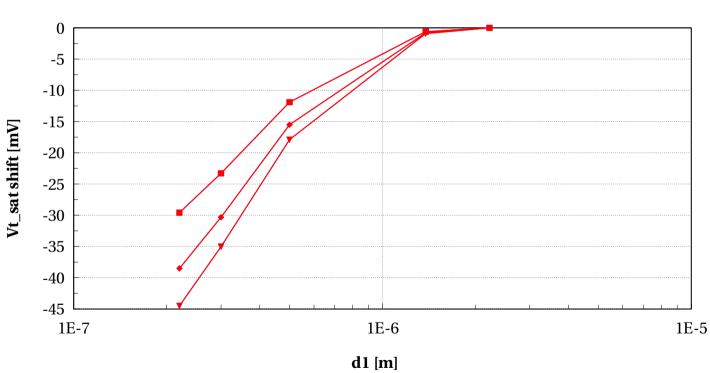






eglvtpfet_acc, Vt_sat shift [mV] vs d1 [m]





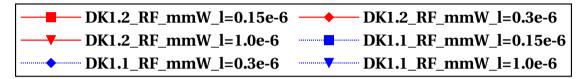


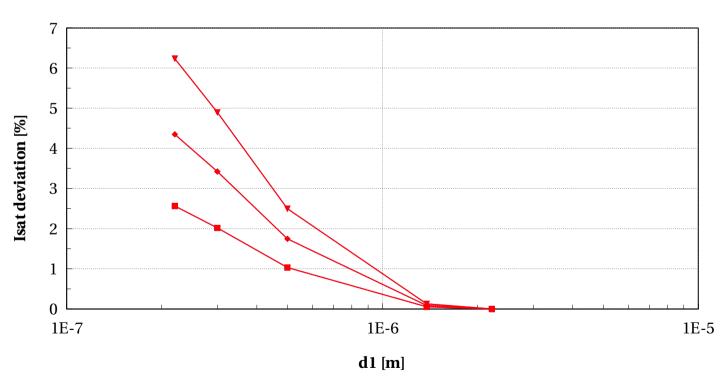




eglvtpfet_acc, Isat deviation [%] vs d1 [m]

temp==25 and d0==10e-6 and W==0.16e-6

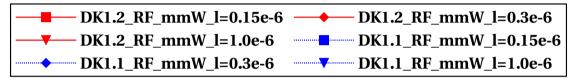


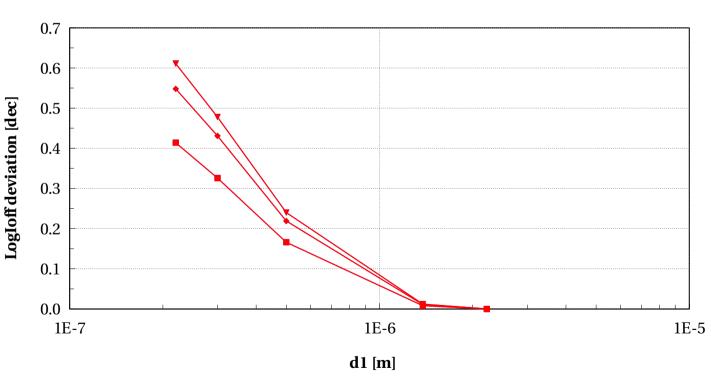






eglvtpfet_acc, LogIoff deviation [dec] vs d1 [m]











WPE effect w.r.t d1 - Lscaling at W=2u

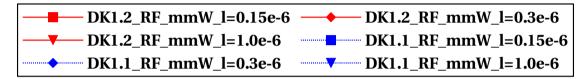


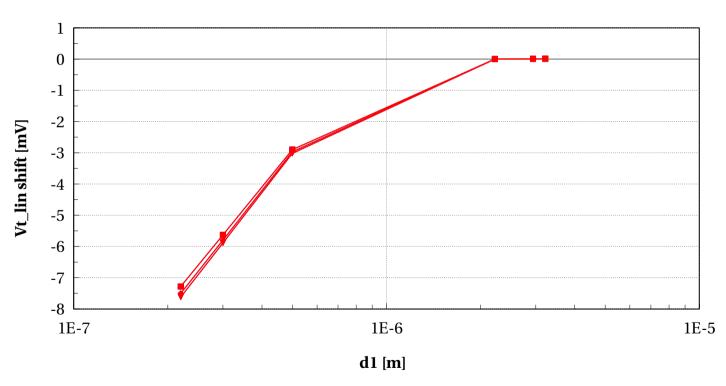


dormieub



eglvtpfet_acc, Vt_lin shift [mV] vs d1 [m]



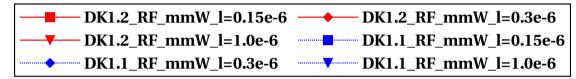


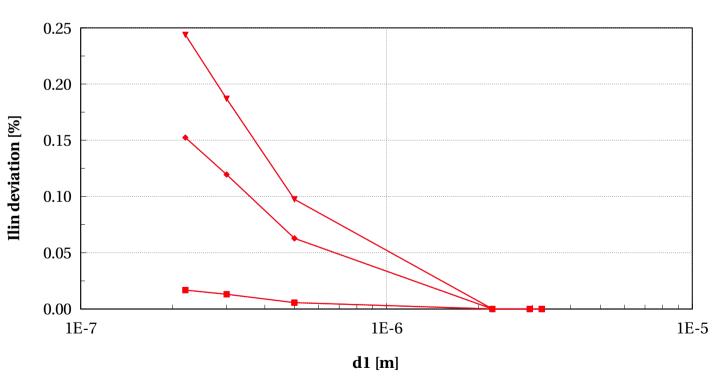






eglvtpfet_acc, Ilin deviation [%] vs d1 [m]

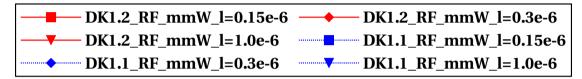


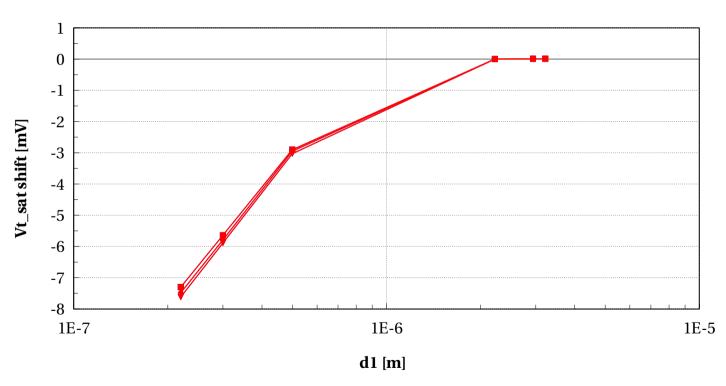






eglvtpfet_acc, Vt_sat shift [mV] vs d1 [m]



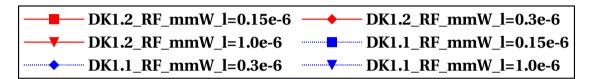


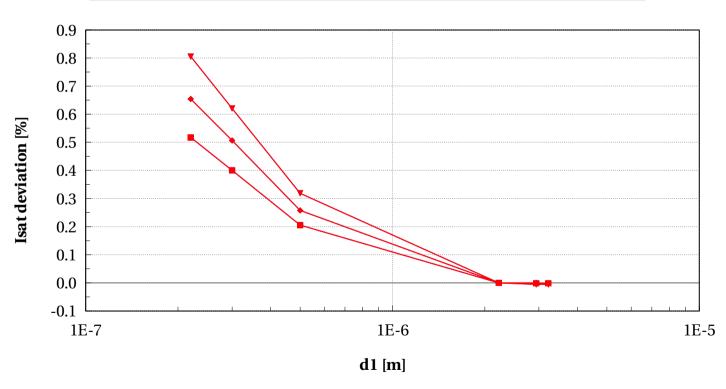






eglvtpfet_acc, Isat deviation [%] vs d1 [m]



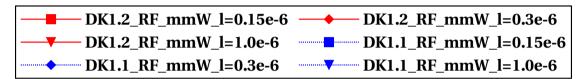


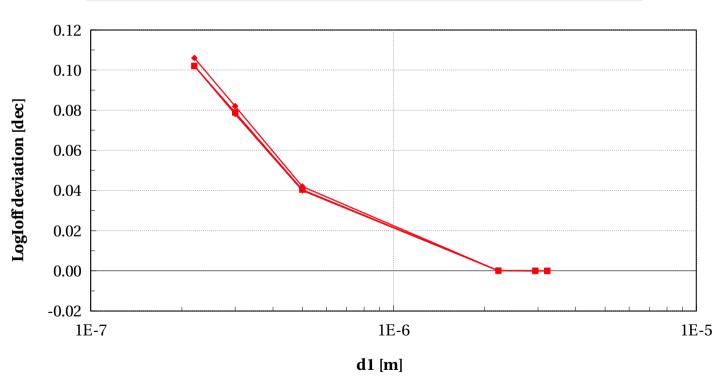






eglvtpfet_acc, LogIoff deviation [dec] vs d1 [m]











egnfet_acc Electrical characteristics scaling





dormieub



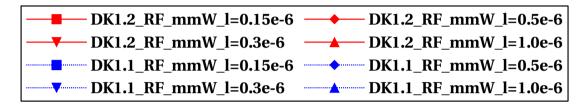
WPE effect w.r.t d0 - Lscaling at W=2u

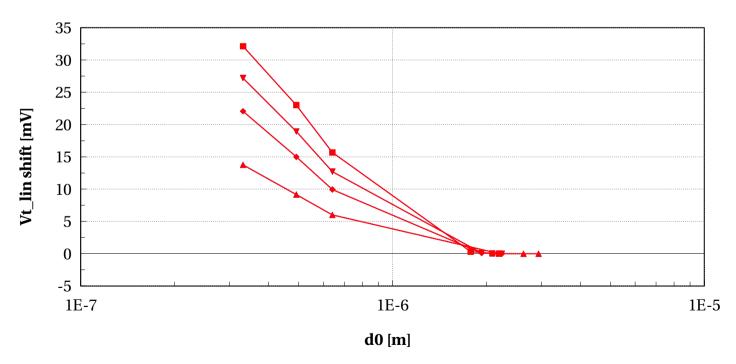






egnfet_acc, Vt_lin shift [mV] vs d0 [m]



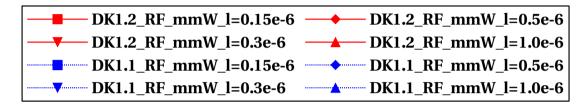


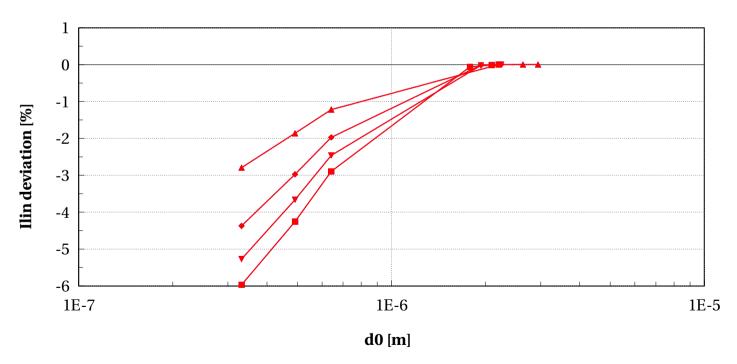






egnfet_acc, Ilin deviation [%] vs d0 [m]



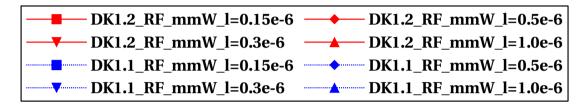


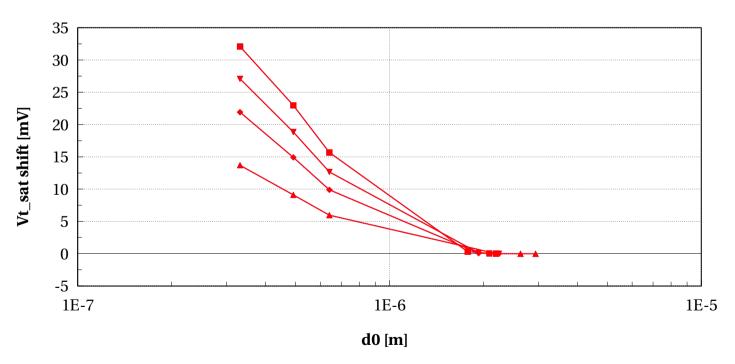






egnfet_acc, Vt_sat shift [mV] vs d0 [m]



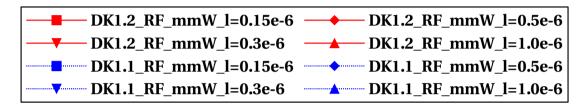


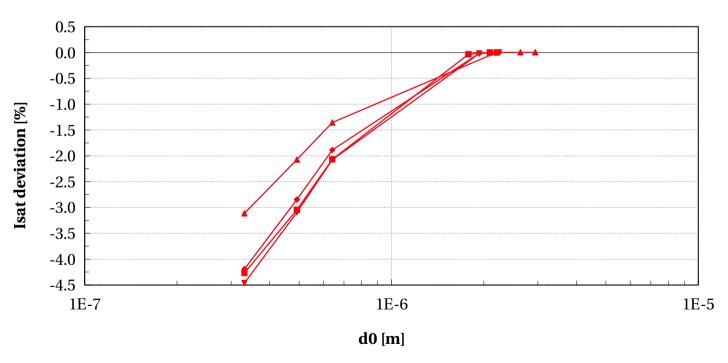






egnfet_acc, Isat deviation [%] vs d0 [m]

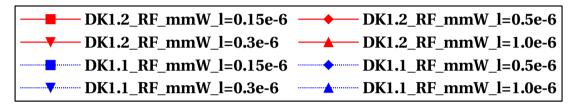


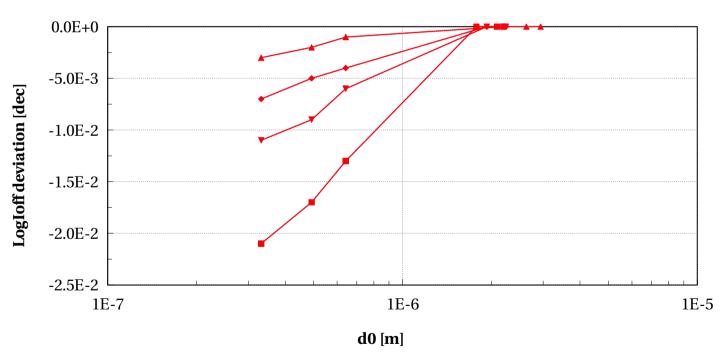






egnfet_acc, LogIoff deviation [dec] vs d0 [m]











WPE effect w.r.t d0 - Lscaling at W=0.34u

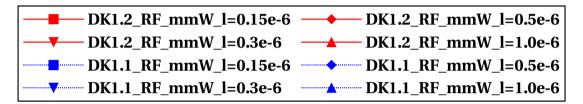


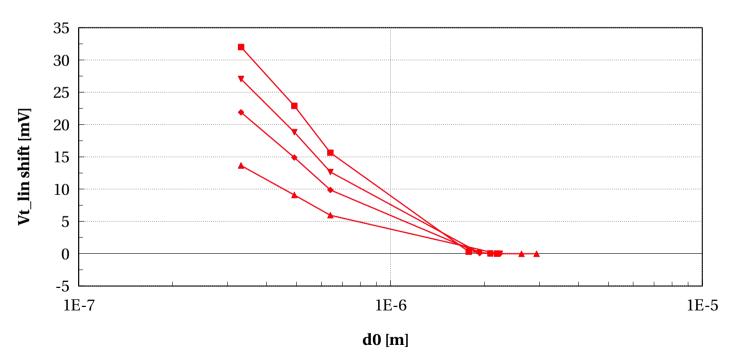


dormieub



egnfet_acc, Vt_lin shift [mV] vs d0 [m]



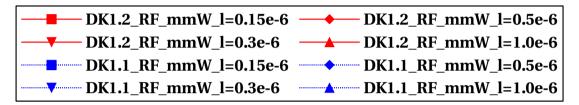


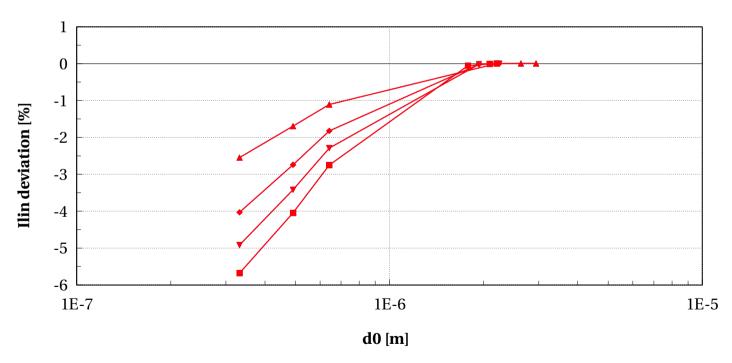






egnfet_acc, Ilin deviation [%] vs d0 [m]



