D.2 The `constants.vams` file

```
// Mathematical and physical constants

`ifdef CONSTANTS_VAMS
`else
`define CONSTANTS_VAMS 1

// M_ is a mathmatical constant

`define     M_E             2.7182818284590452354
`define     M_LOG2E         1.4426950408889634074
`define     M_LOG10E        0.43429448190325182765
`define     M_LN2           0.69314718055994530942
`define     M_LN10          2.30258509299404568402
`define     M_PI            3.14159265358979323846
`define     M_TWO_PI        6.28318530717958647652
`define     M_PI_2          1.57079632679489661923
`define     M_PI_4          0.78539816339744830962
`define     M_1_PI          0.31830988618379067154
`define     M_2_PI          0.63661977236758134308
`define     M_2_SQRTPI      1.12837916709551257390
`define     M_SQRT2         1.41421356237309504880
`define     M_SQRT1_2       0.70710678118654752440
```

Issue #60: Constant values specified should adhere to the std definitions (taken from http://physics.nist.gov

```
// P_ is a physical constant

// charge of electron in coulombs
`define     P_Q             1.6021918e-19
`define     P_Q             1.602176462e-19

// speed of light in vacuum in meters/sec
`define     P_C             2.99792458e8
`define     P_C             2.99792458e8
```

Issue #78: Typo's/Spelling mistake.

```
// Boltzman's constant in joules/kelvin

// Boltzmann's constant in joules/kelvin
`define     P_K             1.3806226e-23
`define     P_K             1.3806503e-23

// Plank's constant in joules*sec

// Planck's constant in joules*sec
`define     P_K             6.6260755e-34
`define     P_K             6.62606876e-34

// permittivity of vacuum in farads/meter
`define     P_EPS0          8.85418792394420013968e-12
`define     P_EPS0          8.854187817e-12
```

```
// permeability of vacuum in henrys/meter
`define     P_U0             (4.0e-7 * `M_PI) (12.566370614e-7)
// zero celsius in kelvin
`define     P_CELSIUS0       273.15
`endif
```