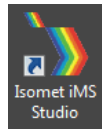


Running the example Isomet iMS Studio Projects

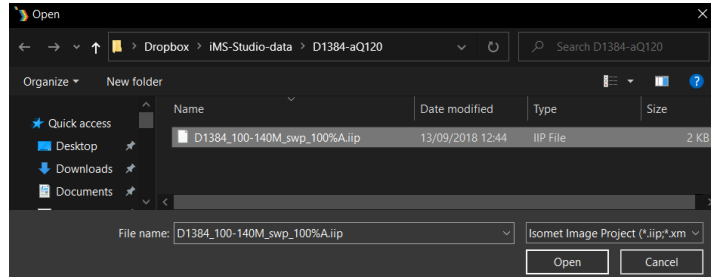
Run the Isomet iMS Studio, e.g. from the desktop icon



1. Load Example Project

Go to **Tool bar > File > Open**

Select example project file *.iip and open.



In this case we select the file; **D1384_100-140M_swp_100%A.iip**

This IMAGE file generates a linear frequency ramp followed by an OFF period. It comprises of 120 image points with the same data on all four iMS4 channels. Points 1-100 are programmed with the 100-140MHz sweep at 100% amplitude. Points 101-119 are at an arbitrary frequency (131MHz) and 0% amplitude.

The **Sync Data (Dig)** field, is programmed with 0x0001 expect for 5 point around the mid-scan frequency (120 – 121 MHz). 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 like this:

	Ch1 Frequency (MHz)	Ch1 Amplitude (%)	Ch1 Phase (deg)	Ch2 Frequency (MHz)	Ch2 Amplitude (%)	Ch2 Phase (deg)	Ch3 Frequency (MHz)	Ch3 Amplitude (%)	Ch3 Phase (deg)
1	100.0000	100.0000	0.0000	100.0000	100.0000	0.0000	100.0000	100.0000	
2	100.4000	100.0000	0.0000	100.4000	100.0000	0.0000	100.4000	100.0000	
3	100.8000	100.0000	0.0000	100.8000	100.0000	0.0000	100.8000	100.0000	
4	101.2000	100.0000	0.0000	101.2000	100.0000	0.0000	101.2000	100.0000	
5	101.6000	100.0000	0.0000	101.6000	100.0000	0.0000	101.6000	100.0000	
6	102.0000	100.0000	0.0000	102.0000	100.0000	0.0000	102.0000	100.0000	
7	102.4000	100.0000	0.0000	102.4000	100.0000	0.0000	102.4000	100.0000	
8	102.8000	100.0000	0.0000	102.8000	100.0000	0.0000	102.8000	100.0000	
9	103.2000	100.0000	0.0000	103.2000	100.0000	0.0000	103.2000	100.0000	
10	103.6000	100.0000	0.0000	103.6000	100.0000	0.0000	103.6000	100.0000	
11	104.0000	100.0000	0.0000	104.0000	100.0000	0.0000	104.0000	100.0000	
12	104.4000	100.0000	0.0000	104.4000	100.0000	0.0000	104.4000	100.0000	
13	104.8000	100.0000	0.0000	104.8000	100.0000	0.0000	104.8000	100.0000	
14	105.2000	100.0000	0.0000	105.2000	100.0000	0.0000	105.2000	100.0000	
15	105.6000	100.0000	0.0000	105.6000	100.0000	0.0000	105.6000	100.0000	
16	106.0000	100.0000	0.0000	106.0000	100.0000	0.0000	106.0000	100.0000	
17	106.4000	100.0000	0.0000	106.4000	100.0000	0.0000	106.4000	100.0000	
18	106.8000	100.0000	0.0000	106.8000	100.0000	0.0000	106.8000	100.0000	
19	107.2000	100.0000	0.0000	107.2000	100.0000	0.0000	107.2000	100.0000	
20	107.6000	100.0000	0.0000	107.6000	100.0000	0.0000	107.6000	100.0000	
21	108.0000	100.0000	0.0000	108.0000	100.0000	0.0000	108.0000	100.0000	
22	108.4000	100.0000	0.0000	108.4000	100.0000	0.0000	108.4000	100.0000	
23	108.8000	100.0000	0.0000	108.8000	100.0000	0.0000	108.8000	100.0000	
24	109.2000	100.0000	0.0000	109.2000	100.0000	0.0000	109.2000	100.0000	
25	109.6000	100.0000	0.0000	109.6000	100.0000	0.0000	109.6000	100.0000	
26	110.0000	100.0000	0.0000	110.0000	100.0000	0.0000	110.0000	100.0000	
27	110.4000	100.0000	0.0000	110.4000	100.0000	0.0000	110.4000	100.0000	