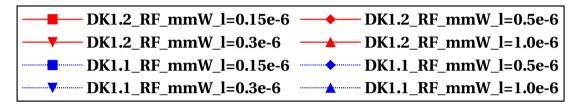


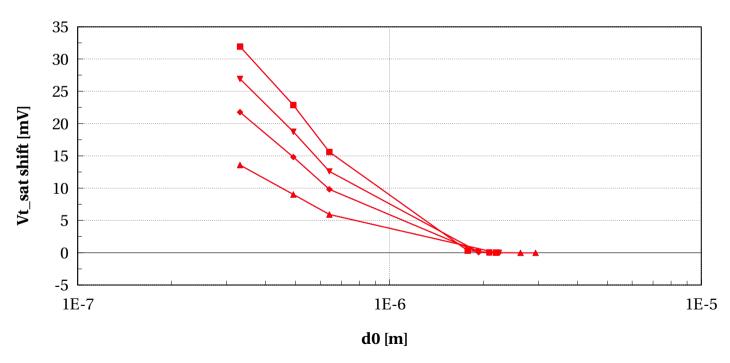






egnfet_acc, Vt_sat shift [mV] vs d0 [m]



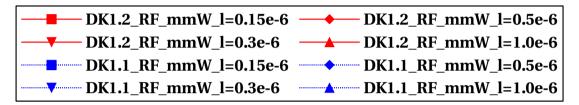


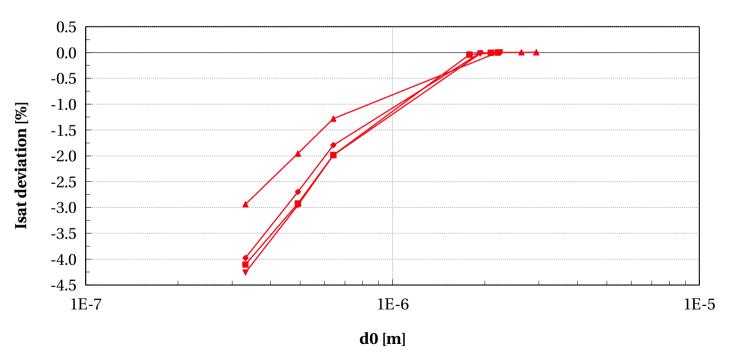






egnfet_acc, Isat deviation [%] vs d0 [m]



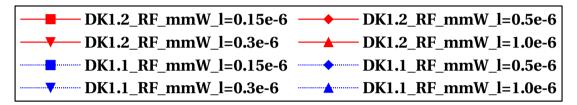


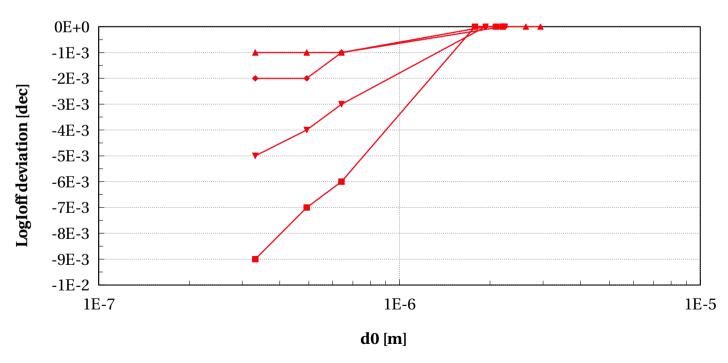






egnfet_acc, LogIoff deviation [dec] vs d0 [m]











WPE effect w.r.t d0 - Lscaling at W=0.16u

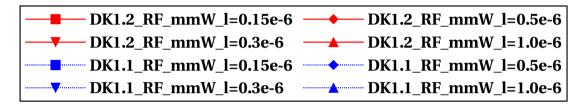


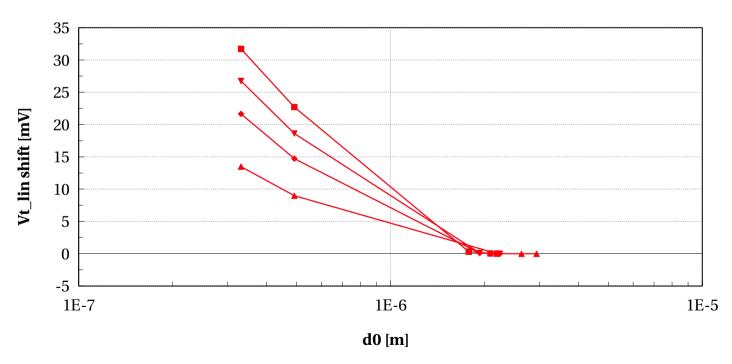


dormieub



egnfet_acc, Vt_lin shift [mV] vs d0 [m]



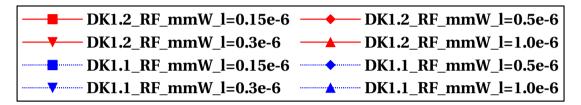


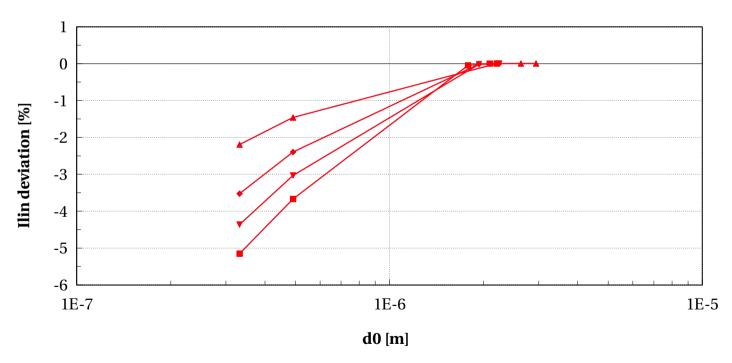






egnfet_acc, Ilin deviation [%] vs d0 [m]



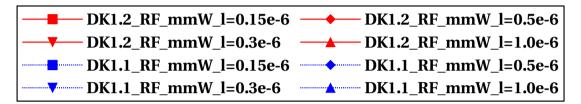


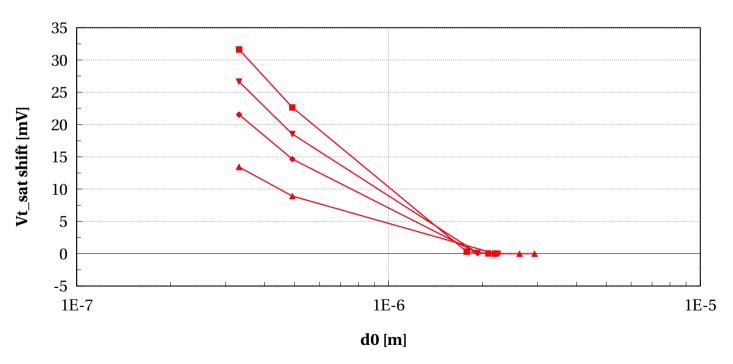






egnfet_acc, Vt_sat shift [mV] vs d0 [m]



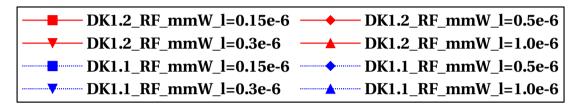


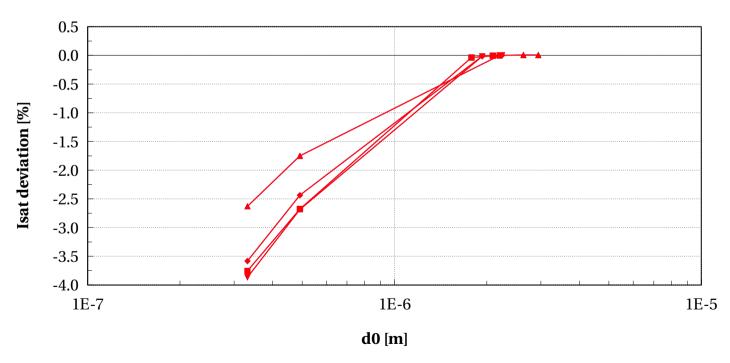






egnfet_acc, Isat deviation [%] vs d0 [m]



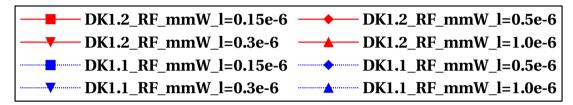


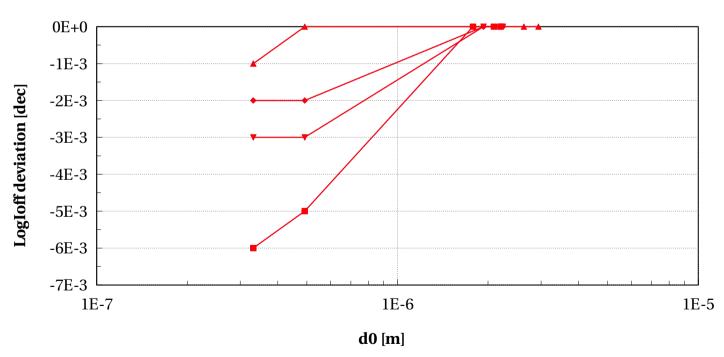






egnfet_acc, LogIoff deviation [dec] vs d0 [m]











WPE effect w.r.t d0 - Wscaling at L=0.15u

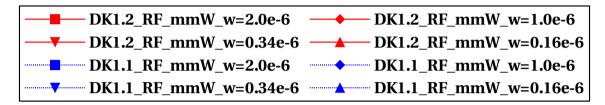


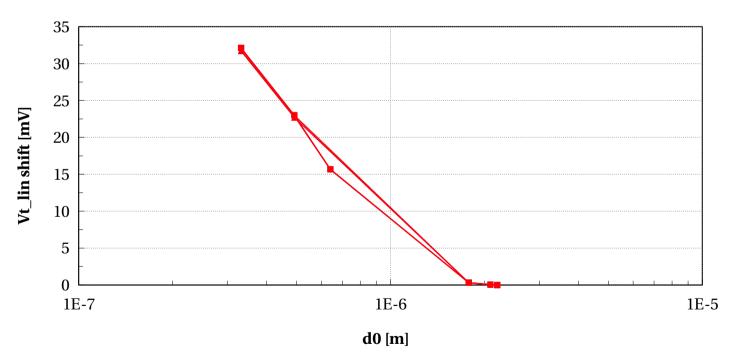


dormieub



egnfet_acc, Vt_lin shift [mV] vs d0 [m]



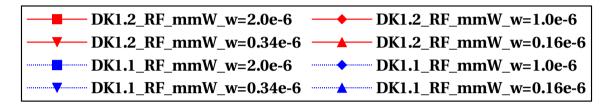


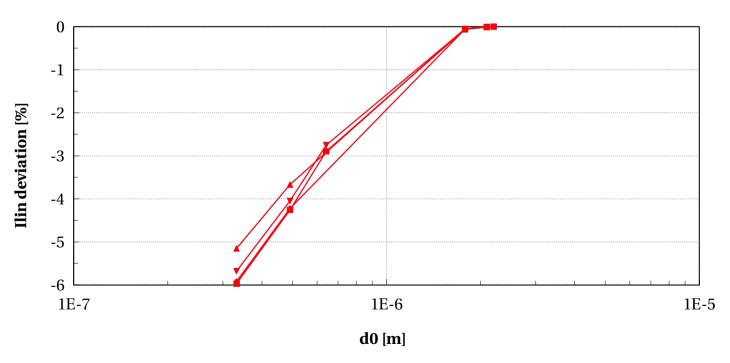






egnfet_acc, Ilin deviation [%] vs d0 [m]



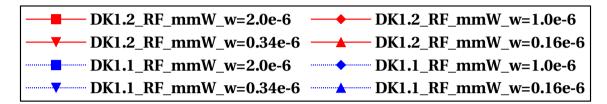


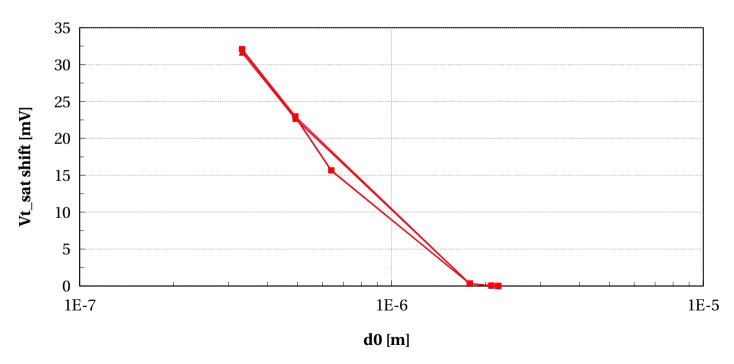






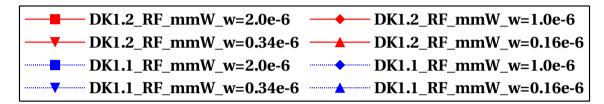
egnfet_acc, Vt_sat shift [mV] vs d0 [m]

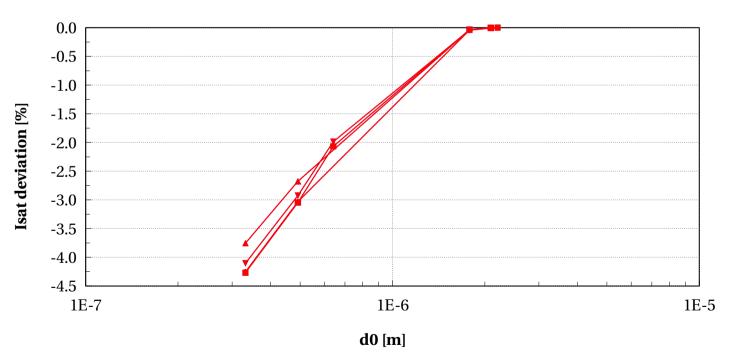






egnfet_acc, Isat deviation [%] vs d0 [m]



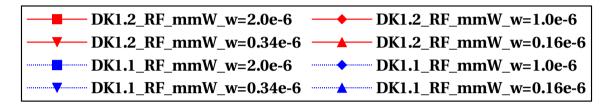


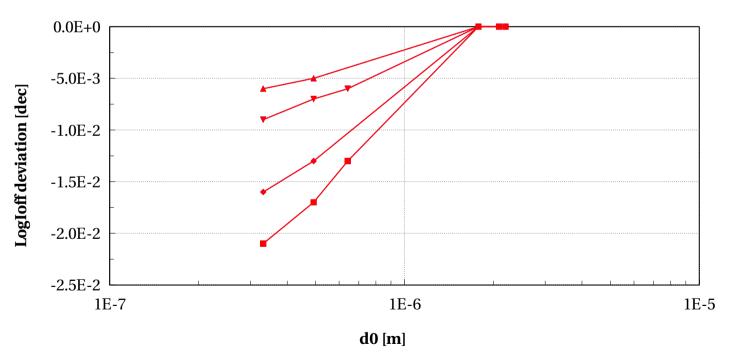






egnfet_acc, LogIoff deviation [dec] vs d0 [m]









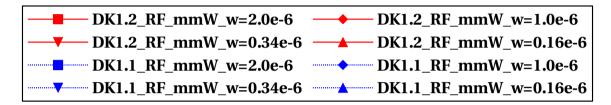


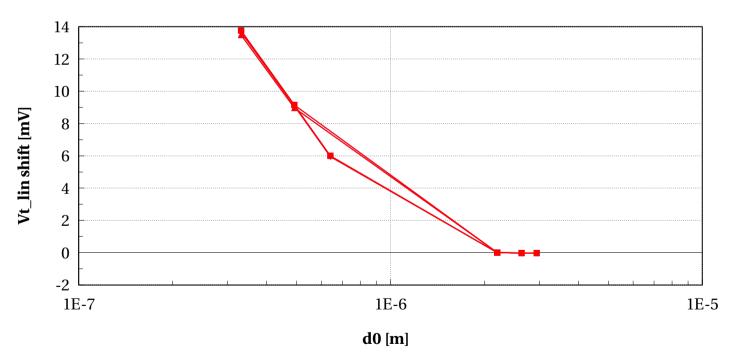
WPE effect w.r.t d0 - Wscaling at L=1u





egnfet_acc, Vt_lin shift [mV] vs d0 [m]



