v1.2 Mar.2016

Multi mode cavity
Door gap right

subroutine lattice_time_2dtm

```
!******** lattice widths ********
dl=2.0d-3
dy=dl
dz=dl
!******** number of cells in pml (ncpml) ********
ncpml=8  ! number of cell in pml
tcpml=ncpml*dl  ! thickness of pml
!******** sinusoidal frequency  ********
freq=2.45d9      ! Hz
```

subroutine j_source_2dtm

```
do j=nint((yi(1)+yi(8))/2.0)-nint(40.0d-3/dy),nint((yi(1)+yi(8))/2.0)-1
k=zi(2)+2
     id=id_ey(j,k)
       ey(j,k)=ey(j,k) &
            -(dt/eps(id))/(1+(sig(id)*dt/(2.0d0*eps(id)))) &
            *(-2.0d0)/sqrt(mu0/eps0)/dz &         ! J [A/m2]
            *dsin(2.0d0*pi*freq*(time-dt/2.0d0))
end do
```

subroutine media_coeff_2dtm

```
! id=0 vacume
eps(0)=eps0
sig(0)=0.0d0
mu(0)=mu0
! id=1 pec,pmc (no define, see <e-field> or <h-field> )
```

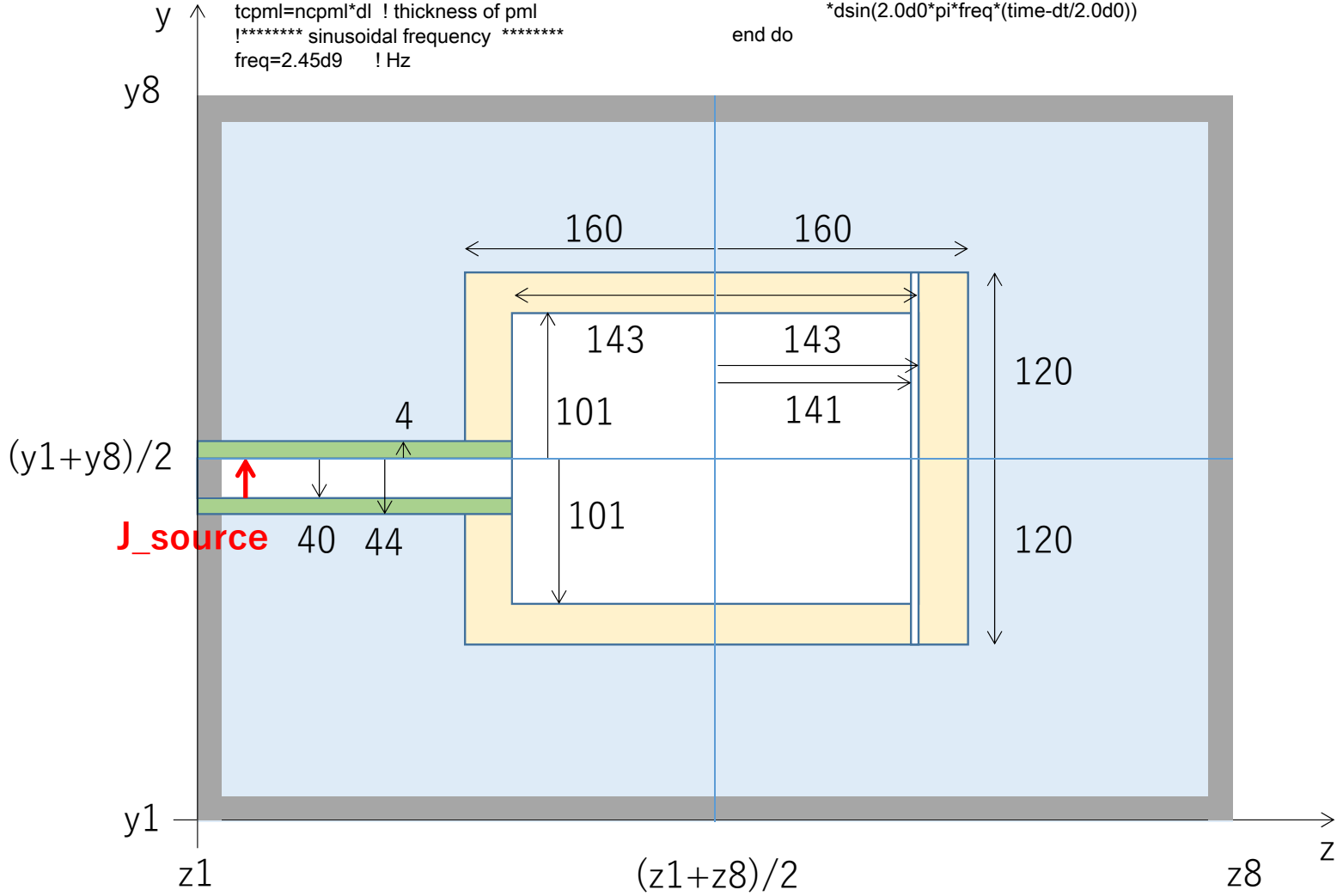
```
 ! rectangular media
  mys=nint((yi(1)+yi(8))/2.0)-nint(120.0d-3/dy)
  mye=nint((yi(1)+yi(8))/2.0)+nint(120.0d-3/dy)
  mzs=nint((zi(1)+zi(8))/2.0)-nint(160.0d-3/dz)
  mze=nint((zi(1)+zi(8))/2.0)+nint(160.0d-3/dz)
  call rectangular_media_1

  ! rectangular media
  mys=nint((yi(1)+yi(8))/2.0)-nint(44.0d-3/dy)
  mye=nint((yi(1)+yi(8))/2.0)+nint(4.0d-3/dy)
  mzs=zi(1)
  mze=nint((zi(1)+zi(8))/2.0)
  call rectangular_media_1

  ! rectangular media (cavity)
  mys=nint((yi(1)+yi(8))/2.0)-nint(101.0d-3/dy)
  mye=nint((yi(1)+yi(8))/2.0)+nint(101.0d-3/dy)
  mzs=nint((zi(1)+zi(8))/2.0)-nint(143.0d-3/dz)
  mze=nint((zi(1)+zi(8))/2.0)+nint(143.0d-3/dz)
  call rectangular_media

  ! rectangular media (waveguide)
  mys=nint((yi(1)+yi(8))/2.0)-nint(40.0d-3/dy)
  mye=nint((yi(1)+yi(8))/2.0)
  mzs=zi(1)
  mze=nint((zi(1)+zi(8))/2.0)
  call rectangular_media

  ! rectangular media (gap)
  mys=nint((yi(1)+yi(8))/2.0)-nint(120.0d-3/dy)
  mye=nint((yi(1)+yi(8))/2.0)+nint(120.0d-3/dy)
  mzs=nint((zi(1)+zi(8))/2.0)+nint(141.0d-3/dz)
  mze=nint((zi(1)+zi(8))/2.0)+nint(143.0d-3/dz)
  call rectangular_media
```