Internal Clock rate

Tab:

Signal Path

Player

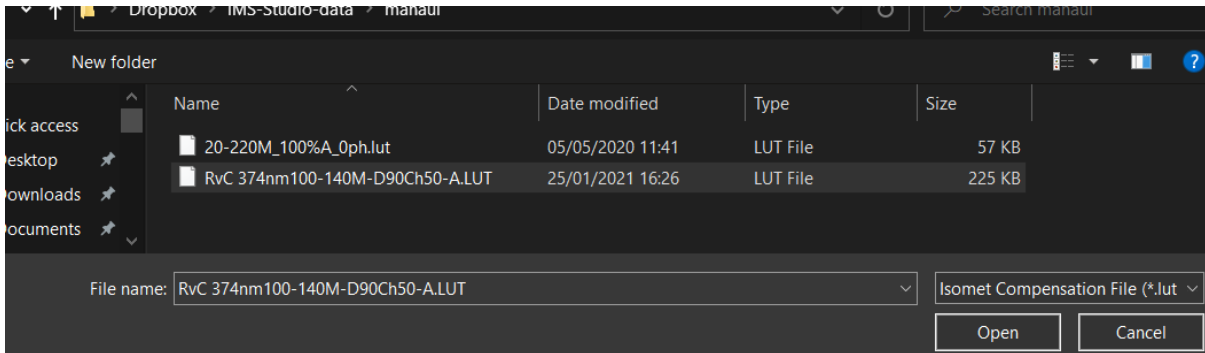
Calibration

Compensation

2. Select Compensation Tab

Click on Import Button

Open the required *.LUT files



LUT file size = 57KB is a **Global** compensation file that applies the same data to ALL outputs of the iMS4. (This is the only option for older Rev-A and Rev-B of the iMS4 Synthesizers).

LUT file size = 225KB is a Channel scoped (channel specific) compensation file that can apply unique values to each channel. This is the recommended LUT option for X-Y deflector use.

In this example we will open:

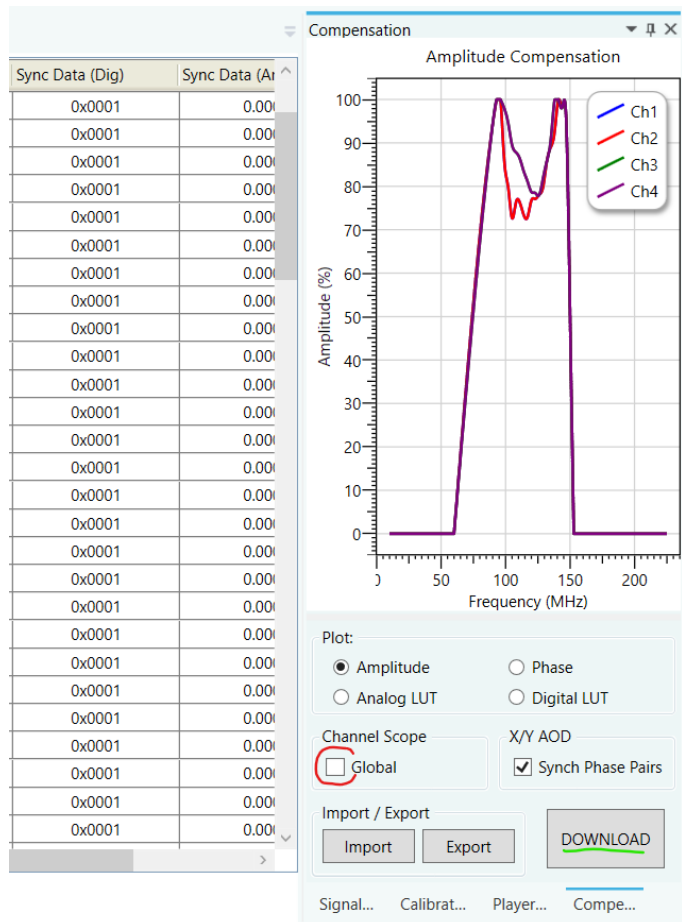
RvC 374nm100-140M-D90Ch50-A.LUT

[This Compensation file generated for a D1384 at 374nm. 100-140MHz freq' range using a RFA0120-4-15 amp. iMS4 Power Settings DDS=90% , Chn=50% (See Signal tab)]

The graphic will show a plot of the compensation response

Make sure **Global** box is unchecked

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:

