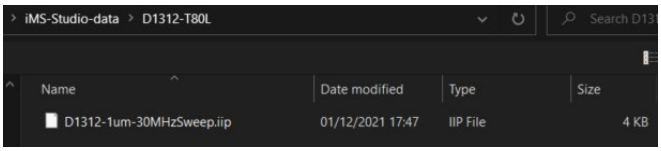
App Note: 2022-07-05

Running the example Isomet iMS Studio Projects

Run the Isomet iMS Studio, e.g. from the desktop icon

1. Load Example Project

Go to ***Tool bar > File > Open***
Select example project file *.ipp
and open.



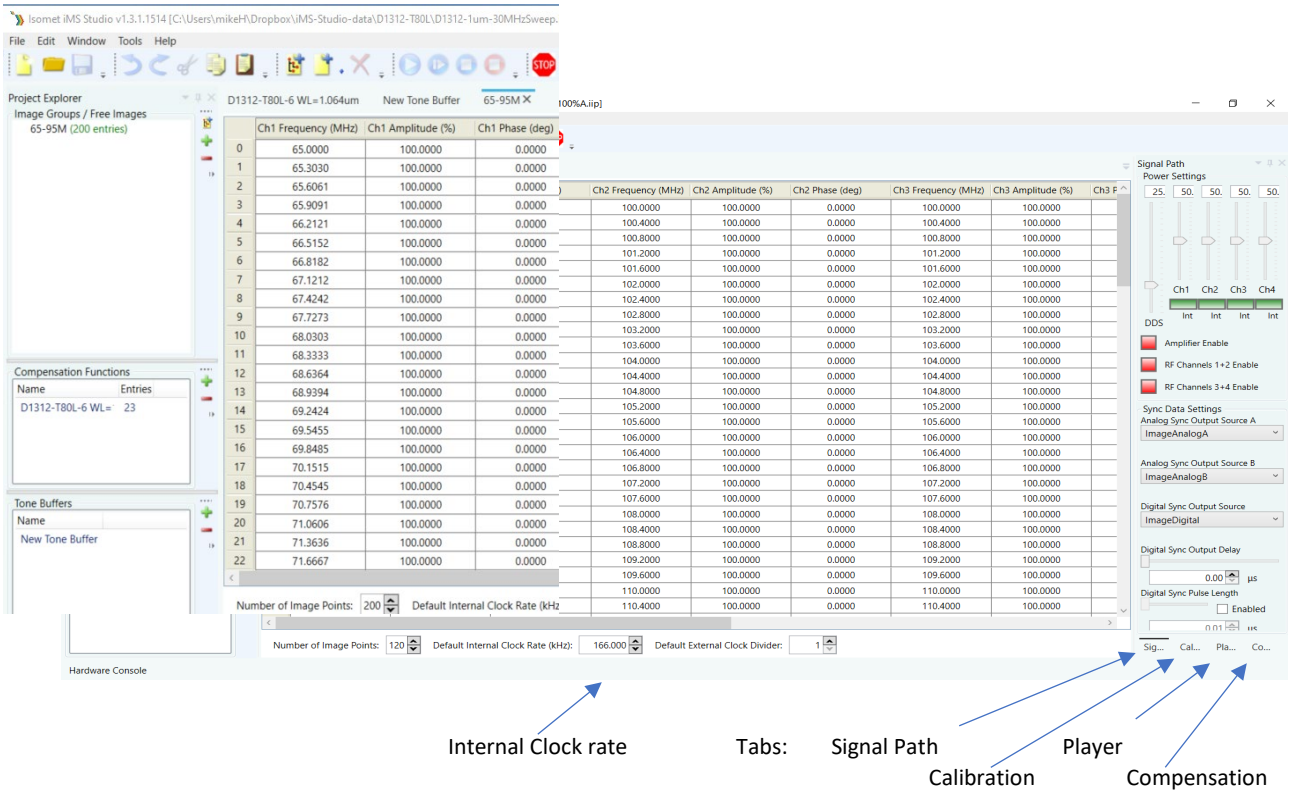
In this case we select the file; ***D1312-1um-30MHzSweep.iip***
This file contains one IMAGE that generates a linear frequency ramp followed by an OFF period.

- ***65-95M-*** sweeps all outputs simultaneously.

The image comprises of 121 image points with the same data on channel pairs. Points 0-99 are programmed with the 65-95MHz sweep at 100% amplitude.
Points 100-120 are at an arbitrary frequency and 0% amplitude.

