Document: WG14/N1217
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Project: TR 24732
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Subject: TR 24732 terminology should be more consistent with IEEE 754R

Background: Some of the terminology in WG14/N1201 (TR 24732 draft of 2006/11/10) is not as consistent with IEEE 754R as it could be. The most serious and widespread difference is in its use of the terms *format* and *encoding*, which are sometimes reversed from the usage in 754R. In addition, the high-level description of the decimal arithmetic model in section 1.2 refers to a document on which the decimal model of IEEE 754R was based, although at this point in time it would be better to refer directly to IEEE 754R itself. This paper itemizes edits to address these issues.

Suggested TR changes:

Page 2, section 1.2, paragraphs 1 & 2, delete both paragraphs and footnote 1 and replace by:

> This Technical Report proposes to add support for the decimal formats for floating-point data specified in 754R, with operations and behaviors consistent with that specification. 754R provides a unified specification for floating-point arithmetic using both binary radix and decimal radix representations. For binary radix, it specifies upwardly-compatible extensions to the previous version, IEEE-754-1985 (equivalently IEC 60559:1989, which is already supported by C99 implementations that define the macro __STDC_IEC_559__). Those extensions are not considered in this proposal. Instead, this proposal confines itself to supporting the decimal radix formats, which are new in this revision of IEEE-754.
>
> The model of floating-point arithmetic used in 754R has three components:
>
> - *data* – numbers and NaNs, which can be manipulated by, or be the results of, the operations it specifies
> - *operations* – (addition, multiplication, conversions, etc) which can be carried out on data.
> - *context* – the status of operations (namely, exceptions flags), and controls to govern the results of operations (for example, rounding modes). (754R does not use a single term to refer to these collectively.)

Page 2, section 1.2, paragraph 3:

> 2nd sentence change last words:
> "of numbers or context." to "of data or context, except that it does define specific encodings that are to be used for data that may be exchanged between different implementations that conform to the specification."

Page 2, section 1.2, paragraph 4:

> 1st sentence:
> Change "*numbers*" to "*data*"

Page 3, section 1.3:

> section heading:
> Change the heading from "The Encodings" to "The Formats"
>
> paragraph 1: delete the paragraph and footnote and replace with the following:

IEEE-754R specifies *formats*, in terms of their radix, exponent range, and precision (significand length), to support general purpose decimal floating-point arithmetic. It specifies operation semantics in terms of values and abstract representations of data (format members). It also specifies bit-level *encodings* for formats intended for data interchange.

Page 6, section 5, paragraph 1

2nd sentence:

Change "encodings" to "formats and their encodings"

Page 6, section 5, paragraph 2

1st sentence:

Change "encoding formats" to "formats"

Page 7, 5.2.4.2.2a[1]

WG14/N1214 proposes a replacement for this paragraph. If changes along the lines of that replacement are not made, then some other edit would be needed here, minimally to remove the apparent unresolved reference to "Decimal Arithmetic Encoding".