v1.2 Mar.2016

Multi mode cavity
Door gap bottom

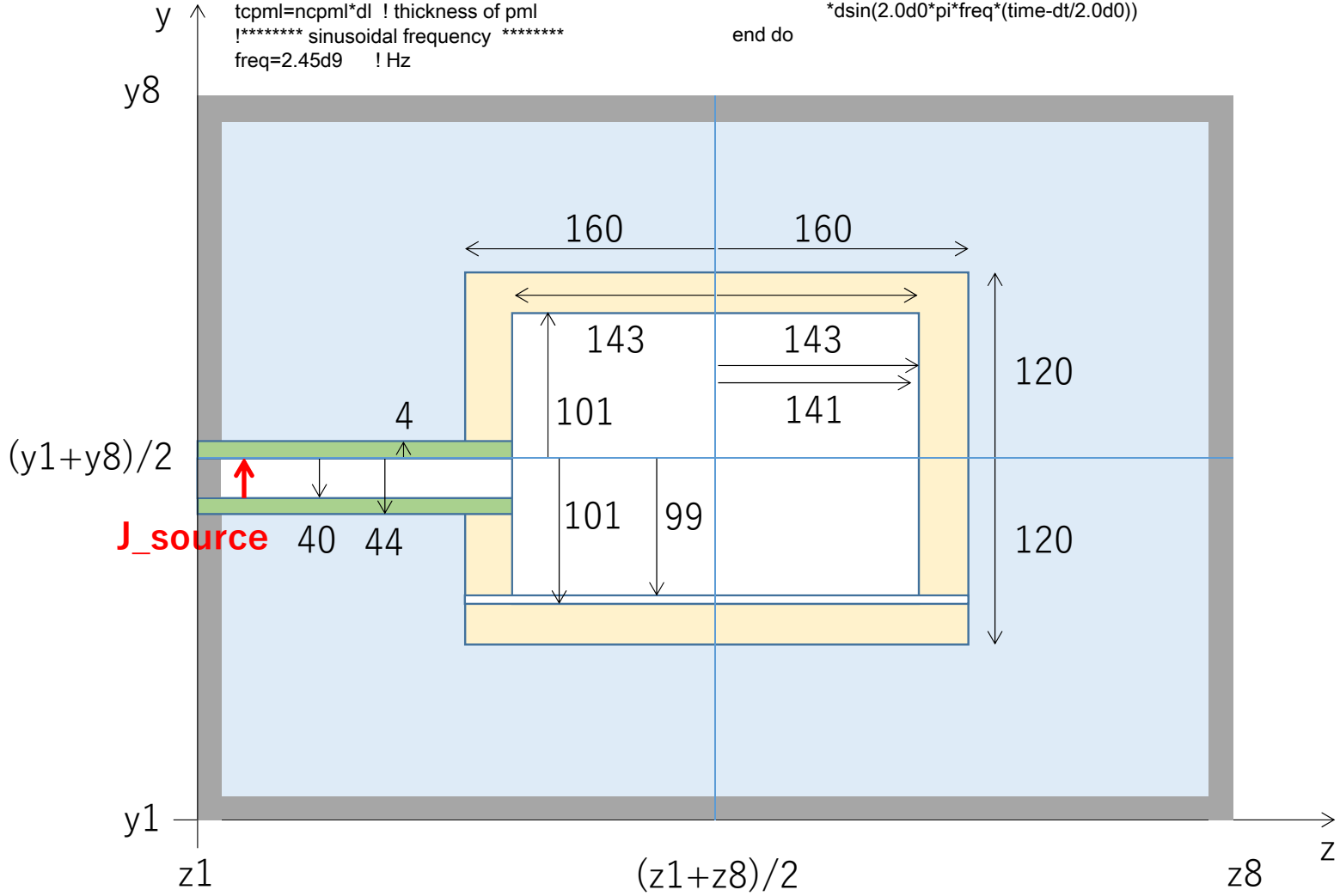
subroutine lattice_time_2dtm

```
!******** lattice widths ********
dl=2.0d-3
dy=dl
dz=dl
!******** number of cells in pml (ncpml) ********
ncpml=8  ! number of cell in pml
tcpml=ncpml*dl  ! thickness of pml
!******** sinusoidal frequency  ********
freq=2.45d9      ! Hz
```

