FITS Table Column Naming Conventions

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It is often logical or convenient to refer to a column in a FITS table by its name as given by the TTYPEn keyword. The FITS Standard, however, does not require the TTYPEn keyword nor does it provide unambiguous guidelines for the value of the TTYPEn keyword when it is present. In order to enforce some homogeneity within FITS tables and to provide guidelines for software that must read them, the following conventions are recommended (and required for all FITS tables produced by the HEASARC/OGIP):

- Every column of a FITS table (either ASCII 'TABLE' or binary 'BINTABLE') must be given a unique name using the TTYPEn keyword.

- Only upper or lower case letters, the digits from 0 to 9, and the underscore character may be used in the column name. This is similar to the restriction placed on FITS keyword names (with the exception of not allowing the hyphen character), which makes it possible to replace a column in a table with a keyword with the same name if the column values are identical in every row (the so-called 'Greenbank Convention'). Note that this specifically excludes ASCII blank characters within the name, except that non-significant trailing blanks are allowed. In cases where the column name consists of several 'words', the words should be concatenated together or connected with the underscore character (e.g., 'Bright_Stars').

- While both upper and lower case letters may be used within a column name, the case is not significant when comparing names (e.g., 'COL_NAME', 'Col_Name', and 'col_name' are all considered the same name and are not unique). Software should be case insensitive when searching for a given name.

- Column names must begin with a letter and not a digit or the underscore character. This allows the column name to be used as a variable name within processing software (many software languages do not allow a variable name to begin with a digit). This restriction also enables users or software to unambiguously refer to a column by its positional number instead of its name. The only exception to this rule is in the

case of standard FITS keywords whose name begins with a digit (there are none in common use at the present), in which case these same names may be used as column names.

- It is required that the column names in a given table be unique within the first 16 characters and strongly recommended that they be unique within the first 8 characters. If the names are unique within 8 characters then it is easier to construct a unique keyword name to refer to each column (e.g., when using the Greenbank Convention). This also maximizes the portability of the FITS table into existing data systems which may only match the first 8 characters when searching for a particular column name in the FITS table. It is recognized, however, that this 8 character restriction can be impractical in cases where the table contains many columns or where the preferred names for the columns are dictated by some external source, therefore, in general it is only strictly required that the names be unique within 16 characters.

- The column names may be up to 68 characters in length (the maximum length of a FITS string-valued keyword) as long as the first 16 (and preferably the first 8) characters are unique.