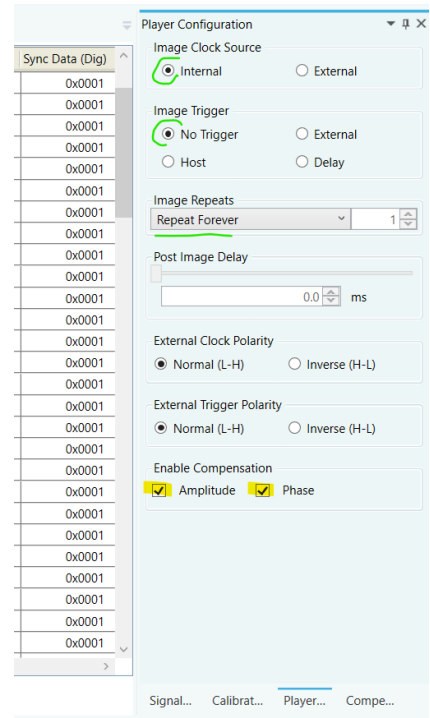
- Trigger input to J10
- Clock input to J11

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

- Gate input to J9

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 RFA0110-2-15 are:

- DDS = 70% - 90%
- Ch1 = Ch2 = 40% - 60%
- Ch3 = Ch4 = 40% - 60%

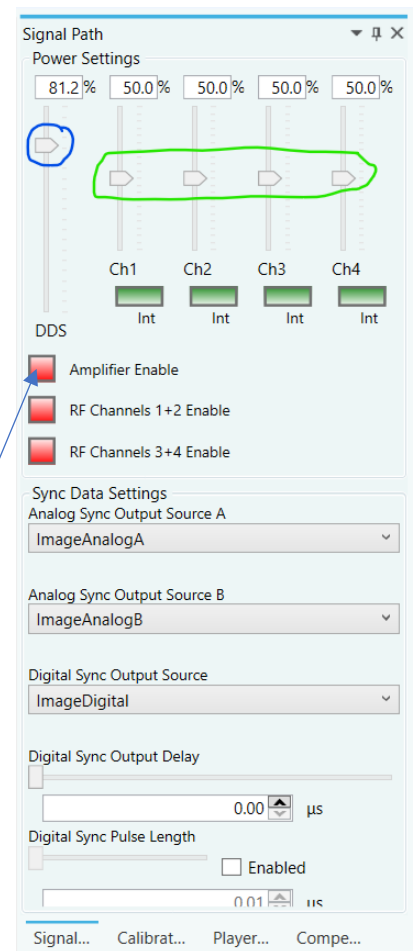
For XY AOD applications, Ch1 = Ch2 and Ch3 = Ch4

iMS4 RF output connectors.

Terminate onto a 50ohm input or load.

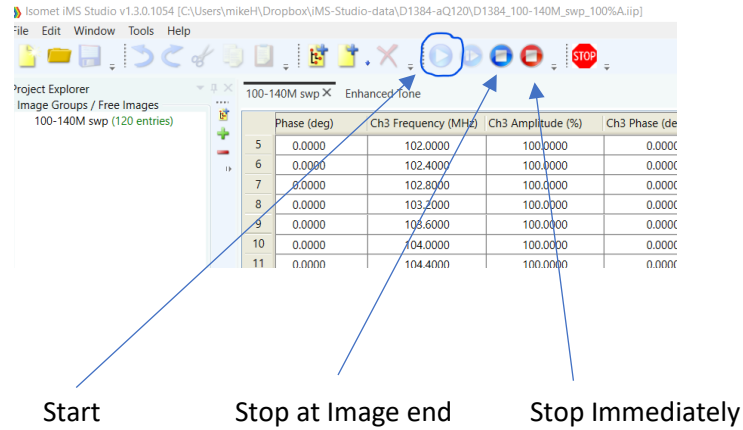
J1 = Ch1, J2 = Ch2, J3 = Ch3, J4 = Ch4

To enable the RF amplifier output, toggle the **Amplifier Enable** button (-> Green)