subroutine j_source_2dtm

```
do j=nint((yi(1)+yi(8))/2.0)-nint(40.0d-3/dy),nint((yi(1)+yi(8))/2.0)-1
k=zi(2)+2
     id=id_ey(j,k)
       ey(j,k)=ey(j,k) &
             -(dt/eps(id))/(1+(sig(id)*dt/(2.0d0*eps(id)))) &
             *(-2.0d0)/sqrt(mu0/eps0)/dz &         ! J [A/m2]
             *dsin(2.0d0*pi*freq*(time-dt/2.0d0))
end do
```

subroutine media_coeff_2dtm

```
! id=0 vacume
eps(0)=eps0
sig(0)=0.0d0
mu(0)=mu0
! id=1 pec,pmc (no define, see <e-field> or <h-field> )
```

```
 ! rectangular media
  mys=nint((yi(1)+yi(8))/2.0)-nint(120.0d-3/dy)
  mye=nint((yi(1)+yi(8))/2.0)+nint(120.0d-3/dy)
  mzs=nint((zi(1)+zi(8))/2.0)-nint(160.0d-3/dz)
  mze=nint((zi(1)+zi(8))/2.0)+nint(160.0d-3/dz)
  call rectangular_media_1

  ! rectangular media
  mys=nint((yi(1)+yi(8))/2.0)-nint(44.0d-3/dy)
  mye=nint((yi(1)+yi(8))/2.0)+nint(4.0d-3/dy)
  mzs=zi(1)
  mze=nint((zi(1)+zi(8))/2.0)
  call rectangular_media_1

  ! rectangular media (cavity)
  mys=nint((yi(1)+yi(8))/2.0)-nint(101.0d-3/dy)
  mye=nint((yi(1)+yi(8))/2.0)+nint(101.0d-3/dy)
  mzs=nint((zi(1)+zi(8))/2.0)-nint(143.0d-3/dz)
  mze=nint((zi(1)+zi(8))/2.0)+nint(143.0d-3/dz)
  call rectangular_media

  ! rectangular media (waveguide)
  mys=nint((yi(1)+yi(8))/2.0)-nint(40.0d-3/dy)
  mye=nint((yi(1)+yi(8))/2.0)
  mzs=zi(1)
  mze=nint((zi(1)+zi(8))/2.0)
  call rectangular_media

  ! rectangular media (gap)
  mys=nint((yi(1)+yi(8))/2.0)+nint(99.0d-3/dy)
  mye=nint((yi(1)+yi(8))/2.0)+nint(101.0d-3/dy)
  mzs=nint((zi(1)+zi(8))/2.0)-nint(160.0d-3/dz)
  mze=nint((zi(1)+zi(8))/2.0)+nint(160.0d-3/dz)
  call rectangular_media
```