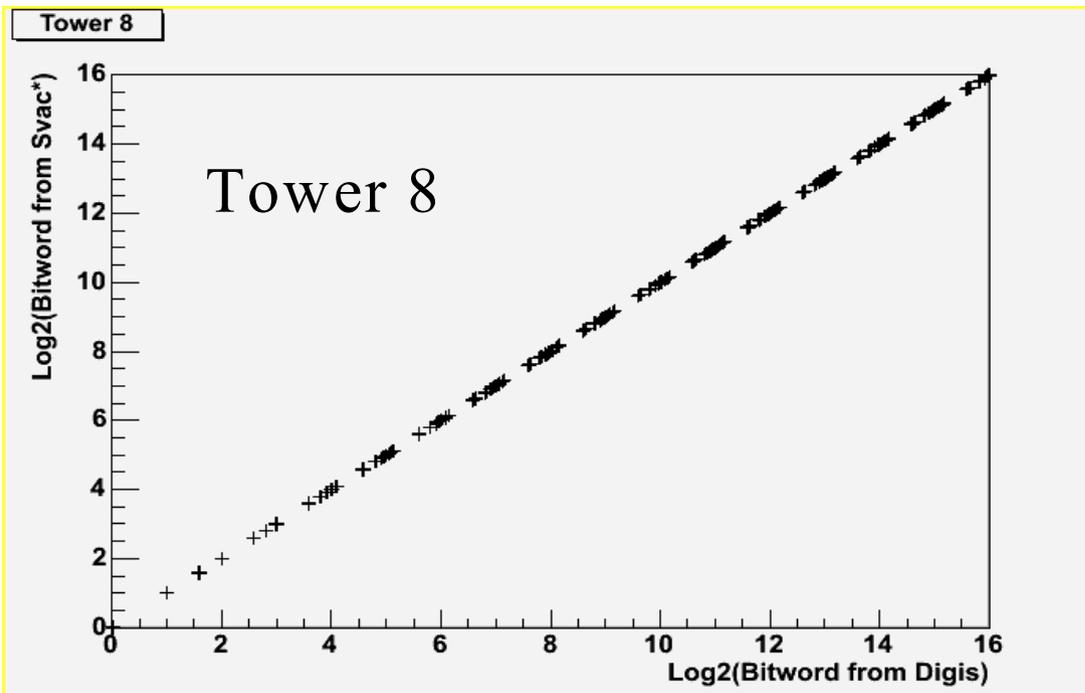


Trigger Studies – Status Report

What is new from last time:

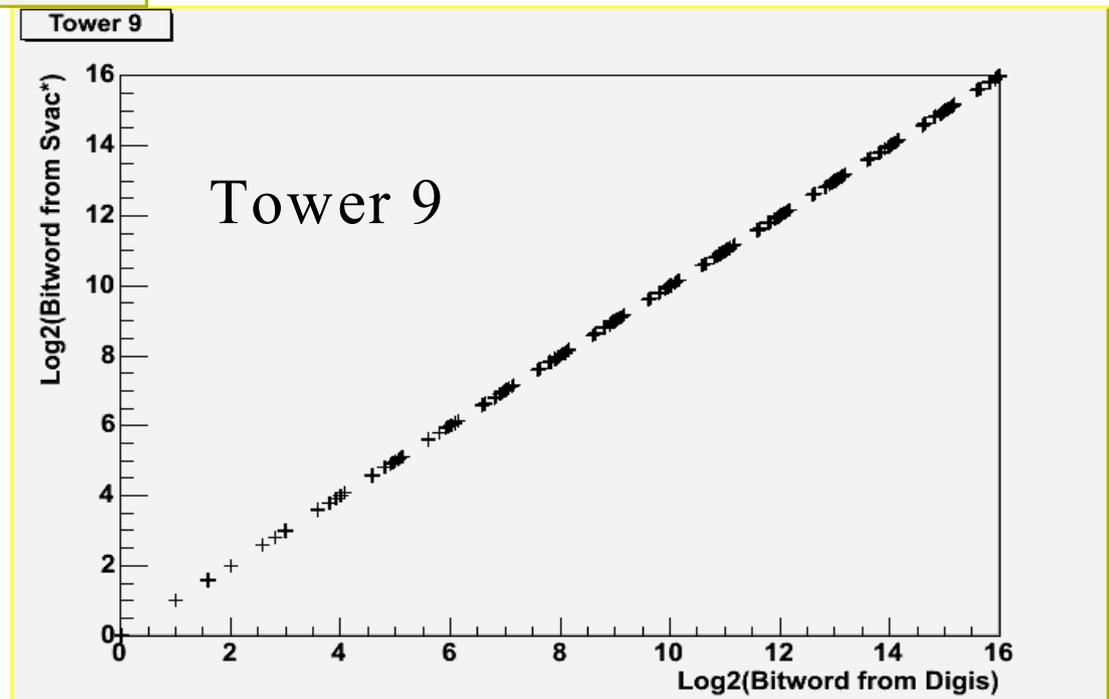
- Better understanding/agreement of how the information required for this analysis is going to be calculated and made available.
- MC events for two towers have been rerun (to get digit information) and “analyzed”.
- Spurious and missed hits were included randomly to simulate inconsistencies