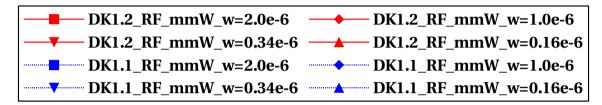


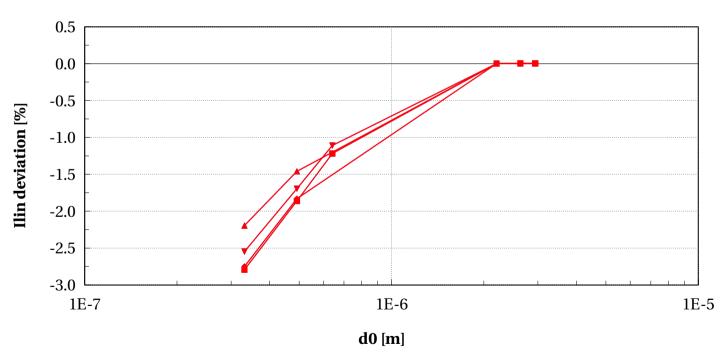






egnfet_acc, Ilin deviation [%] vs d0 [m]



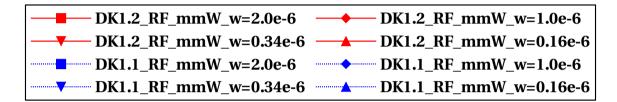


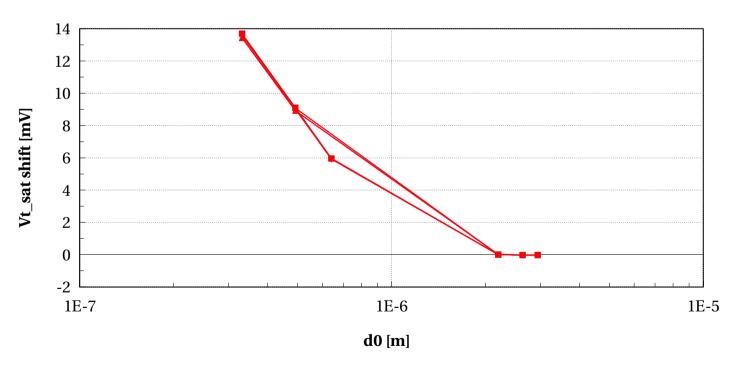






egnfet_acc, Vt_sat shift [mV] vs d0 [m]



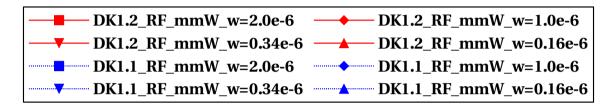


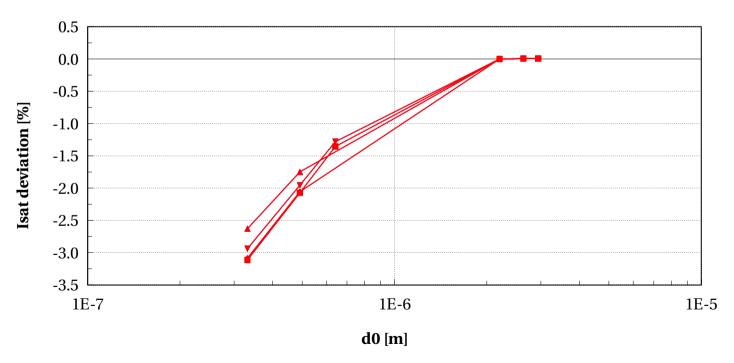






egnfet_acc, Isat deviation [%] vs d0 [m]



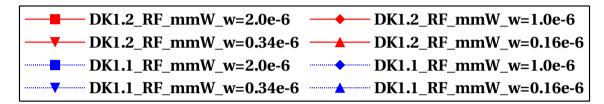


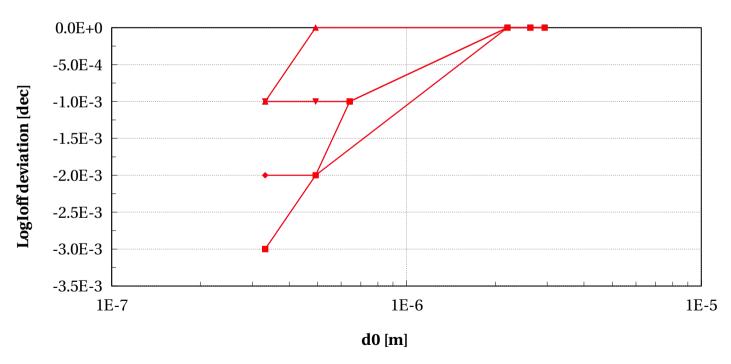






egnfet_acc, LogIoff deviation [dec] vs d0 [m]











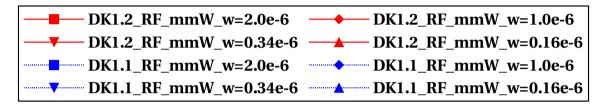
WPE effect w.r.t d1 - Wscaling at L=0.15u

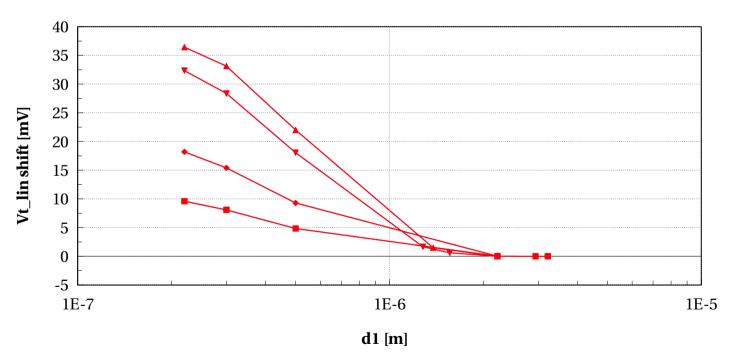






egnfet_acc, Vt_lin shift [mV] vs d1 [m]



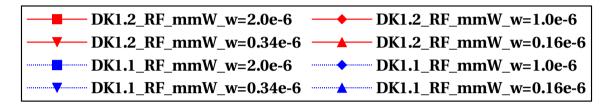


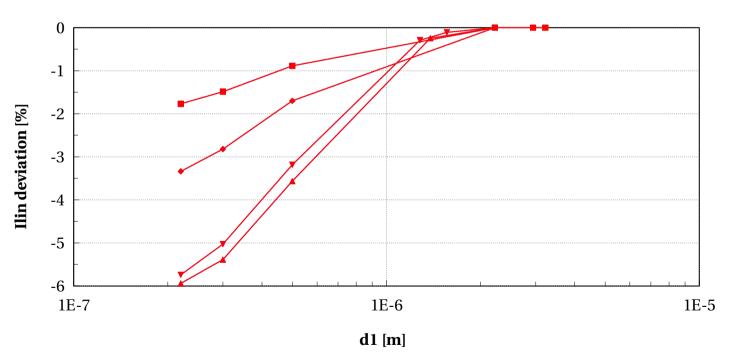






egnfet_acc, Ilin deviation [%] vs d1 [m]



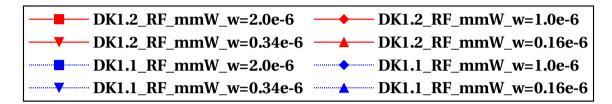


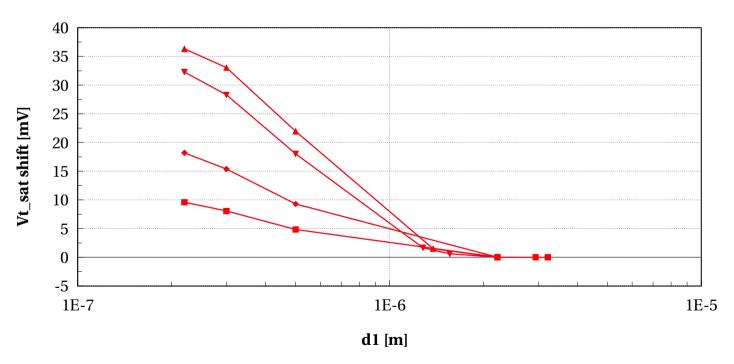






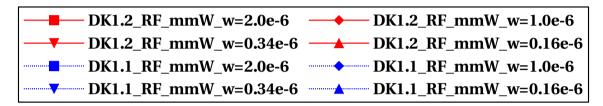
egnfet_acc, Vt_sat shift [mV] vs d1 [m]

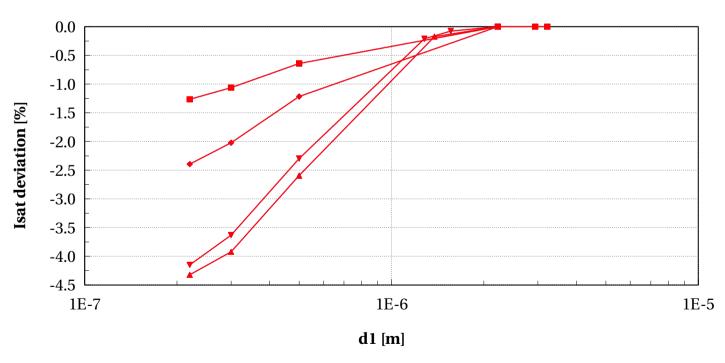






egnfet_acc, Isat deviation [%] vs d1 [m]



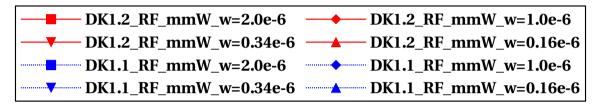


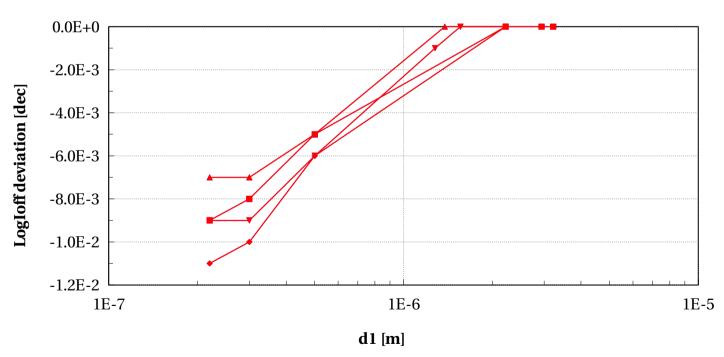






egnfet_acc, LogIoff deviation [dec] vs d1 [m]











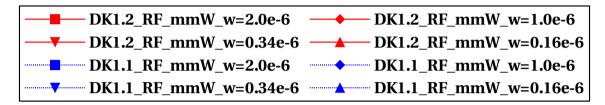
WPE effect w.r.t d1 - Wscaling at L=0.3u

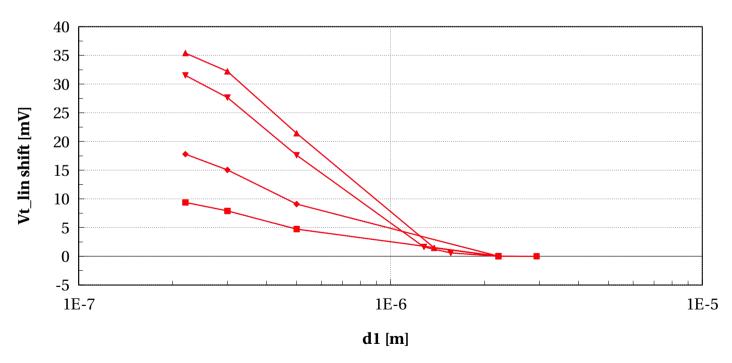






egnfet_acc, Vt_lin shift [mV] vs d1 [m]



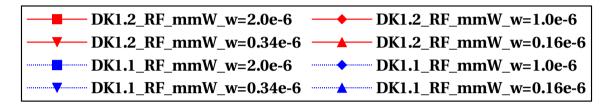


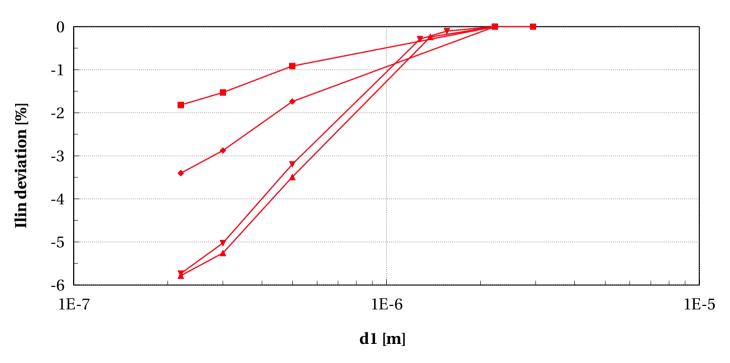






egnfet_acc, Ilin deviation [%] vs d1 [m]



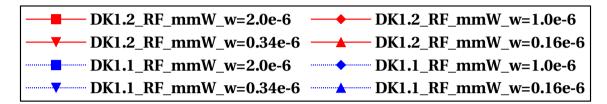


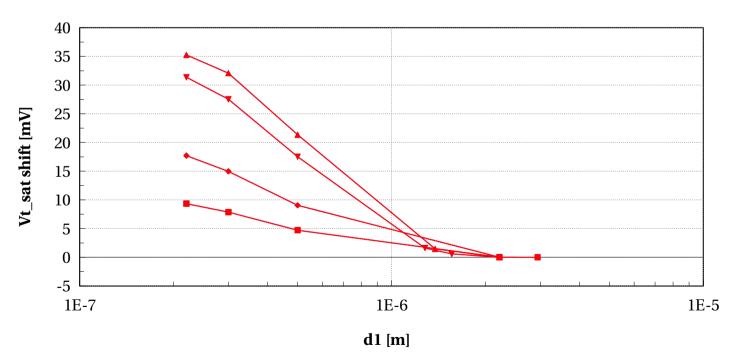






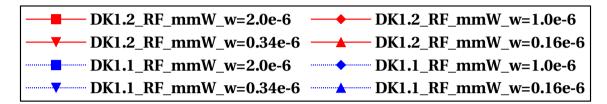
egnfet_acc, Vt_sat shift [mV] vs d1 [m]

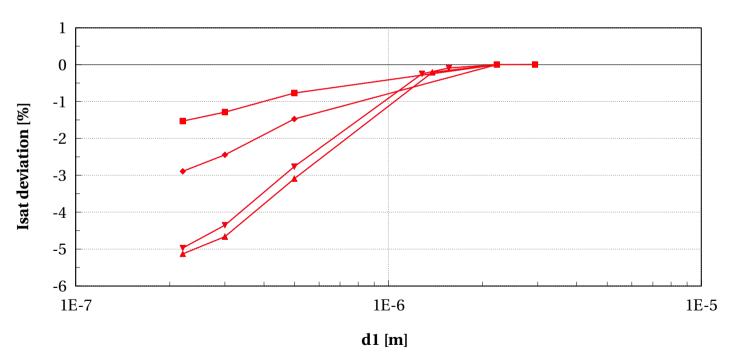






egnfet_acc, Isat deviation [%] vs d1 [m]

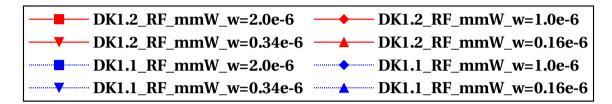


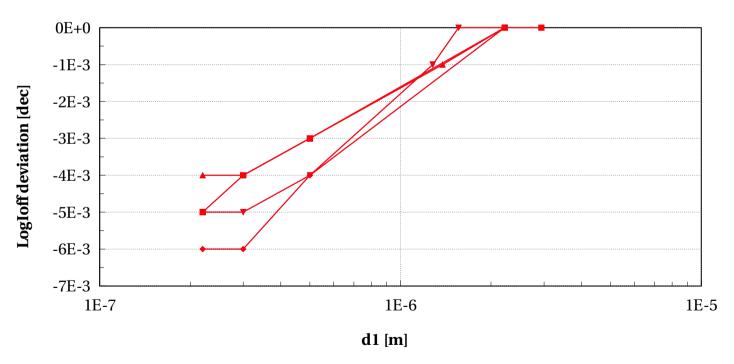






egnfet_acc, LogIoff deviation [dec] vs d1 [m]











