G EQDSK FORMAT

1. Format

The detailed format for G EQDSK can be found in the Fortran source code /c/efit/u/weqdsku.f on GA Unix HP workstation hydra. Briefly, a right-handed cylindrical coordinate system (R, ϕ, Z) is used. The G EQDSK provides information on the pressure, poloidal current function, q profile on a uniform flux grid from the magnetic axis to the plasma boundary and the poloidal flux function on the rectangular computation grid. Information on the plasma boundary and the surrounding limiter contour in also provided.

```
      character*10 case(6)
      dimension psirz(nw,nh),fpol(1),pres(1),ffprim(1),
    .               pprime(1),qpsi(1),rbbbs(1),zbbbs(1),
    .               rlim(1),zlim(1)
c
      read (neqdsk,2000) (case(i),i=1,6),idum,nw,nh
      read (neqdsk,2020) rdim,zdim,rcentr,rleft,zmid
      read (neqdsk,2020) rmaxis,zmaxis,simag,sibry,bcentr
      read (neqdsk,2020) current,simag,xdum,rmaxis,xdum
      read (neqdsk,2020) zmaxis,xdum,sibry,xdum,xdum
      read (neqdsk,2020) (fpol(i),i=1,nw)
      read (neqdsk,2020) (pres(i),i=1,nw)
      read (neqdsk,2020) (ffprim(i),i=1,nw)
      read (neqdsk,2020) (pprime(i),i=1,nw)
      read (neqdsk,2020) ((psirz(i,j),i=1,nw),j=1,nh)
      read (neqdsk,2020) (qpsi(i),i=1,nw)
      read (neqdsk,2022) nbbbs,limitr
      read (neqdsk,2020) (rbbbs(i),zbbbs(i),i=1,nbbbs)
      read (neqdsk,2020) (rlim(i),zlim(i),i=1,limitr)
c
 2000 format (6a8,3i4)
 2020 format (5e16.9)
 2022 format (2i5)
```

2. Variables

CASE: Identification character string

NW: Number of horizontal R grid points

NH: Number of vertical Z grid points

RDIM: Horizontal dimension in meter of computational box

ZDIM: Vertical dimension in meter of computational box

RLEFT: Minimum R in meter of rectangular computational box

ZMID: Z of center of computational box in meter

RMAXIS: R of magnetic axis in meter

ZMAXIS: Z of magnetic axis in meter

SIMAG: poloidal flux at magnetic axis in Weber /rad

SIBRY: poloidal flux at the plasma boundary in Weber /rad

RCENTR: R in meter of vacuum toroidal magnetic field BCENTR

BCENTR: Vacuum toroidal magnetic field in Tesla at RCENTR

CURRENT: Plasma current in Ampere

FPOL: Poloidal current function in m-T, $F = RB_T$ on flux grid

PRES: Plasma pressure in nt / m^2 on uniform flux grid

FFPRIM: $FF'(\psi)$ in $(mT)^2$ / (Weber /rad) on uniform flux grid

PPRIME: $P'(\psi)$ in (nt /m^2) / (Weber /rad) on uniform flux grid

PSIZR: Poloidal flux in Weber / rad on the rectangular grid points

QPSI: q values on uniform flux grid from axis to boundary

NBBBS: Number of boundary points

LIMITR: Number of limiter points

RBBBS: R of boundary points in meter

ZBBBS: Z of boundary points in meter

RLIM: R of surrounding limiter contour in meter

ZLIM: Z of surrounding limiter contour in meter

3. Toroidal Current Density

The toroidal current J_T related to $P'(\psi)$ and $FF'(\psi)$ through

$$J_T \ (Amp/m^2) = R \ P'(\psi) + FF'(\psi) \ / \ R$$