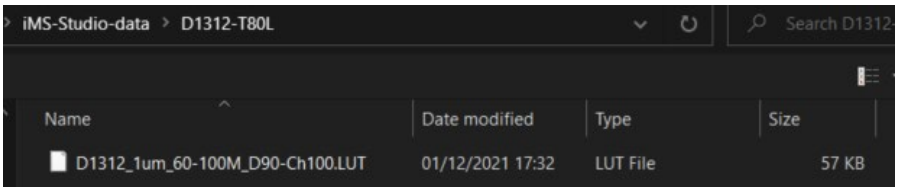
The ***Sync Data (Dig)*** field, is programmed with 0x0001 expect for 5 points around the mid-scan frequency (80MHz). These are set to 0x0000. Use the L<-> R slider bar to display. The Sync Data outputs are inverted at the output J7. This data will give a logic high signal to indicate the mid-scan position

The GUI window should look similar to this:

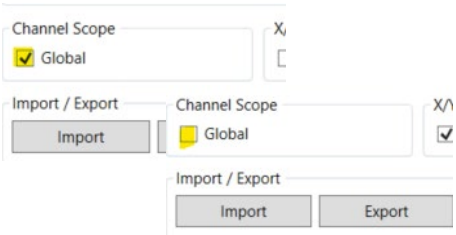


2. Select Compensation Tab

Click on Import Button
Open the required *.LUT files



LUT file size = **57KB** is a Global LUT file and is common to all outputs. Global LUT files (57KB size) are not recommended for X-Y deflector use.

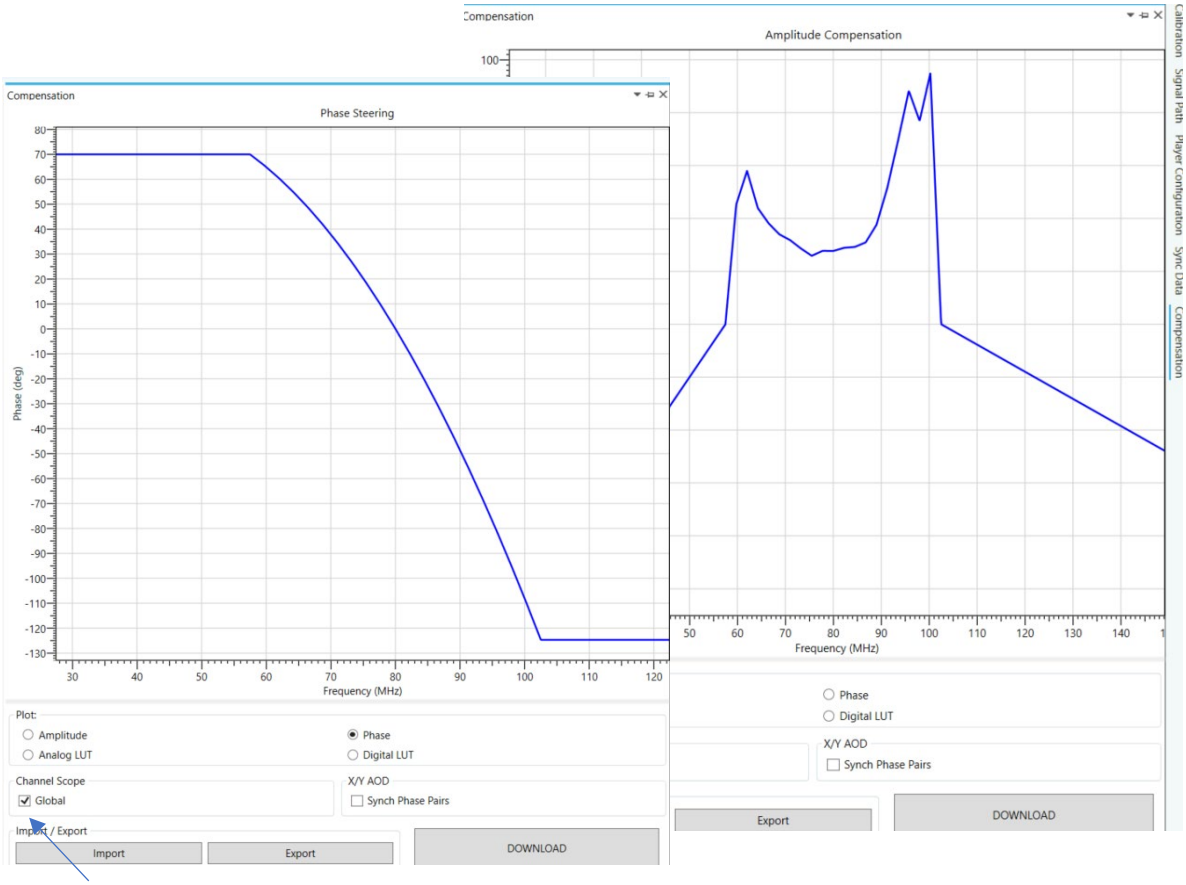


LUT file size = **225KB** is a Channel scoped (channel specific) compensation file that can apply unique values to each channel.