WPE effect w.r.t d1 - Wscaling at L=1u

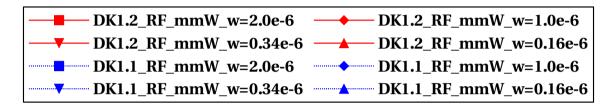


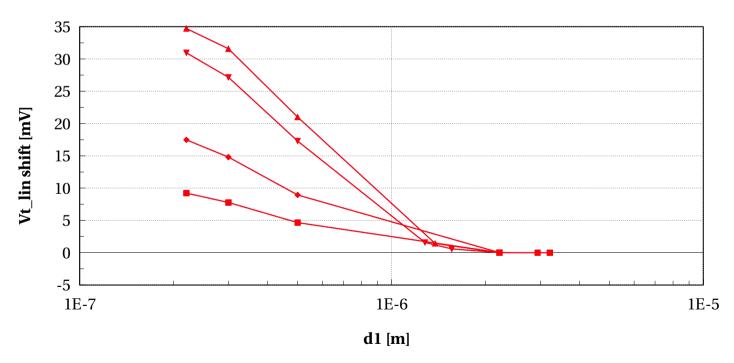




egnfet_acc, Vt_lin shift [mV] vs d1 [m]

temp==25 and d0==10e-6 and L==1e-6





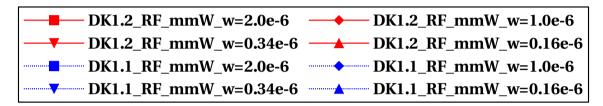


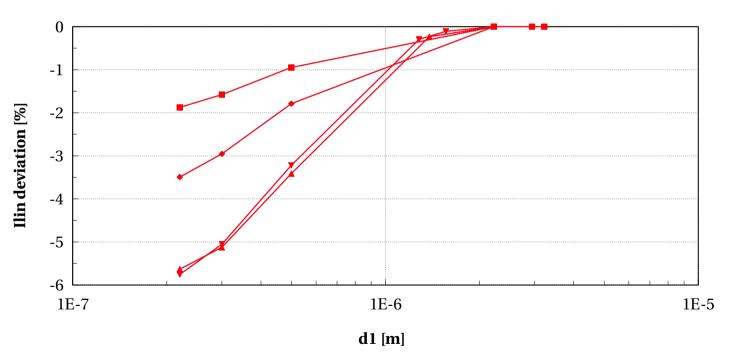




egnfet_acc, Ilin deviation [%] vs d1 [m]

temp==25 and d0==10e-6 and L==1e-6





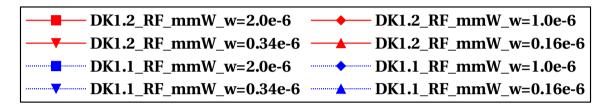


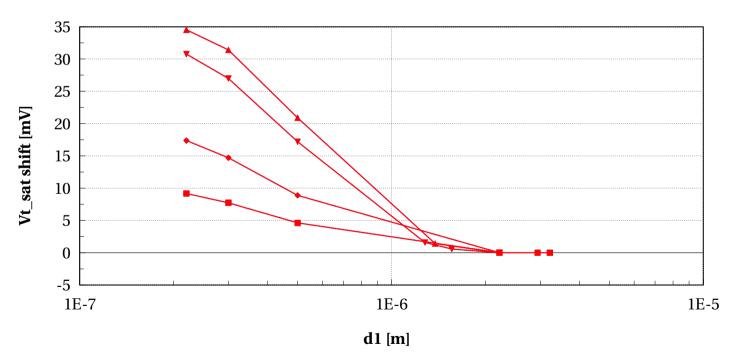




egnfet_acc, Vt_sat shift [mV] vs d1 [m]

temp==25 and d0==10e-6 and L==1e-6







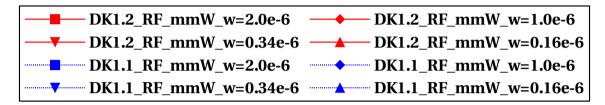


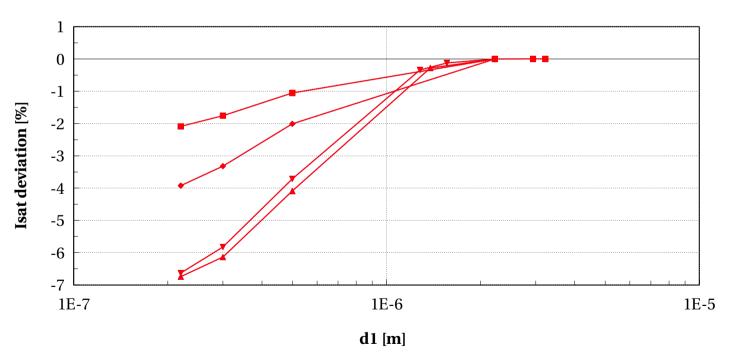
dormieub



egnfet_acc, Isat deviation [%] vs d1 [m]

temp==25 and d0==10e-6 and L==1e-6



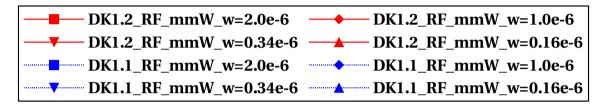


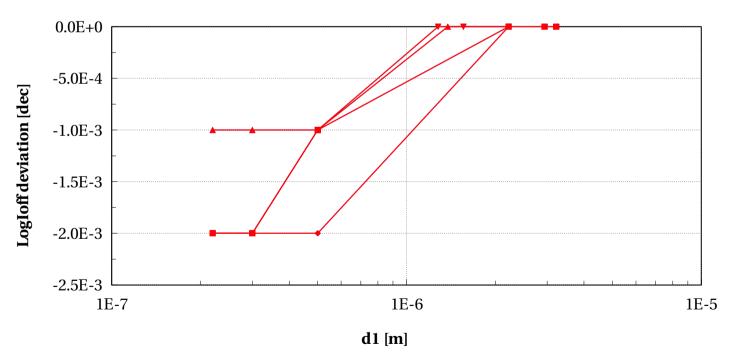






egnfet_acc, LogIoff deviation [dec] vs d1 [m]











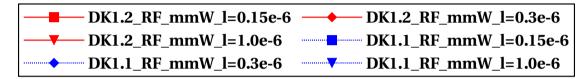
WPE effect w.r.t d1 - Lscaling at W=0.16u

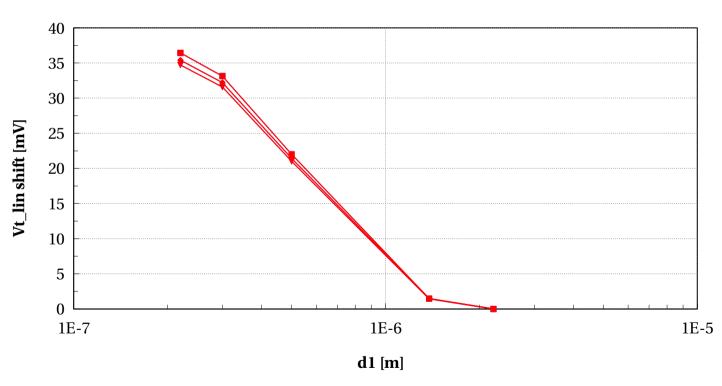






egnfet_acc, Vt_lin shift [mV] vs d1 [m]



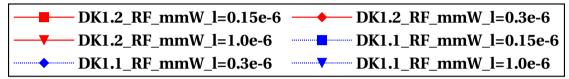


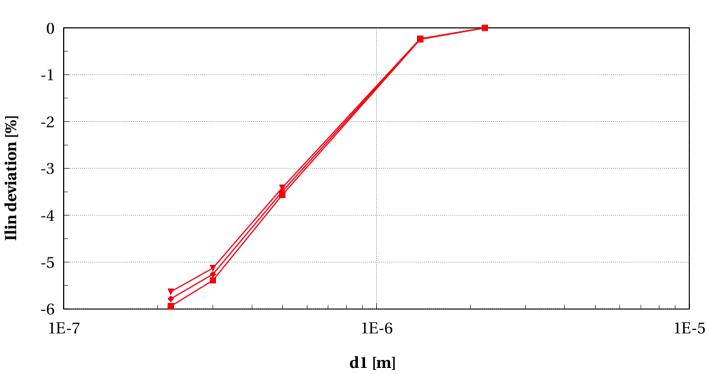






egnfet_acc, Ilin deviation [%] vs d1 [m]



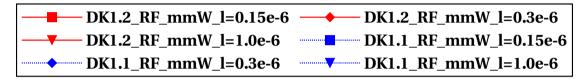


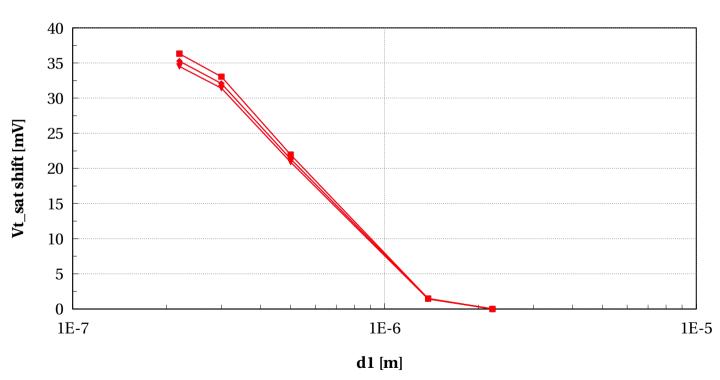






egnfet_acc, Vt_sat shift [mV] vs d1 [m]

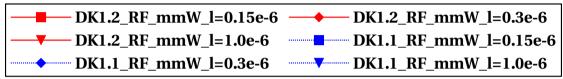


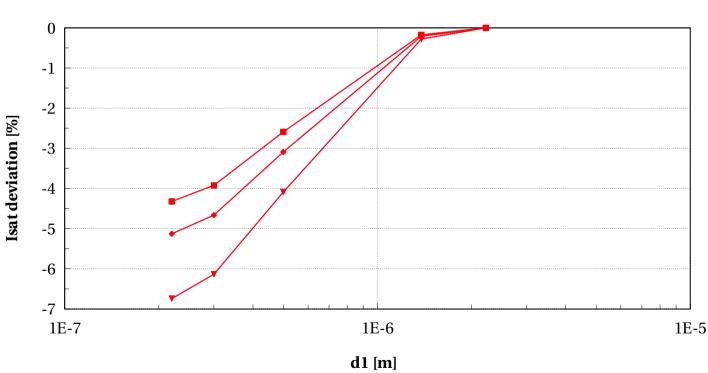






egnfet_acc, Isat deviation [%] vs d1 [m]



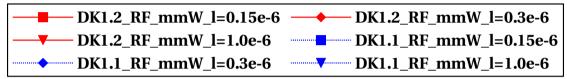


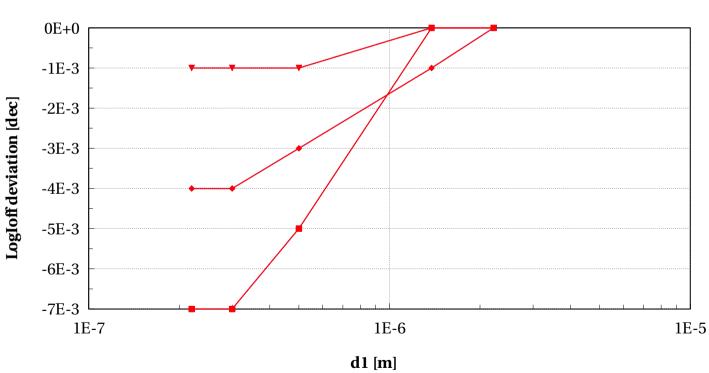






egnfet_acc, LogIoff deviation [dec] vs d1 [m]











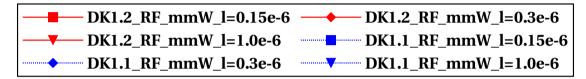
WPE effect w.r.t d1 - Lscaling at W=2u

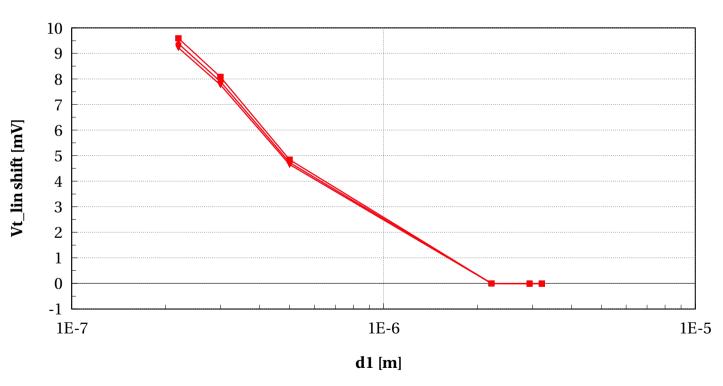


dormieub



egnfet_acc, Vt_lin shift [mV] vs d1 [m]



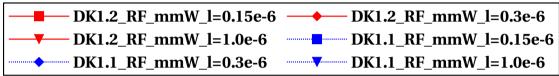


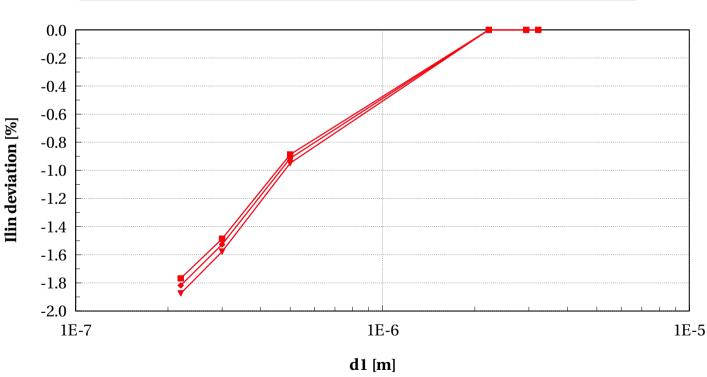






egnfet_acc, Ilin deviation [%] vs d1 [m]



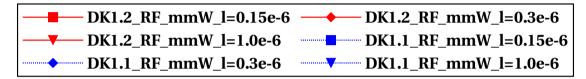


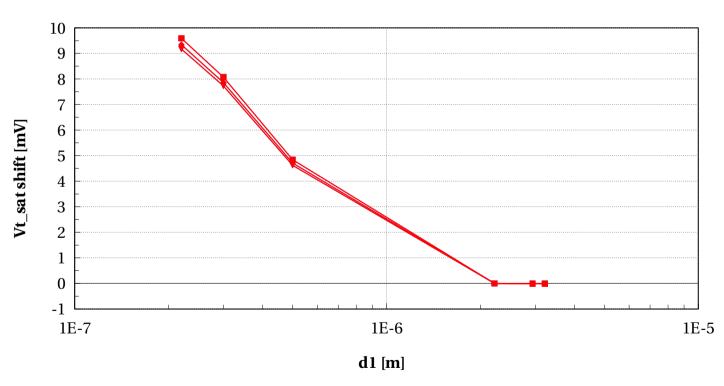


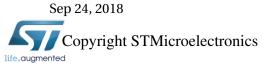




egnfet_acc, Vt_sat shift [mV] vs d1 [m]

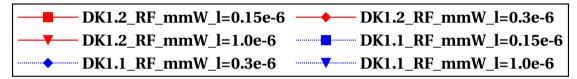


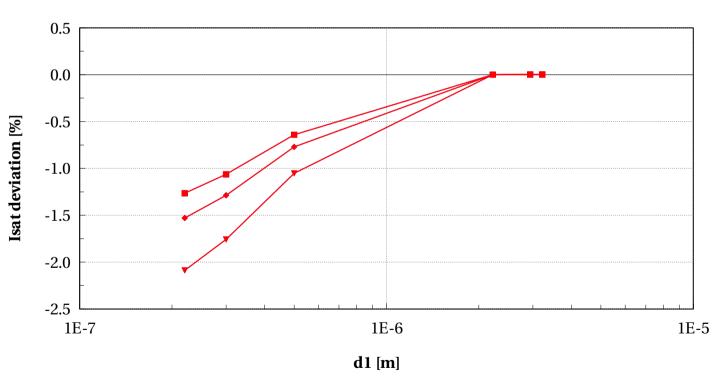






egnfet_acc, Isat deviation [%] vs d1 [m]



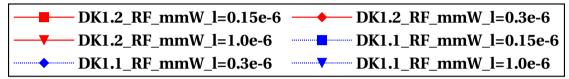


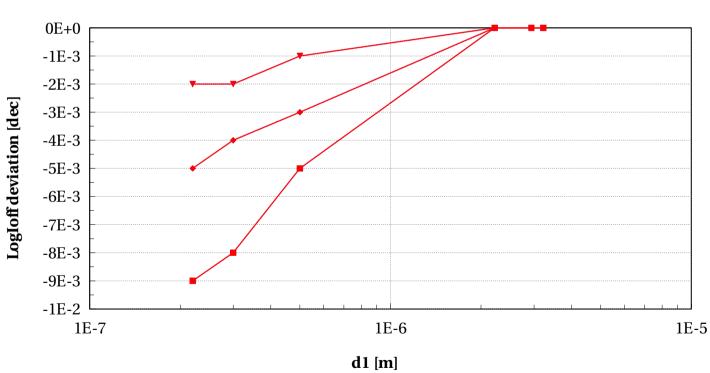






egnfet_acc, LogIoff deviation [dec] vs d1 [m]











egpfet_acc Electrical characteristics scaling







WPE effect w.r.t d0 - Lscaling at W=2u

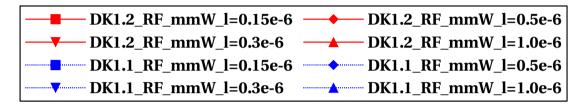


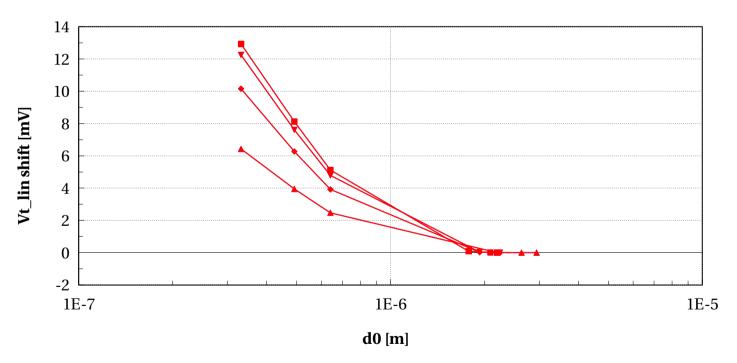


dormieub



egpfet_acc, Vt_lin shift [mV] vs d0 [m]



