MECAR - Feature #23894

MI Beam Intensity Compensation problems

01/15/2020 10:25 AM - Kevin Martin

Status:	Resolved	**Start date:**	01/09/2020
Priority:	Normal	**Due date:**	01/15/2020
Assignee:	Kevin Martin	**% Done:**	100%
Category:		**Estimated time:**	0.00 hour
Target version:		**Spent time:**	5.00 hours

Description

Our current operation using Recycler as a proton stacker has created a problem with the intensity compensation in the Main Injector. When we transfer the beam from the Recycler, it takes several mSec for the intensity DCCT to realize the beam and broadcast this information to MDAT for MECAR to use. This results in unmanageable tunes in the machine as the intensity compensation is being applied at some slew rate after injection.

History

#1 - 01/15/2020 10:35 AM - Kevin Martin

Eight new ACNET devices have been created (I:MBMI20,I:MBMI21,I:MBMI29,I:MBMI2A,I:MBMI2B,I:MBMI2D,I:MBMI2E,I:MBMI23) to control the new MI Beam Intensity compensation behavior in MECAR for each MI reset. They are located on the I21:MECARVME:3 parameter page.

If a device is set to zero (0) then MECAR will use the MI Beam Intensity MDAT frame ($73) for the whole reset (normal behavior). If the device is set to one (1) then MECAR will sample the RR Beam Intensity MDAT frame data ($70) at the beginning of that MI reset and statically use that value as the Beam Intensity until the Start of Ramp TCLK event ($22) occurs. At that point MECAR goes back to dynamically reading/using the MI Beam Intensity MDAT frame data ($73).

#2 - 01/15/2020 04:34 PM - Kevin Martin

- % Done changed from 0 to 100

- Status changed from New to Resolved

- Due date set to 01/15/2020

This feature has been tested and seems to be working. Something that came up while testing this new feature is that the MDAT Frame scale factor for the MI/RR Beam Intensity frames ($70/$73) is wrong in MECAR. I have corrected this.

Old SF: 1.01625e9
New SF: 1.48e9