



Physical test signal injection for end-to-end pipeline verification

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What groups need to do (proposed at March meeting)

- Develop Monte Carlo test plans
- Determine how “blind” to make test signal injection
 - ◇ Designate “red team/blue team” ??
- Apportion the tests between pure SW and HW (& estimate “mass” in each category)
- Discuss signal properties, “degree of independence”, “end-to-endness” etc. with Mike to develop infrastructure and start coordinating groups of tests
- Plan and do trial runs before E6 (EXTREMELY IMPORTANT)
- Schedule and perform injections during E6



status

	Burst	Inspiral	Stochastic	Per. (short)	Per. (long)	Per. (pulsar)
test signal duration		25.4 s		1200 s		
signal generation		stored AWF		RT calc.		
test SNR range		1-10		.1-100		
# singles tests (E6)		3/ifo		4*4/ifo		
singles triggering		arb/ATF ^a		arb/ATF ^a		
# coinc. tests (E6)		1		4		
coinc. triggering		± 100 ns		± 100 μ s		
# trial delays (E6)		1		1		
blind/random?		no		no		

a. triggering not necessarily deterministic, but start time fully reconstructable after the fact



Constraints/options in adapting GDS for this job

(as framed by Daniel Sigg...)

- ◇ GDS front end has limited realtime calculation & waveform storage capacity
 - on-the-fly calc of waveforms more complex than sines, sweeps and PR noise hard
 - prestored/preloaded sequences limited by RT processor memory (20s - 100s?)
 - absolute time triggering an issue, even for short, front-end-stored waveforms
- ◇ Favored option: realtime streaming server/client
 - stored file and/or “realtime” calc on UNIX/LINUX, served to client on GDS front end
 - significant programming effort (~person-month server, similar for RT client?)
- ◇ Perhaps implement front-end-stored short waveforms for E6, work on streaming for future upgrade?