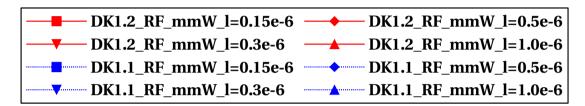


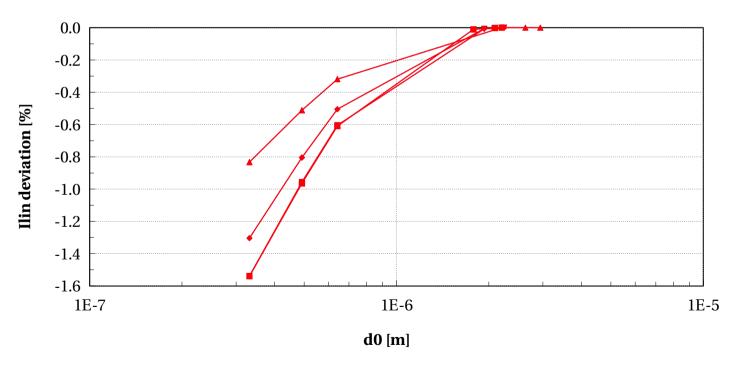






egpfet_acc, Ilin deviation [%] vs d0 [m]



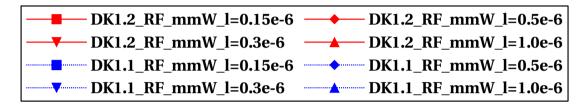


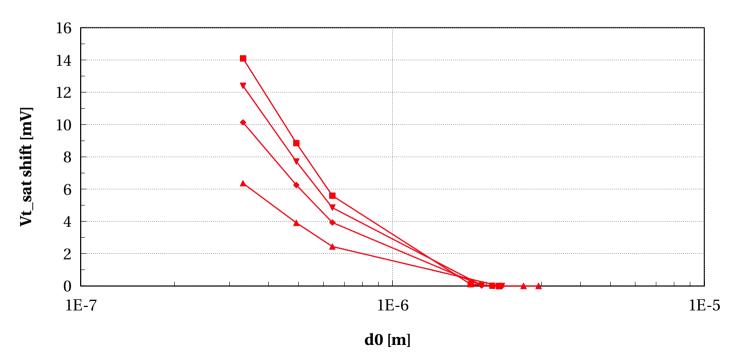






egpfet_acc, Vt_sat shift [mV] vs d0 [m]



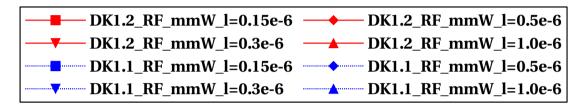


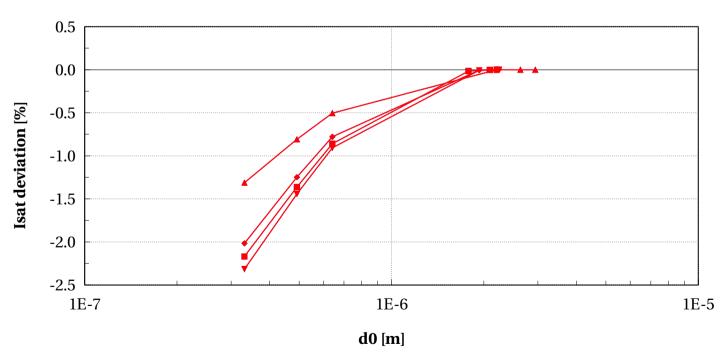






egpfet_acc, Isat deviation [%] vs d0 [m]



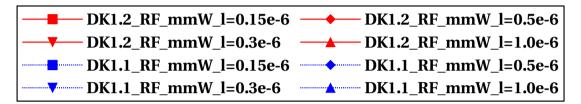


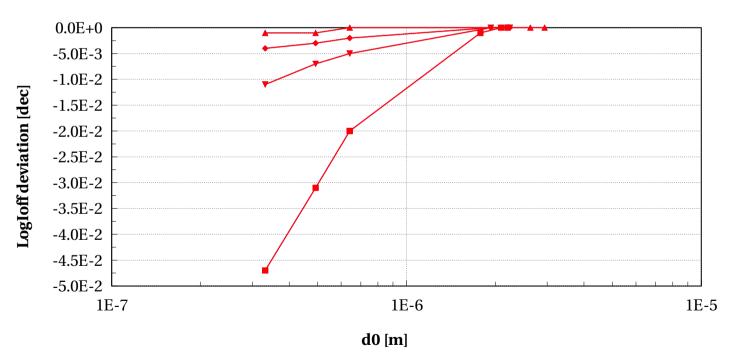






egpfet_acc, LogIoff deviation [dec] vs d0 [m]











WPE effect w.r.t d0 - Lscaling at W=0.34u

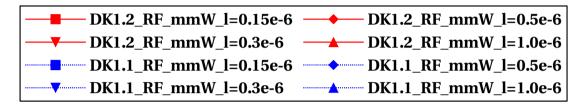


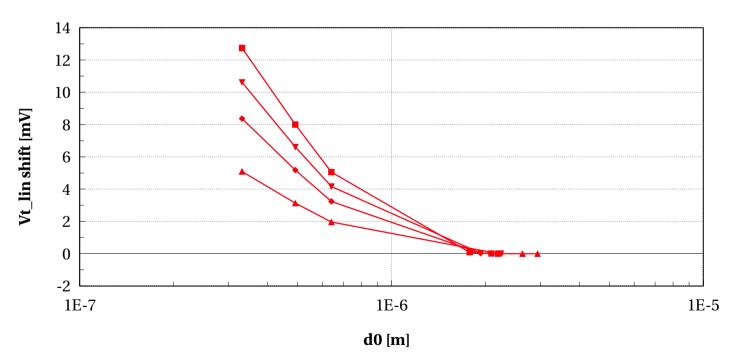


dormieub



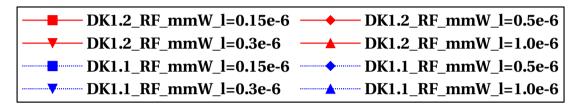
egpfet_acc, Vt_lin shift [mV] vs d0 [m]

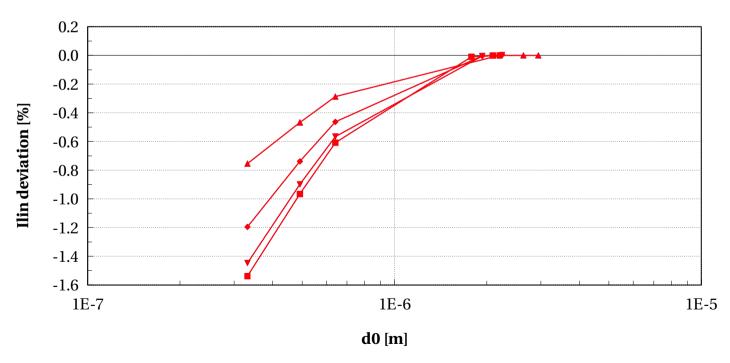






egpfet_acc, Ilin deviation [%] vs d0 [m]



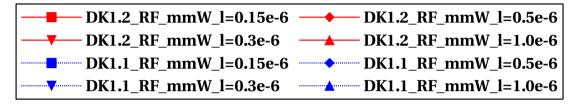


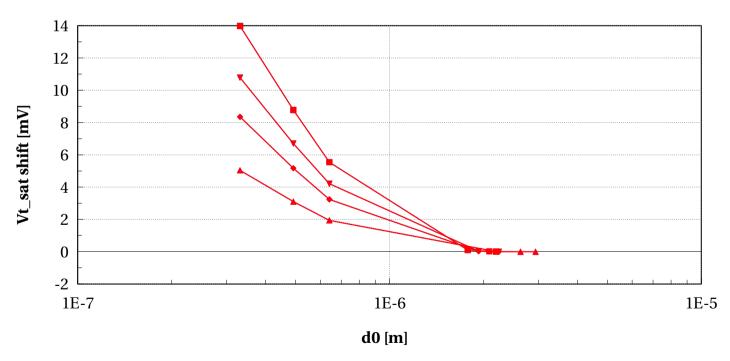






egpfet_acc, Vt_sat shift [mV] vs d0 [m]



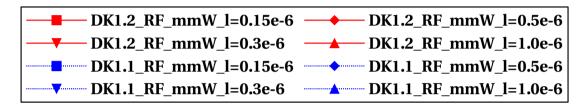


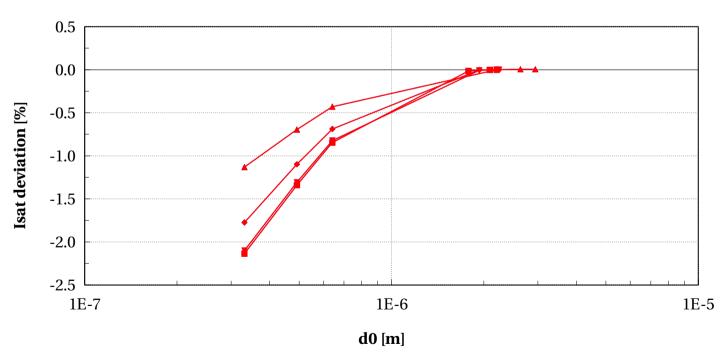






egpfet_acc, Isat deviation [%] vs d0 [m]



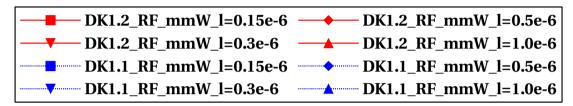


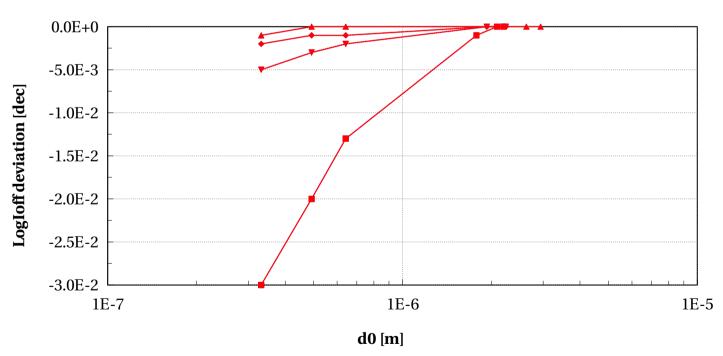


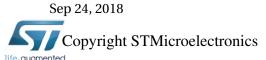




egpfet_acc, LogIoff deviation [dec] vs d0 [m]











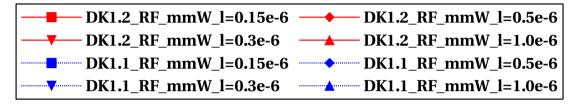
WPE effect w.r.t d0 - Lscaling at W=0.16u

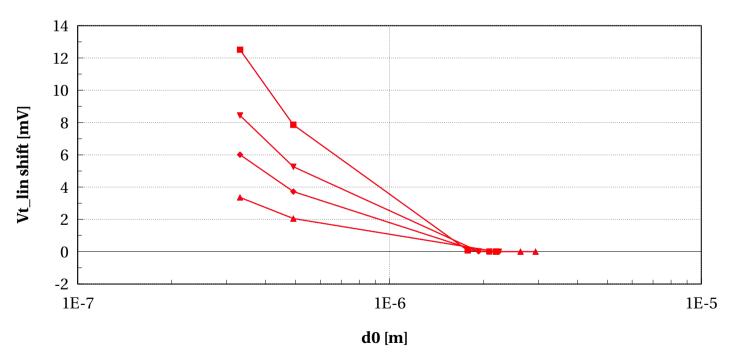






egpfet_acc, Vt_lin shift [mV] vs d0 [m]



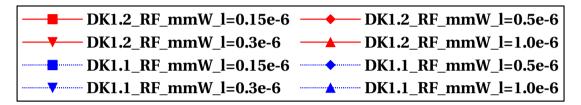


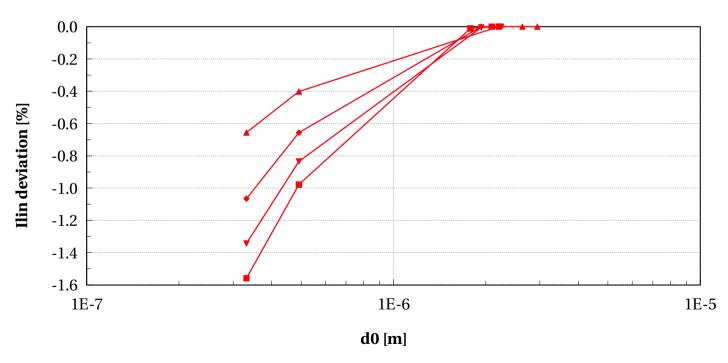






egpfet_acc, Ilin deviation [%] vs d0 [m]



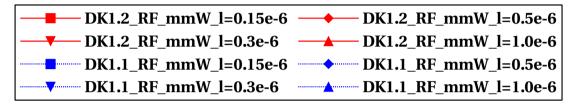


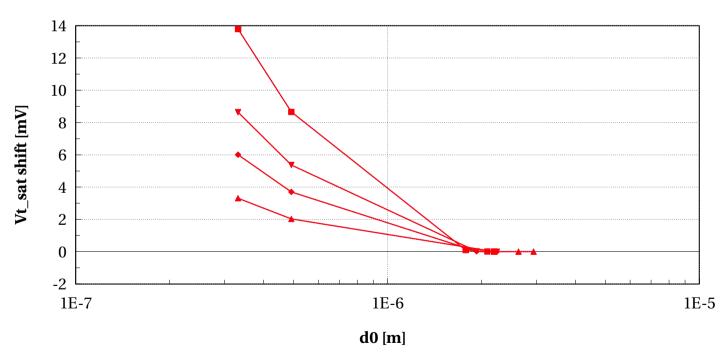






egpfet_acc, Vt_sat shift [mV] vs d0 [m]



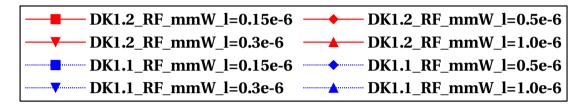


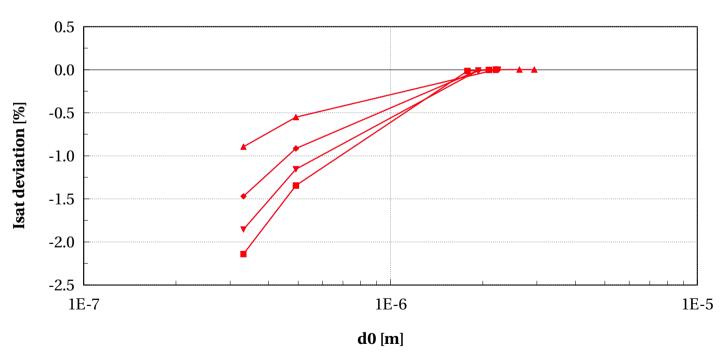






egpfet_acc, Isat deviation [%] vs d0 [m]



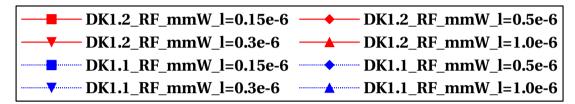


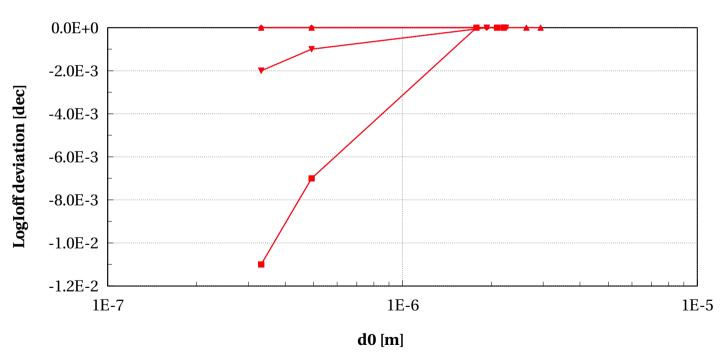






egpfet_acc, LogIoff deviation [dec] vs d0 [m]











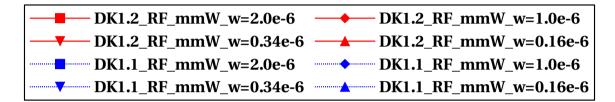
WPE effect w.r.t d0 - Wscaling at L=0.15u