5. Start Image Play

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

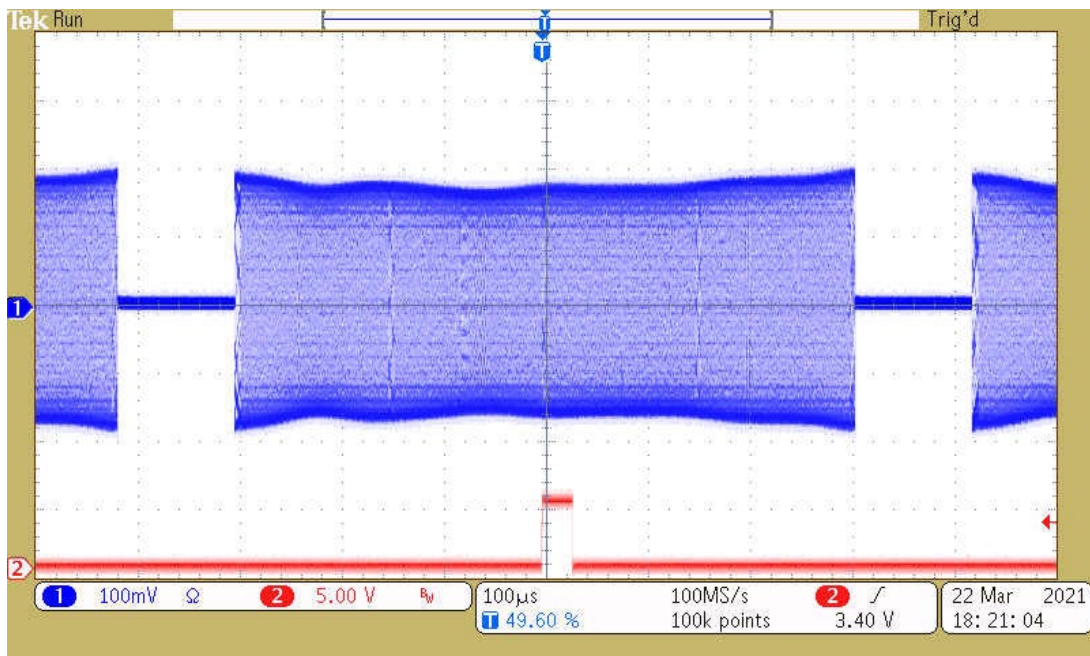


Typical output waveforms on oscilloscope for the files and signal levels described above.

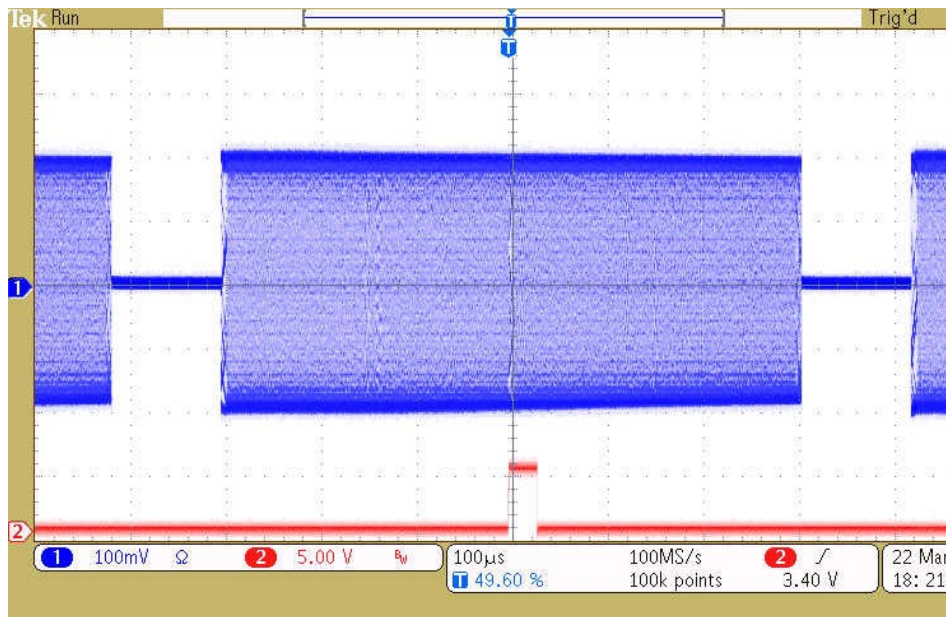
Internal Clock rate 166KHz

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**



Player Configuration

Image Clock Source
 Internal External

Image Trigger
 No Trigger External
 Host Delay

Image Repeats
 Repeat Forever 1

Post Image Delay
 0.0 ms

External Clock Polarity
 Normal (L+) Inverse (H-L)

External Trigger Polarity
 Normal (L+) Inverse (H-L)

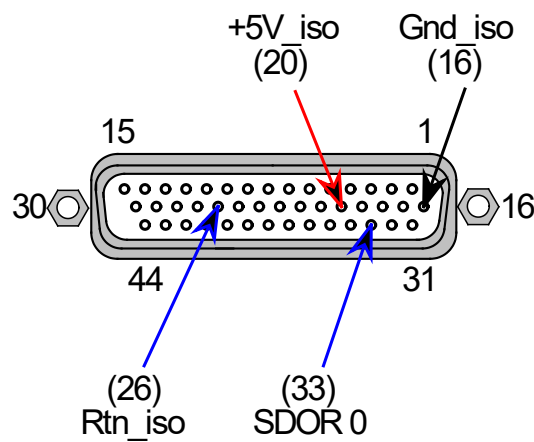
Enable Compensation
 Amplitude Phase

Sig... Cal... Pla... Co...

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).