Two Towers Data



This plot is the tool that will be used to look for inconsistencies between trigger information from the digis and from the TEM.

For MC events we find perfect agreement as expected.

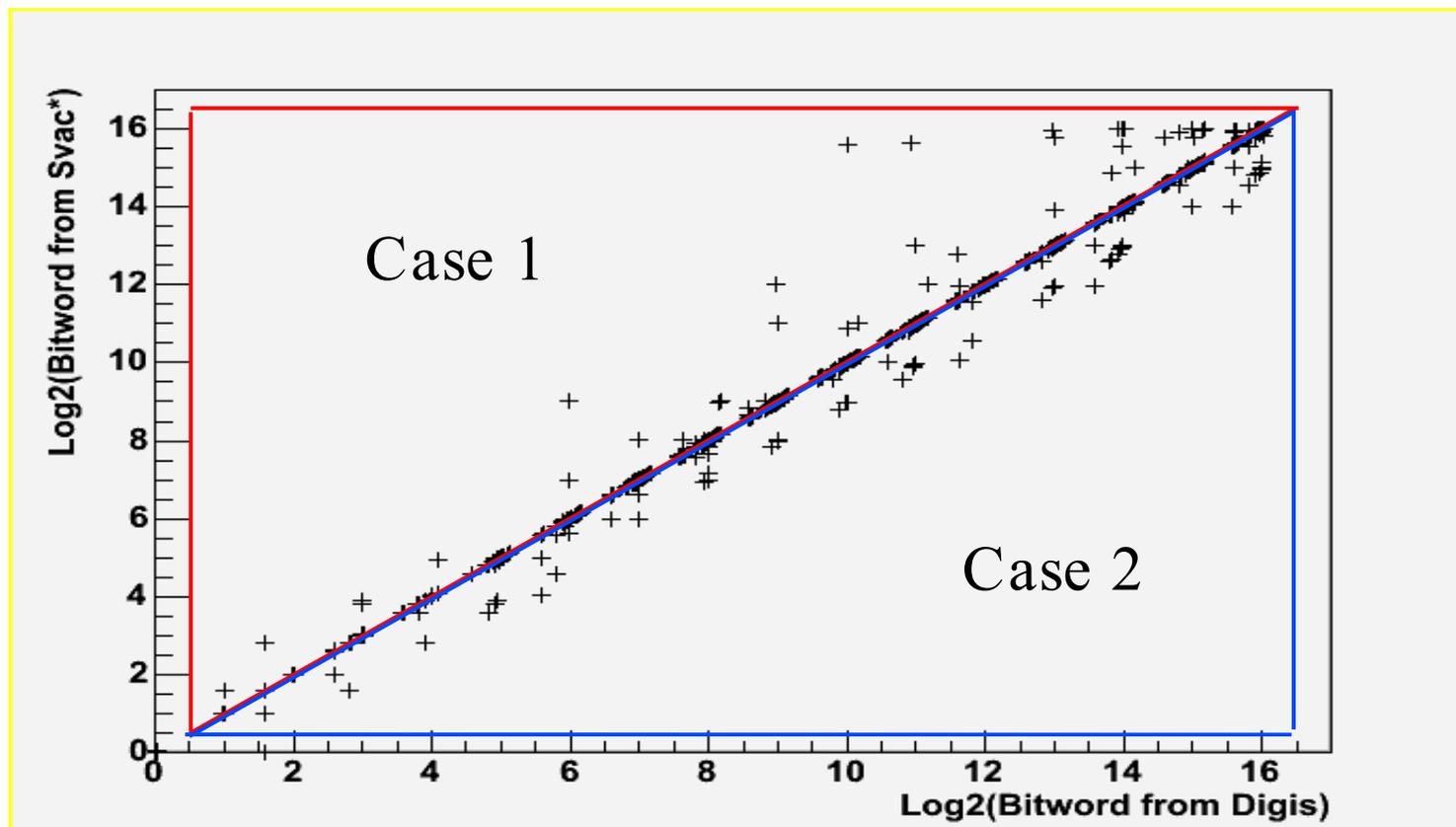


* Simulated "Real Data"