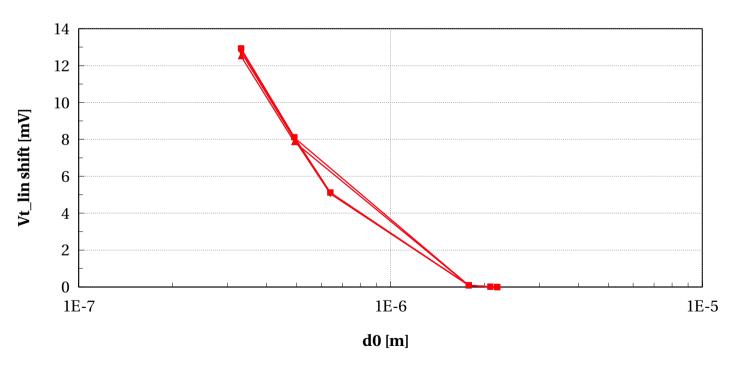






egpfet_acc, Vt_lin shift [mV] vs d0 [m]



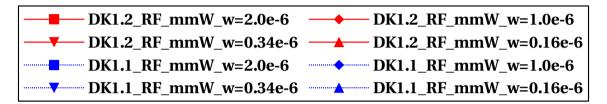


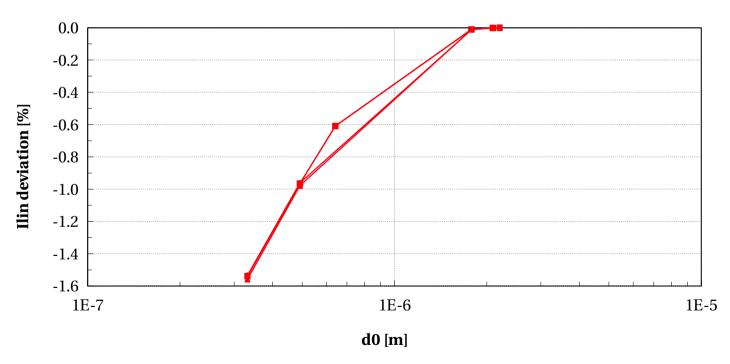






egpfet_acc, Ilin deviation [%] vs d0 [m]



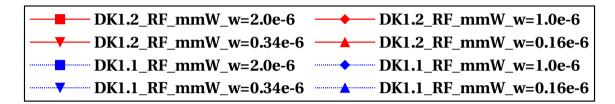


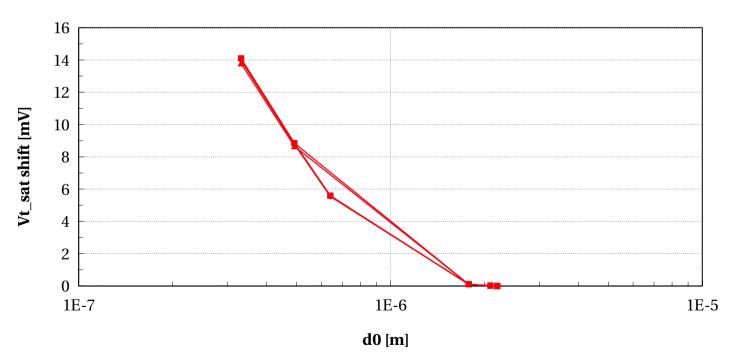






egpfet_acc, Vt_sat shift [mV] vs d0 [m]



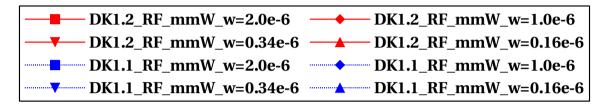


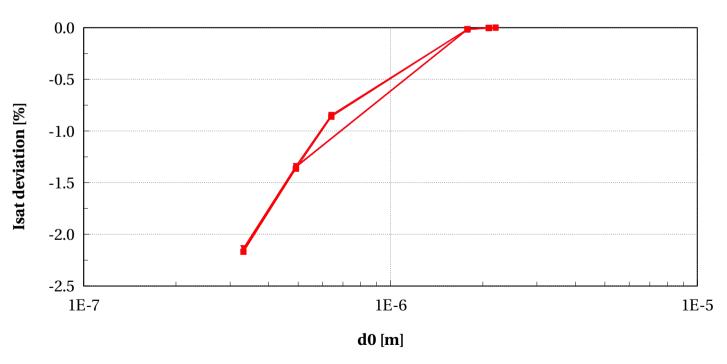






egpfet_acc, Isat deviation [%] vs d0 [m]



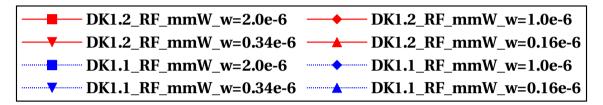


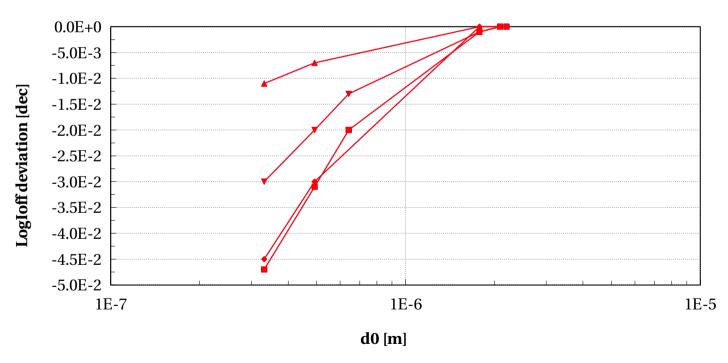






egpfet_acc, LogIoff deviation [dec] vs d0 [m]











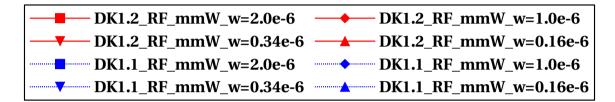
WPE effect w.r.t d0 - Wscaling at L=1u

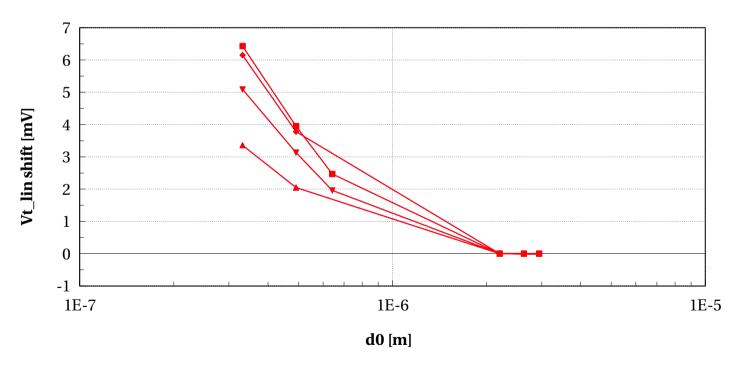






egpfet_acc, Vt_lin shift [mV] vs d0 [m]



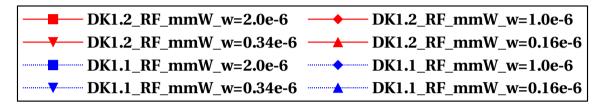


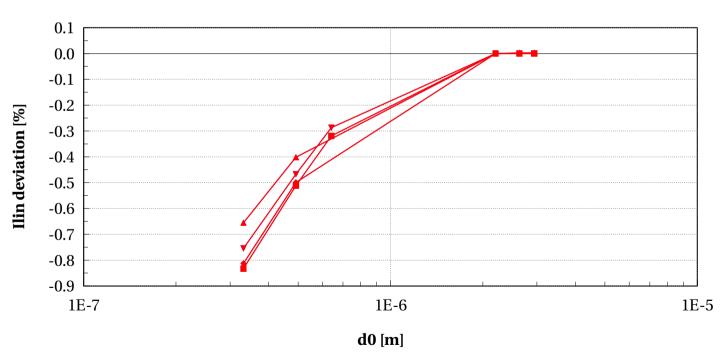






egpfet_acc, Ilin deviation [%] vs d0 [m]



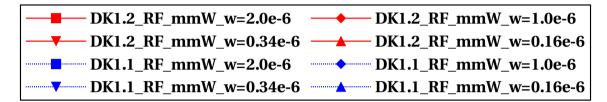


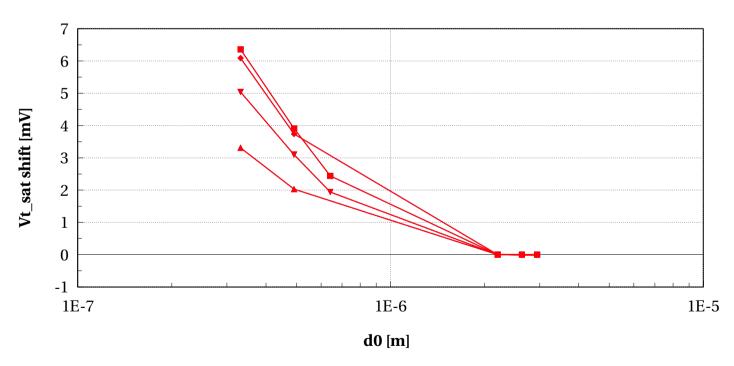






egpfet_acc, Vt_sat shift [mV] vs d0 [m]



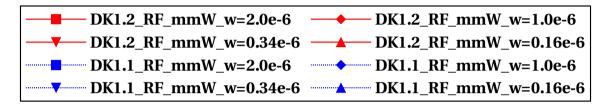


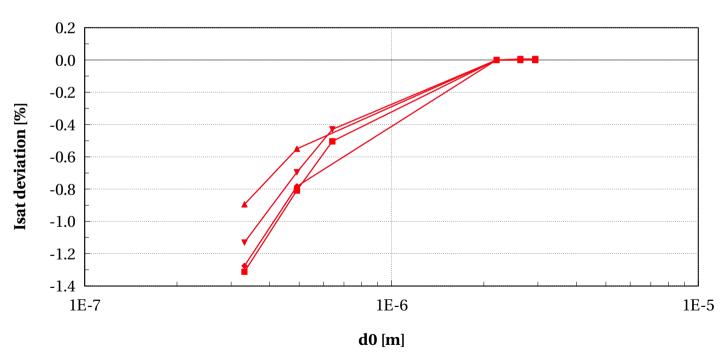






egpfet_acc, Isat deviation [%] vs d0 [m]



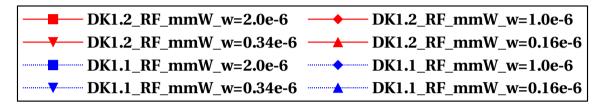


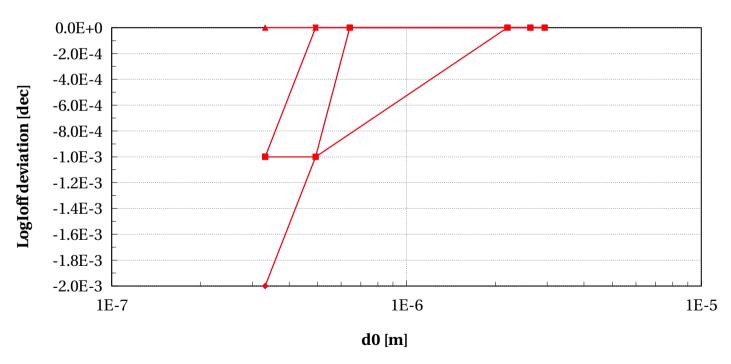






egpfet_acc, LogIoff deviation [dec] vs d0 [m]











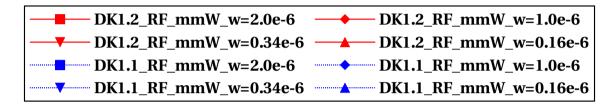
WPE effect w.r.t d1 - Wscaling at L=0.15u

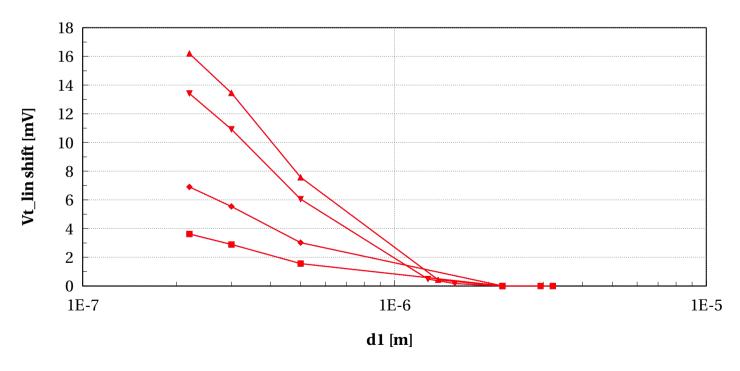






egpfet_acc, Vt_lin shift [mV] vs d1 [m]



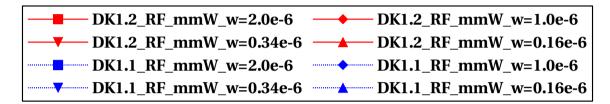


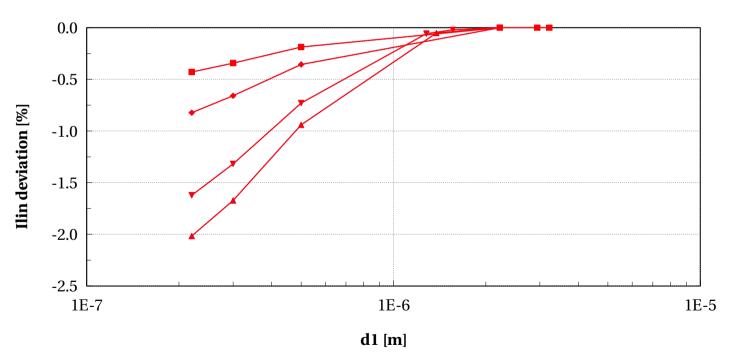






egpfet_acc, Ilin deviation [%] vs d1 [m]



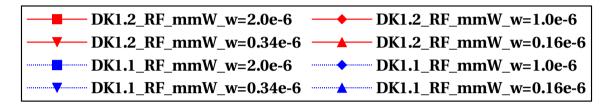


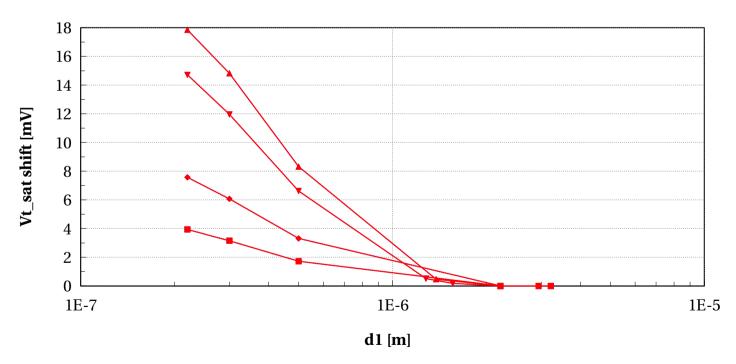






egpfet_acc, Vt_sat shift [mV] vs d1 [m]



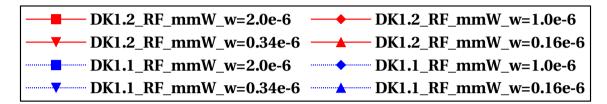


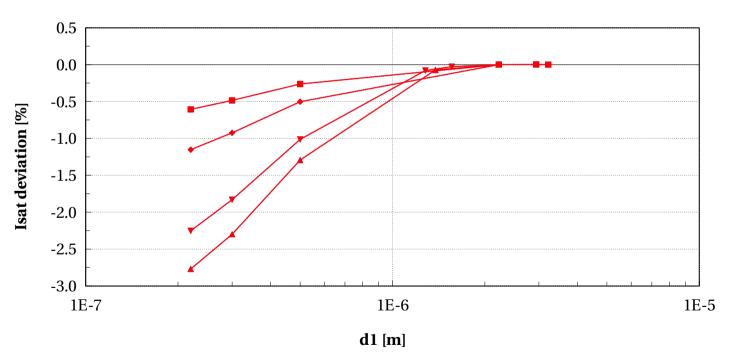






egpfet_acc, Isat deviation [%] vs d1 [m]



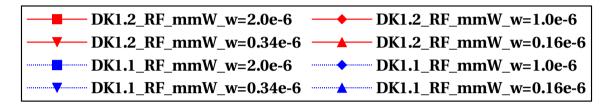


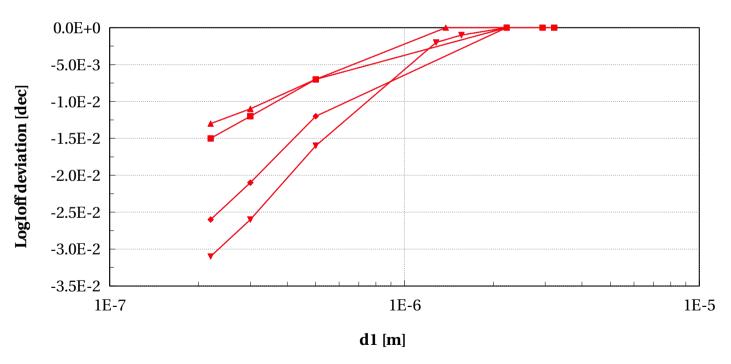






egpfet_acc, LogIoff deviation [dec] vs d1 [m]