In this example we will open file: D1312_1um 60-100M_D90Ch80.LUT

This compensation file is generated for a D1312 at 1um, 60-100MHz freq' range using the **AF0-80T-4** amplifiers. The iMS4 Power Settings are : DDS=90% , Ch(n)=80% (See Signal tab).

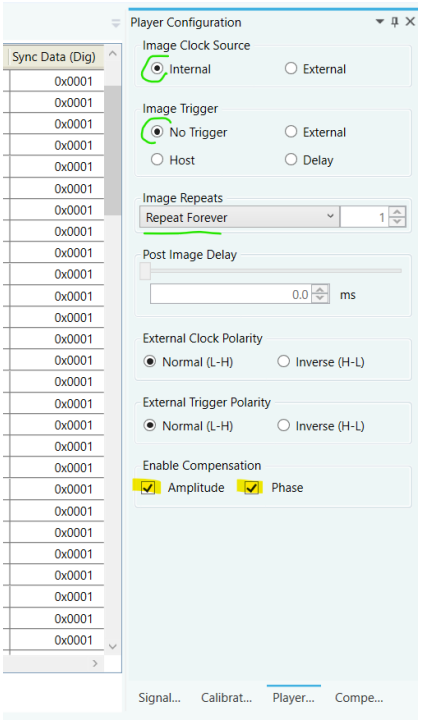
The graphics will show a plot of the compensation response,
Phase or Amplitude as selected by the radio buttons



Make sure ***Global*** box is checked

Click ***Download***

3. **Select Player Tab**



This example will use the ***Internal*** clock source and ***No Trigger*** with repeated image play (***Repeat Forever***). Internal clock rate is set on the lower tool bar, main window

*For external signals, check **External** buttons and apply:*

- *Trigger input to J10*
- *Clock input to J11*

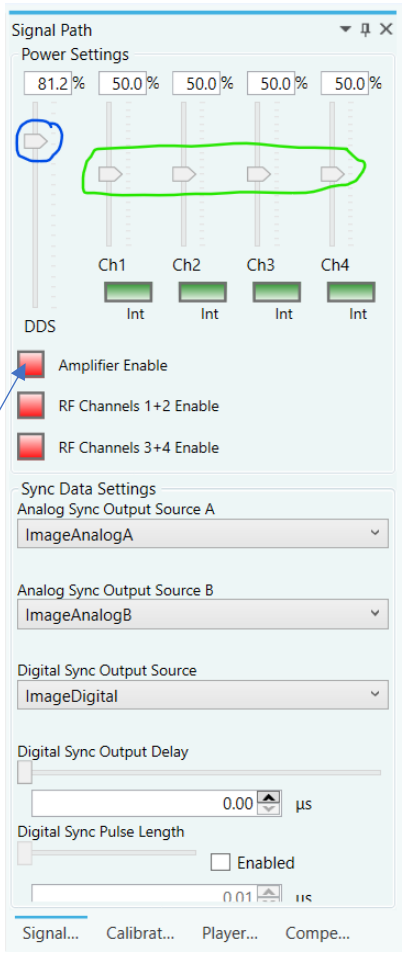
And when using with an RF amplifier with control through connector J5 of the iMS4 apply:

- *Gate input to J9 (High = ON)*

Note: If you do not want to use a compensation *.LUT file (see previous section) , then uncheck the highlighted boxes to disable compensation.

The RF output will be zero unless a *.LUT file is downloaded into the iMS4 or these boxes are unchecked.

4. **Select Signal Tab**



Two ***Power Settings*** control the RF output level:

- ***DDS*** is common to all four outputs.

- ***Ch1, Ch2, Ch3, Ch4*** sliders set the power for each output channel independently.