Simulating Inconsistencies

Case 1: A given hit produces a trigger request, but its time over threshold is so low that by the time the readout takes place the hit has faded away. (missed hit) **Digi Bitword < TEM Bitword**

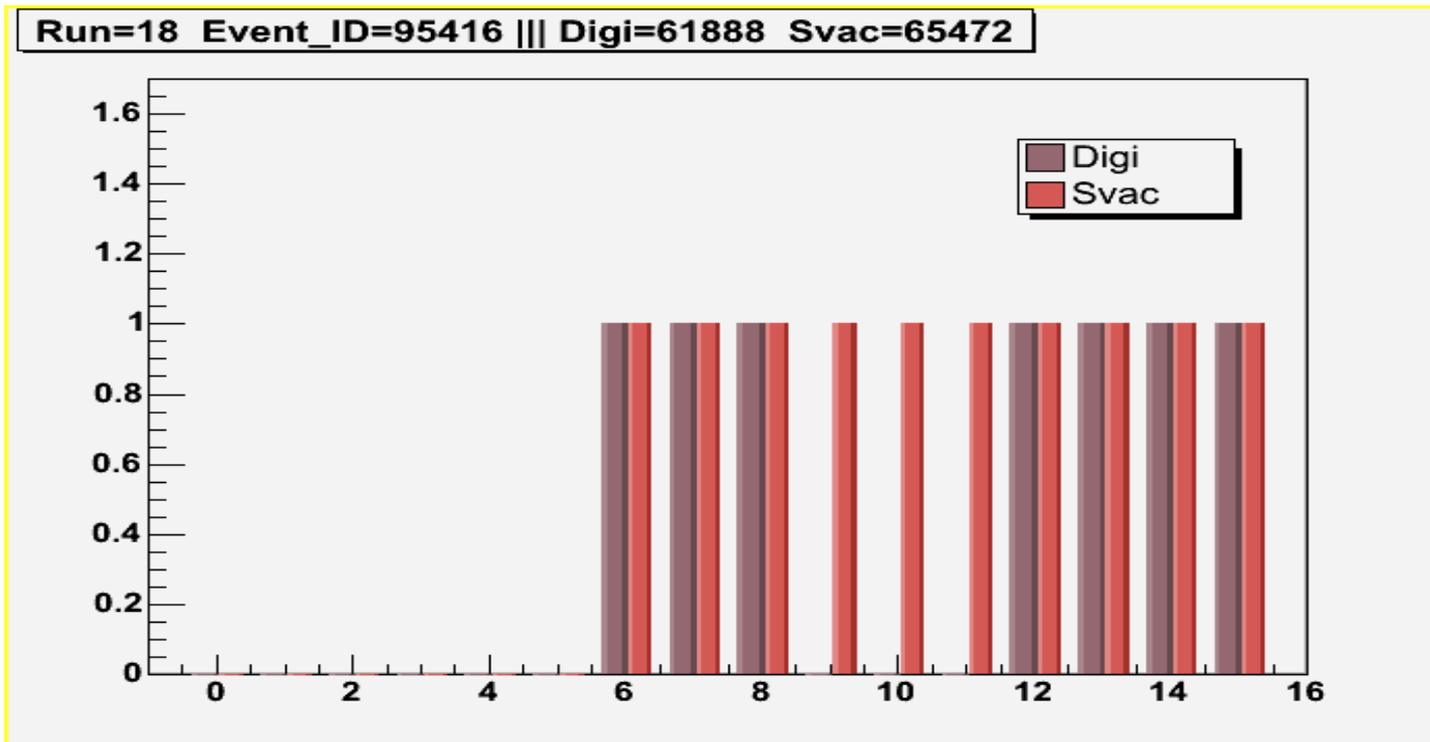
Case 2: A trigger request is issued. While waiting for the readout a noise hit takes place (Spurious hit). **Digi Bitword > TEM Bitword**



The rates at which these cases were randomly simulated are made up, actual rates should be different from this.

Studying Inconsistent Events

Lets take as an example Run=18 and Event_ID=95416, that was found to be inconsistent in the present simulation:



Bins 0,...,15 are the possible combinations of 3-in-a-row. There are two possible values for each bin:
0 = inactive combination
1 = active combination

Combinations 9, 10 and 11 are inactive according to the digis, but 8 and 12 are active, thinking in terms of layers this means that layer 11 has no hits. Svac reports a trigger request in every of those layers.

Conclusion: Most likely there was a hit in layer 11 that was gone when the readout took place.