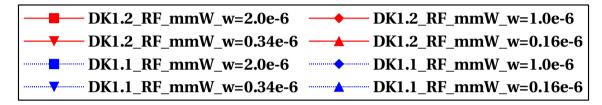
WPE effect w.r.t d1 - Wscaling at L=0.3u

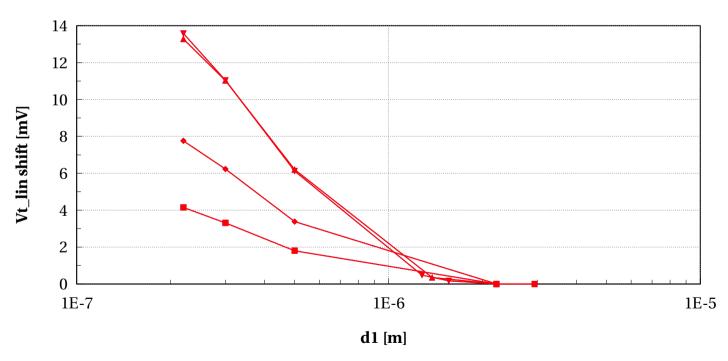






egpfet_acc, Vt_lin shift [mV] vs d1 [m]



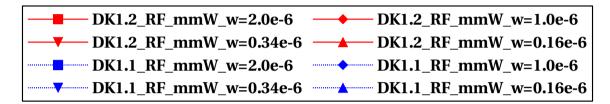


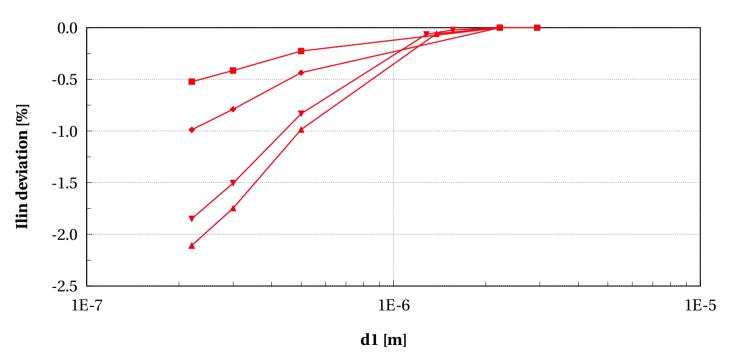






egpfet_acc, Ilin deviation [%] vs d1 [m]



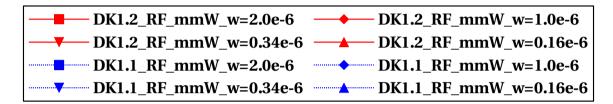


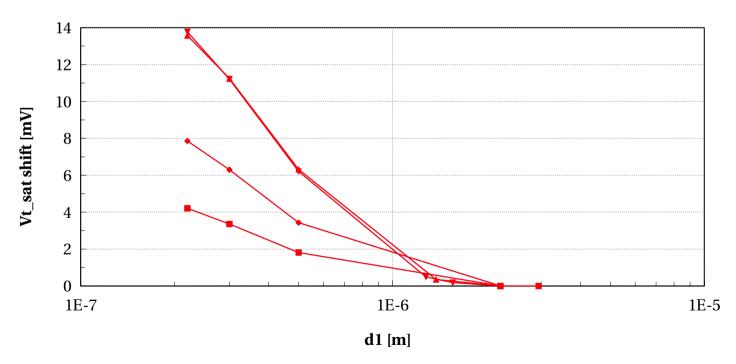






egpfet_acc, Vt_sat shift [mV] vs d1 [m]



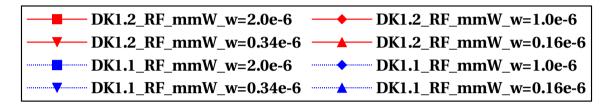


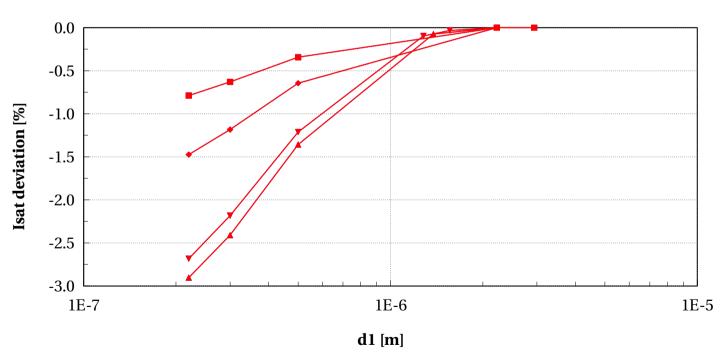






egpfet_acc, Isat deviation [%] vs d1 [m]



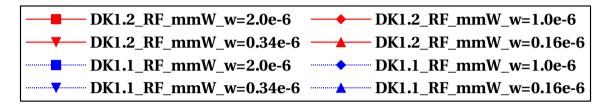


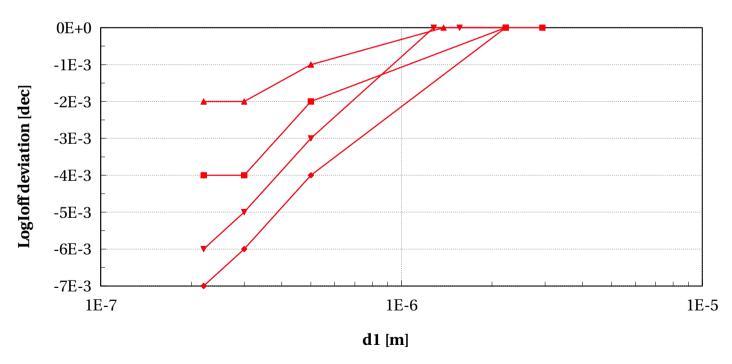






egpfet_acc, LogIoff deviation [dec] vs d1 [m]









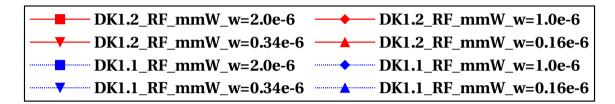


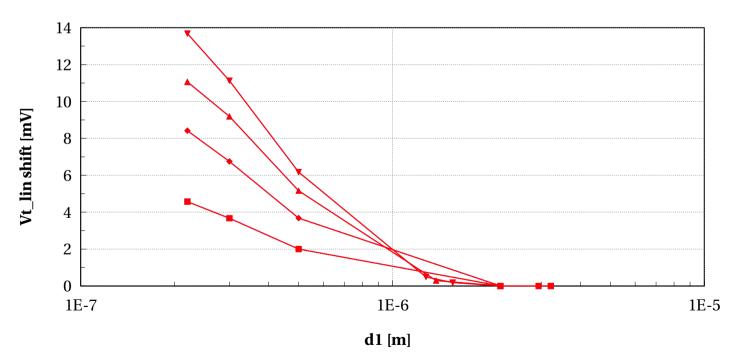
WPE effect w.r.t d1 - Wscaling at L=1u





egpfet_acc, Vt_lin shift [mV] vs d1 [m]



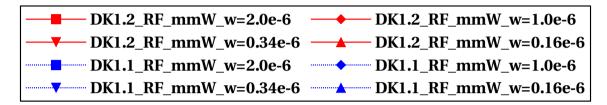


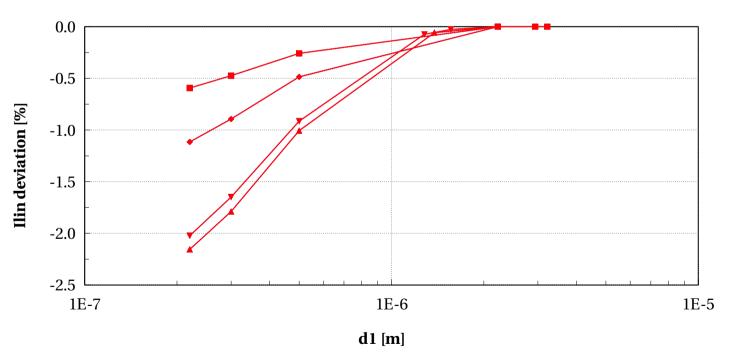






egpfet_acc, Ilin deviation [%] vs d1 [m]



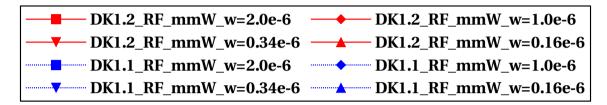


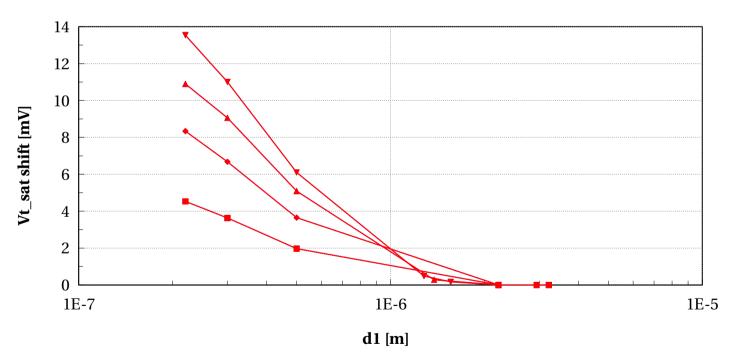






egpfet_acc, Vt_sat shift [mV] vs d1 [m]



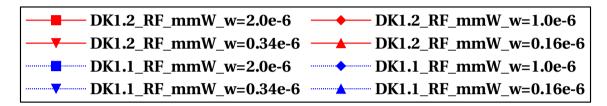


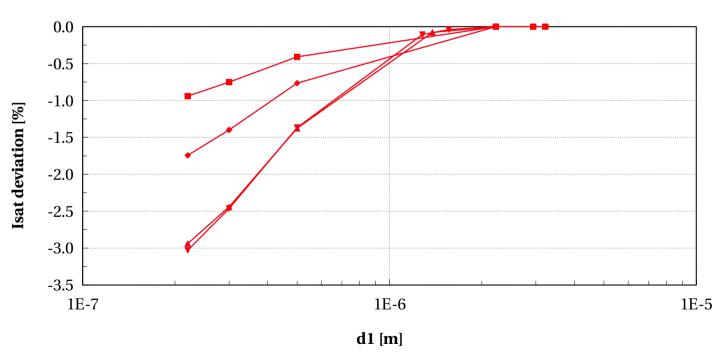






egpfet_acc, Isat deviation [%] vs d1 [m]



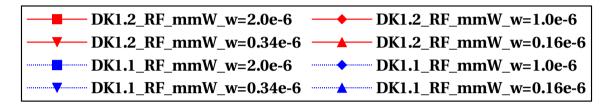


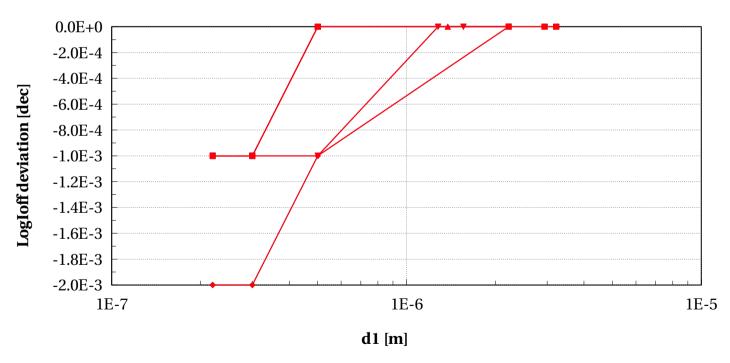






egpfet_acc, LogIoff deviation [dec] vs d1 [m]











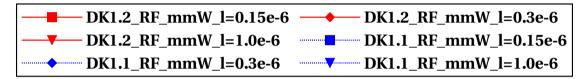
WPE effect w.r.t d1 - Lscaling at W=0.16u

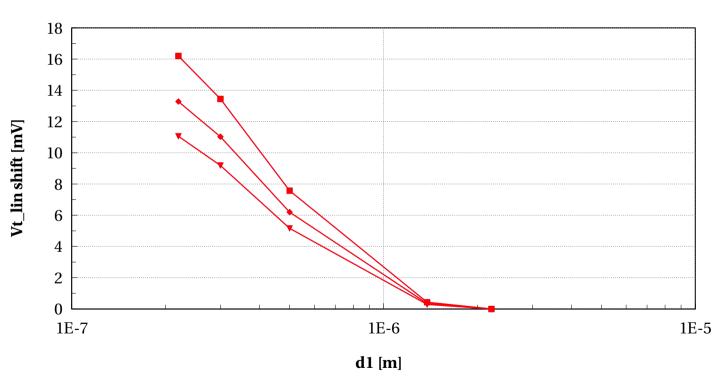






egpfet_acc, Vt_lin shift [mV] vs d1 [m]



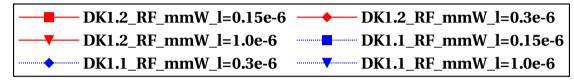


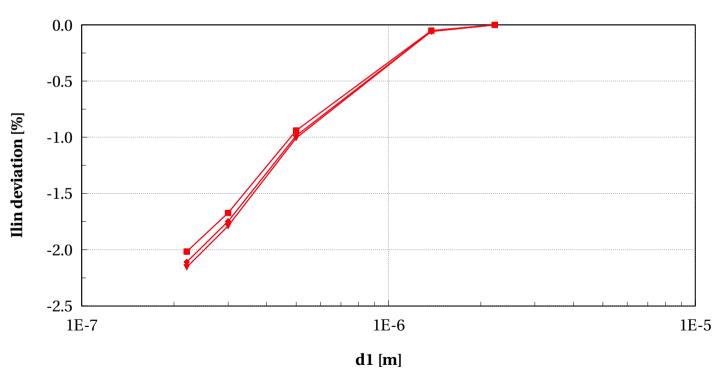






egpfet_acc, Ilin deviation [%] vs d1 [m]



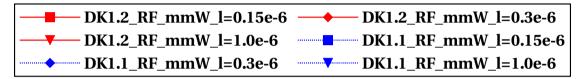


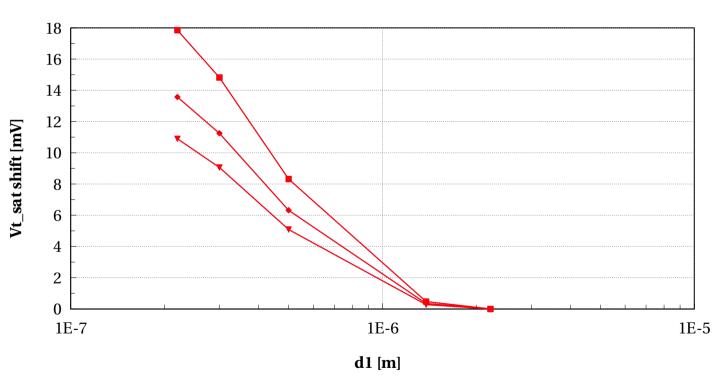






egpfet_acc, Vt_sat shift [mV] vs d1 [m]



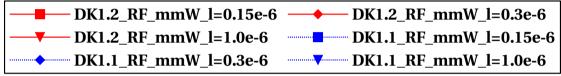


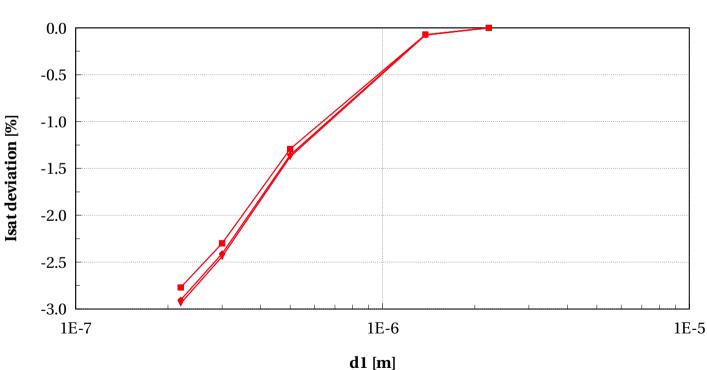






egpfet_acc, Isat deviation [%] vs d1 [m]



