10503 Timberwood Circle
Suite 120
Louisville, KY 40223-5318

Voice: 502.423.7225
Fax: 502.425.7064
Web: www.lumitron-ir.com

Thursday, July 06, 2000

Subject: SVS-2000 Mk2 Focal Plane Data (*.fpd) File Format

Below is a portion of the source code that contains a list of define's and struct's that make up the Lumitron Focal Plane Data (FPD) file.

The file is written out in the following manner:
(1) **LFileHdr** (All Lumitron files, begins @ 0x0)
(2) **FPDHeader** (begins @ 0x4D)
(3) **FPDTag** (begins @ 0x64)
    a. **Raw Data for <u>All</u> frames recorded starting @ Frame 0, Pixel 0** (begins @ 0x74)
(4) **FPDTag + FPDFrameTag** (FPDFrameTag is currently empty)
    a. **SVSModeData** (Structure containing SVS mode configuration data)
(5) **FPDTag + FPDFrameNum** (1 for each recorded frame for standard or cache recorded data)

Notes:
a. The raw data that makes up each frame is written as it comes off the Focal Plane starting with the pixel 0 and going to the pixel n (where n is total pixels per frame), in other words it is not scan converted for display purposes.
b. DWORD - unsigned long (4 bytes)
c. WORD - unsigned short (2 bytes)

```
struct _LFileHdr
{
        char    text[47];               // Man readable text
        char    eof;                    // End of file character (decimal 26)
        char    signature[6];           // Lumitron signature ("LInc")
        UINT    product;                // Lumitron product code
        char    filetype;               // Product file type
        char    ver[13];                // Version of program that wrote this file
};
typedef struct _LFileHdr LFileHdr;

#define         LUM_SIGNATURE           "LInc"  // For Mk2 v2.00 and above

// Define Lumitron product codes
#define         LUM_SVS2000             4       // Lumitron Standard SVS2000 Product

// Define Product file types
#define         LUM_FPD_FILE            8       // Focal Plane Data file

/*
================================================================================================
Below, define the Focal Plane Data Tag format.  This tag is used as a header for each
block of data placed in the file.
================================================================================================
*/

struct _FPDHeader
{
        DWORD   time;                   // Seconds since Jan 1, 1970 when record started
        DWORD   tick;                   // Tick count when Record started
```

```
        double  rate;                   // Frame rate (frames pe second) in IEEE format
        DWORD   formatChangeCount;      // Number of format changes
        DWORD   totalFrames;            // Total number of frames
};
typedef struct _FPDHeader FPDHeader;

struct _FPDTag
{
        char    signature[4];           // Signature of the TAG ("LInc")
        DWORD   type;                   // Type of data
        DWORD   length;                 // Length of data
        DWORD   timestamp;              // GetTickCount() timestamp
};
typedef struct _FPDTag FPDTag;

struct _FPDFrameTag
{
        DWORD   frameNum;               // Frame number this tag represents
        DWORD   offset;                 // Offset of first frame
};
typedef struct _FPDFrameTag FPDFrameTag;

struct _FPDFrameNum
{
        DWORD   frameNum;               // Frame number this tag represents
};
typedef struct _FPDFrameNum FPDFrameNum;

#define         FPD_RAW_FPA_DATA              1
#define         FPD_SCAN_FPA_DATA             2
#define         FPD_FRAME_TIME_TAG            3
#define         FPD_MODE_DATA                 4
#define         FPD_RSU_DATA                  5
#define         FPD_OVERLAY_DATA              6
#define         FPD_IRIG_DATA                 7
```