Typical settings when used with AF0-80T-4 are:
DDS = 90 - 95%
Ch1 = Ch2 = 80% - 85%
(Ch3 = Ch4 = 80% - 85%)

For XY AOD applications, Ch1 = Ch2 and Ch3 = Ch4

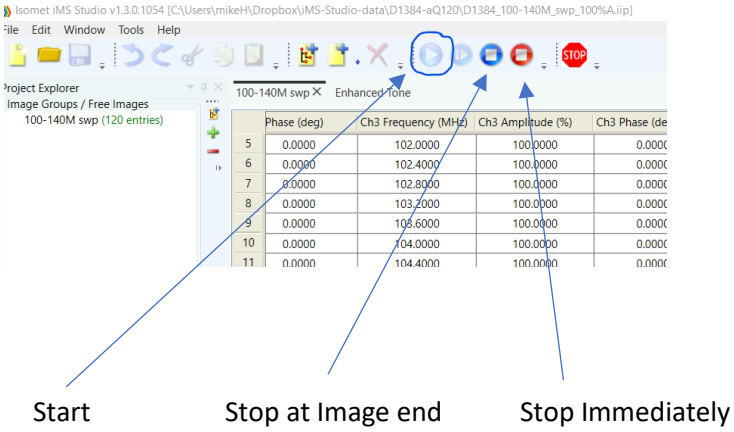
iMS4 RF output connectors.
Terminate onto a 50ohm input or load.

J1 = Ch1, J2 = Ch2, J3 = Ch3, J4 = Ch4

NOT NECESSARY FOR AF0-80T-4

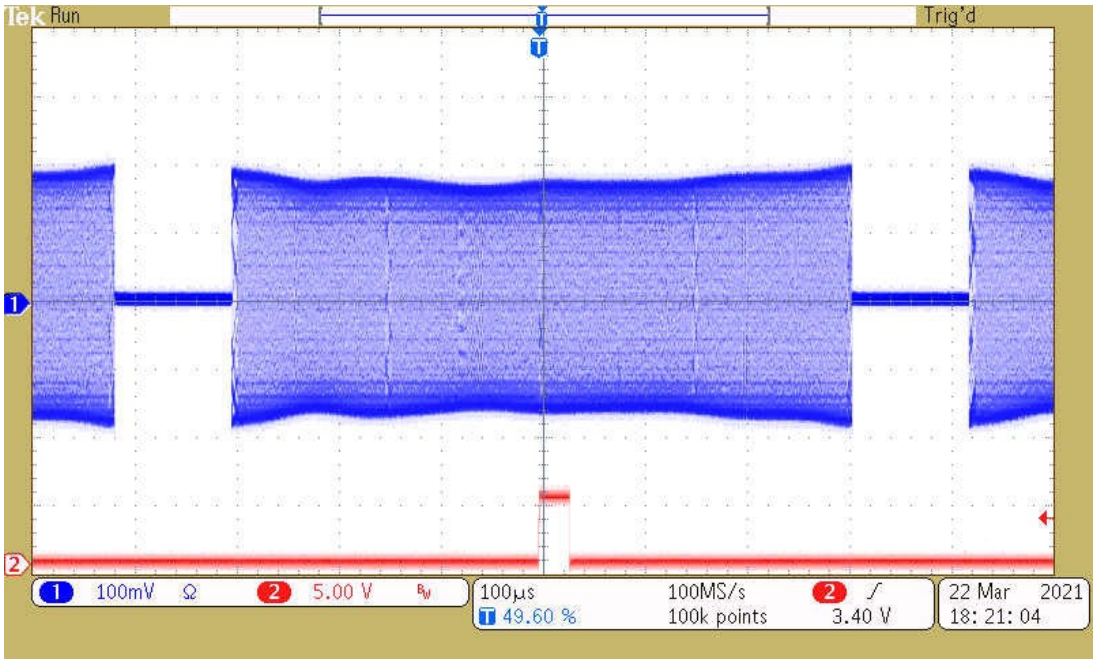
5. Start Image Play

Click the ***Play Button*** to start Image play.
(It will 'grey' out).

