# Multi-frame Full Matrix Capture (MFMC) File Format Specification

# Version 1.0.0

## Summary

The Multi-frame Full Matrix Capture (MFMC) file format is designed for storage of data obtained from ultrasonic array probes. It has been designed specifically for the storage of the original ultrasonic data in its raw form acquired under the paradigm of Full Matrix Capture (FMC), although the format can accommodate other acquisition modalities.

The quantum of data in an MFMC file is a single frame of FMC data. Collections of frames acquired using the same parameters (for example, as an array probe is scanned over a target) constitute a sequence. The same file can accommodate multiple sequences. The number of frames in any sequence is limited only by physical storage capacity and operating system constraints, and frames can be appended to existing sequences within a file.

The underlying file format is the Hierarchical Data Format (HDF5), which is structured as a hierarchy of groups containing datasets. A HDF5 file is a valid MFMC file, if the groups and datasets defined by the MFMC specification are present and conform to the specification. A valid MFMC file can contain an unlimited number of additional groups and datasets to provide additional functionality to satisfy the requirements of particular users.

## Introduction

\*Give the context and include at least one schematic of a typical use case (array being scanned over component with multiple frames in sequence).

## Definitions

\*things like probe, sequence, FMC, PCS, GCS

## MFMC File Structure

\*explanation of template. Common points: e.g. character sets, byte ordering, row-major etc

\*The table dumped from the template, with additional notes column x-ref to next section

## Explanatory Notes

\*diagrams, vector maths etc

## Example Use Cases

\*need standard way of dumping actual file contents and displaying

# Appendix – Revision History