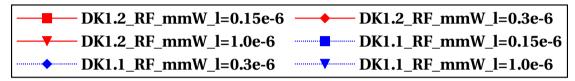


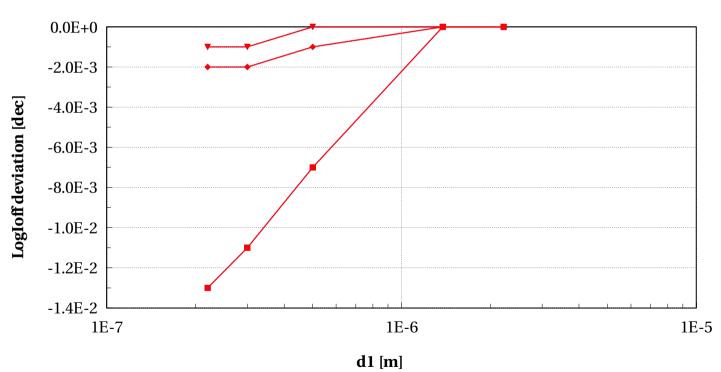






egpfet_acc, LogIoff deviation [dec] vs d1 [m]











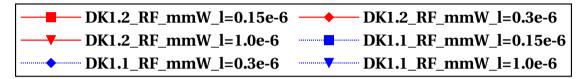
WPE effect w.r.t d1 - Lscaling at W=2u

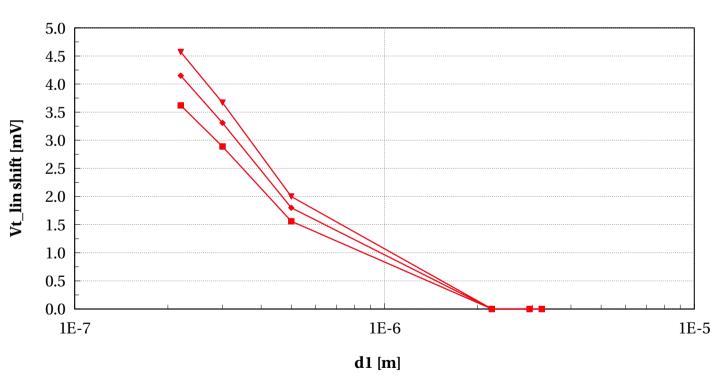






egpfet_acc, Vt_lin shift [mV] vs d1 [m]



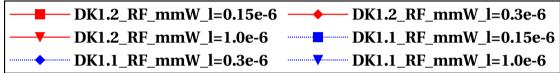


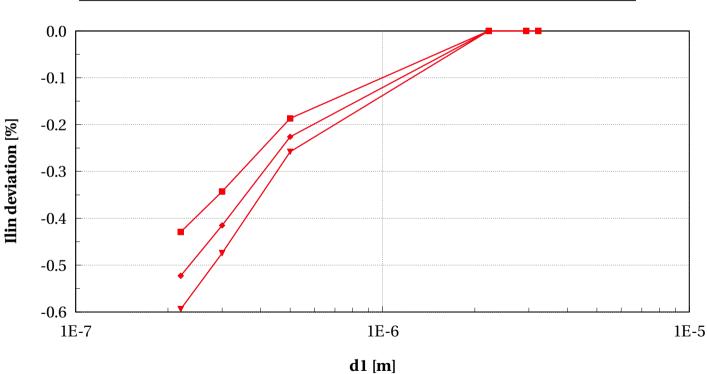






egpfet_acc, Ilin deviation [%] vs d1 [m]



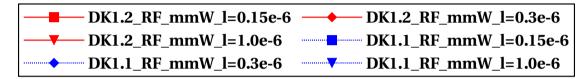


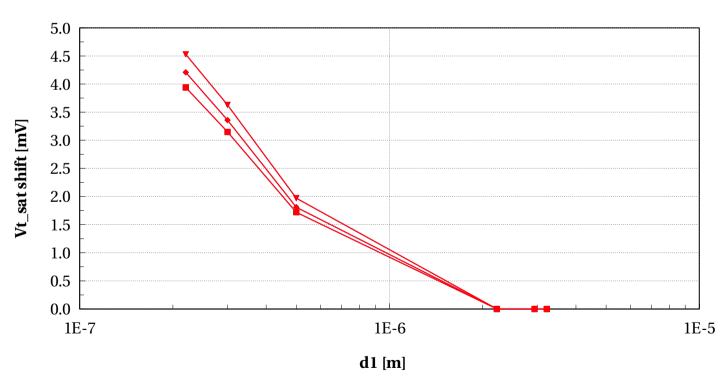






egpfet_acc, Vt_sat shift [mV] vs d1 [m]



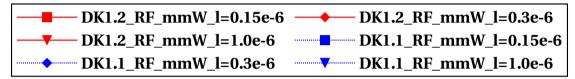


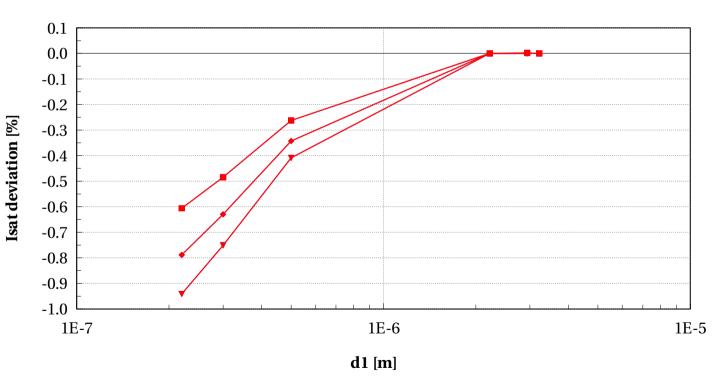






egpfet_acc, Isat deviation [%] vs d1 [m]



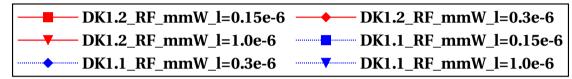


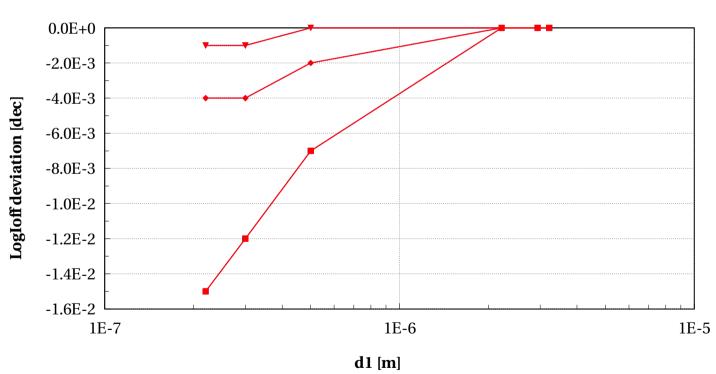






egpfet_acc, LogIoff deviation [dec] vs d1 [m]





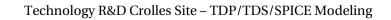






Annex



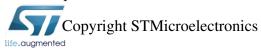




Conditions of simulations

The simulations were done with SBenchLSF Alpha using Eldo simulator 2018.3.

- Model eglvtnfet_acc (DK1.2_RF_mmW)
 - ✓ Input Parameters
 - \times ivt = 300e-9 A
 - **x** mc_runs = 1000
 - \mathbf{x} vgs_stop = vdd V
 - **x** vds_off = vds_sat V
 - \mathbf{x} vgs_off = 0 V
 - \times temp = 25 °C
 - \times vgs_start = -0.5 V
 - \mathbf{x} mc_sens = 0
 - \times vds_lin = 0.05 V
 - **✗** sbenchlsf_release = Alpha
 - **✗** plashrink_ivt = 1
 - \mathbf{x} vbs = 0 V
 - \mathbf{x} ams_release = 2018.3
 - **✗** model_version = 1.2.e



Sep 24, 2018

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- **x** mc_nsigma = 3
- \star ithslwi = 10e-9 A
- \times vstep_ivt = 0.005 V
- \times vds_sat = Vdd V
- **x** shrink_ivt = 1
- \times vdd = 1.8 V
- **✗** dlshrink_ivt = 0
- ✓ Sweep Parameters
- ✓ Extra parameters
 - \mathbf{x} eg_dev = 0
 - \mathbf{x} eglvt_dev = 0
 - **✗** gflag_noisedev_eg_cmos028fdsoi = 0
 - **✗** gflag_noisedev_eglvt_cmos028fdsoi = 0
- Model eglvtpfet_acc (DK1.2_RF_mmW)
 - ✓ Input Parameters
 - **x** ivt = 70e-9 A
 - **x** mc_runs = 1000
 - \times vgs_stop = vdd V
 - **x** vds_off = vds_sat V
 - \mathbf{x} vgs_off = 0 V
 - \times temp = 25 °C
 - \times vgs_start = -0.5 V
 - \mathbf{x} mc_sens = 0
 - \times vds lin = 0.05 V
 - **x** sbenchlsf_release = Alpha





- **✗** plashrink_ivt = 1
- **x**vbs = 1.8 V
- \mathbf{X} ams release = 2018.3
- **x** model_version = 1.2.e
- **x** mc_nsigma = 3
- \star ithslwi = 10e-9 A
- \times vstep_ivt = 0.005 V
- \times vds_sat = Vdd V
- **x** shrink_ivt = 1
- \times vdd = 1.8 V
- **✗** dlshrink_ivt = 0
- ✓ Sweep Parameters
- ✓ Extra parameters
 - \mathbf{x} eg_dev = 0
 - \mathbf{x} eglvt_dev = 0
 - **x** gflag_noisedev_eg_cmos028fdsoi = 0
 - **x** gflag_noisedev_eglvt_cmos028fdsoi = 0
- Model egnfet_acc (DK1.2_RF_mmW)
 - ✓ Input Parameters
 - **x** ivt = 300e-9 A
 - **x** mc_runs = 1000
 - \mathbf{x} vgs_stop = vdd V
 - **x** vds_off = vds_sat V
 - \mathbf{x} vgs_off = 0 V
 - \times temp = 25 °C





- \times vgs_start = -0.5 V
- \mathbf{x} mc_sens = 0
- \times vds_lin = 0.05 V
- **x** sbenchlsf_release = Alpha
- **✗** plashrink_ivt = 1
- \mathbf{x} vbs = 0 V
- \times ams_release = 2018.3
- **x** model version = 1.2.c
- **x** mc_nsigma = 3
- \star ithslwi = 10e-9 A
- \mathbf{X} vstep_ivt = 0.005 V
- \times vds_sat = Vdd V
- **x** shrink_ivt = 1
- \times vdd = 1.8 V
- X dlshrink ivt = 0
- ✓ Sweep Parameters
- ✓ Extra parameters
 - \mathbf{x} eg_dev = 0
 - \mathbf{x} eglvt_dev = 0
 - **✗** gflag_noisedev_eg_cmos028fdsoi = 0
 - **✗** gflag_noisedev_eglvt_cmos028fdsoi = 0
- Model egpfet_acc (DK1.2_RF_mmW)
 - ✓ Input Parameters
 - **x** ivt = 70e-9 A
 - **x** mc_runs = 1000





- \mathbf{x} vgs_stop = vdd V
- \mathbf{X} vds off = vds sat V
- \mathbf{x} vgs_off = 0 V
- \times temp = 25 °C
- \times vgs_start = -0.5 V
- \mathbf{x} mc_sens = 0
- \times vds_lin = 0.05 V
- **x** sbenchlsf_release = Alpha
- **✗** plashrink_ivt = 1
- \mathbf{x} vbs = 0 V
- \times ams_release = 2018.3
- **✗** model_version = 1.2.c
- **x** mc_nsigma = 3
- \star ithslwi = 10e-9 A
- \mathbf{X} vstep_ivt = 0.005 V
- \times vds_sat = Vdd V
- **x** shrink_ivt = 1
- \times vdd = 1.8 V
- X dlshrink ivt = 0
- ✓ Sweep Parameters
- ✓ Extra parameters
 - \mathbf{x} eg_dev = 0
 - \mathbf{x} eglvt_dev = 0
 - **✗** gflag_noisedev_eg_cmos028fdsoi = 0
 - **✗** gflag_noisedev_eglvt_cmos028fdsoi = 0



- Model eglvtnfet_acc (DK1.1_RF_mmW)
 - ✓ Input Parameters
 - \times ivt = 300e-9 A
 - **x** mc_runs = 1000
 - \times vgs_stop = vdd V
 - **x** vds_off = vds_sat V
 - \times vgs_off = 0 V
 - \times temp = 25 °C
 - \times vgs_start = -0.5 V
 - \mathbf{x} mc_sens = 0
 - \times vds lin = 0.05 V
 - **✗** sbenchlsf_release = Alpha
 - **✗** plashrink_ivt = 1
 - \mathbf{x} vbs = 0 V
 - \mathbf{x} ams release = 2018.3
 - **✗** model_version = 1.2.d
 - **x** mc_nsigma = 3
 - \star ithslwi = 10e-9 A
 - \times vstep_ivt = 0.005 V
 - \times vds_sat = Vdd V
 - **x** shrink_ivt = 1
 - \times vdd = 1.8 V
 - X dlshrink ivt = 0
 - ✓ Sweep Parameters
 - ✓ Extra parameters



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- \mathbf{x} eg_dev = 0
- \mathbf{x} eglvt_dev = 0
- **x** gflag_noisedev_eg_cmos028fdsoi = 0
- **✗** gflag_noisedev_eglvt_cmos028fdsoi = 0
- Model eglvtpfet_acc (DK1.1_RF_mmW)
 - ✓ Input Parameters
 - **x** ivt = 70e-9 A
 - **x** mc_runs = 1000
 - \mathbf{x} vgs_stop = vdd V
 - **x** vds_off = vds_sat V
 - \mathbf{x} vgs_off = 0 V
 - \times temp = 25 °C
 - \times vgs_start = -0.5 V
 - \times mc_sens = 0
 - \times vds lin = 0.05 V
 - **x** sbenchlsf_release = Alpha
 - **✗** plashrink_ivt = 1
 - **x** vbs = 1.8 V
 - \mathbf{x} ams_release = 2018.3
 - **✗** model_version = 1.2.d
 - **x** mc_nsigma = 3
 - \star ithslwi = 10e-9 A
 - \mathbf{X} vstep_ivt = 0.005 V
 - \times vds sat = Vdd V
 - **x** shrink_ivt = 1





- \times vdd = 1.8 V
- **✗** dlshrink_ivt = 0
- ✓ Sweep Parameters
- ✓ Extra parameters
 - \mathbf{x} eg_dev = 0
 - \mathbf{x} eglvt_dev = 0
 - **✗** gflag_noisedev_eg_cmos028fdsoi = 0
 - **✗** gflag_noisedev_eglvt_cmos028fdsoi = 0
- Model egnfet_acc (DK1.1_RF_mmW)
 - ✓ Input Parameters
 - \times ivt = 300e-9 A
 - **x** mc_runs = 1000
 - x vgs_stop = vdd V
 - **x** vds_off = vds_sat V
 - \mathbf{x} vgs_off = 0 V
 - \times temp = 25 °C
 - \times vgs_start = -0.5 V
 - \mathbf{x} mc_sens = 0
 - \times vds lin = 0.05 V
 - **✗** sbenchlsf_release = Alpha
 - **✗** plashrink_ivt = 1
 - \mathbf{x} vbs = 0 V
 - \mathbf{X} ams release = 2018.3
 - **✗** model_version = 1.2.b
 - **x** mc_nsigma = 3





- \star ithslwi = 10e-9 A
- \mathbf{X} vstep_ivt = 0.005 V
- \times vds_sat = Vdd V
- **✗** shrink_ivt = 1
- \times vdd = 1.8 V
- **✗** dlshrink_ivt = 0
- ✓ Sweep Parameters
- ✓ Extra parameters
 - \mathbf{x} eg_dev = 0
 - \mathbf{x} eglvt_dev = 0
 - **✗** gflag_noisedev_eg_cmos028fdsoi = 0
 - **✗** gflag_noisedev_eglvt_cmos028fdsoi = 0
- Model egpfet_acc (DK1.1_RF_mmW)
 - ✓ Input Parameters
 - \times ivt = 70e-9 A
 - \times mc runs = 1000
 - \times vgs_stop = vdd V
 - **x** vds_off = vds_sat V
 - \mathbf{x} vgs_off = 0 V
 - \times temp = 25 °C
 - \times vgs_start = -0.5 V
 - \times mc_sens = 0
 - \times vds lin = 0.05 V
 - **x** sbenchlsf_release = Alpha
 - **✗** plashrink_ivt = 1





- \mathbf{x} vbs = 0 V
- \mathbf{X} ams release = 2018.3
- **x** model_version = 1.2.b
- **x** mc_nsigma = 3
- \star ithslwi = 10e-9 A
- \mathbf{X} vstep_ivt = 0.005 V
- \times vds_sat = Vdd V
- **x** shrink_ivt = 1
- \times vdd = 1.8 V
- **✗** dlshrink_ivt = 0
- ✓ Sweep Parameters
- ✓ Extra parameters
 - \mathbf{x} eg_dev = 0
 - \mathbf{x} eglvt_dev = 0
 - **✗** gflag_noisedev_eg_cmos028fdsoi = 0
 - **x** gflag_noisedev_eglvt_cmos028fdsoi = 0