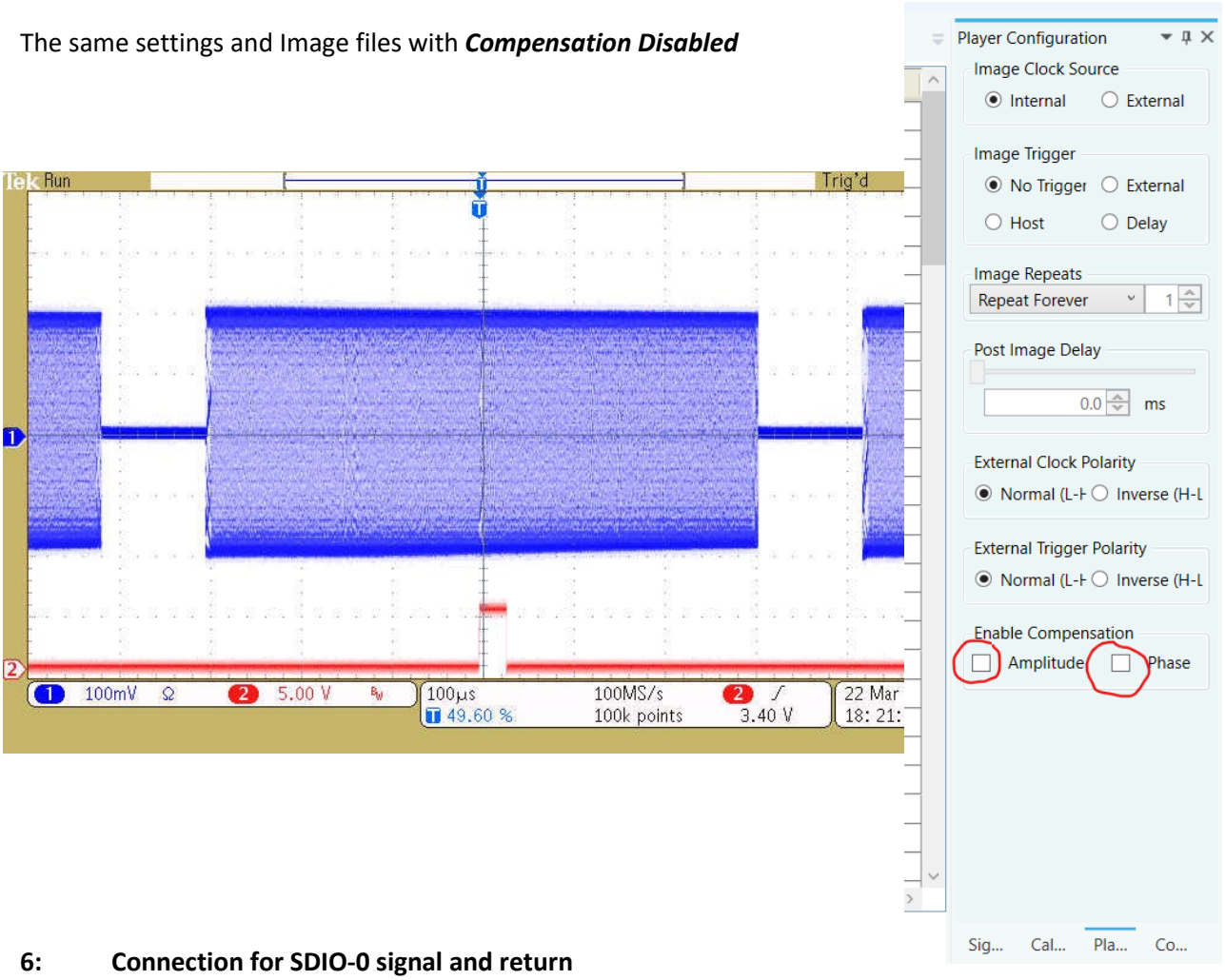


Typical **iMS4** output waveforms on oscilloscope for the files and signal levels described above.
Internal Clock rate 166KHz
Trace 1 = RF output (50ohm terminated); J1, J2

Trace 2 = SDIO-0; J7 pin 33, (rtn pin 26)

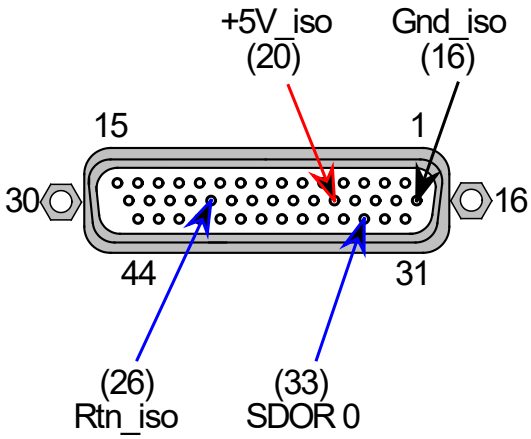


The same settings and Image files with ***Compensation Disabled***



6: Connection for SDIO-0 signal and return

View into iMS4 connector J7
SDIO outputs are opto- isolated and require a separate +5V supply to operate



7: Does my iMS4 work ?

Single Tone mode provides a basic functional and communication check with the Host PC.
This will generate a constant RF signal on the output channels, J1…J4
There is no SDIO sync output in this mode.

Select Calibration Tab

Select the **DISABLED** button. It will change to **ENABLED** and the RF outputs will be active.
Adjust the Frequency and Amplitude sliders as required.

Note: This mode will prevent Image Play. Return to DISABLED when finished.

At 100 % amplitude, the RF output on J1, J2, J3 or J4 will be 100-650mV peak to peak into 50 ohms, depending on the power level settings in the **Signal tab** (See Section 4 above).