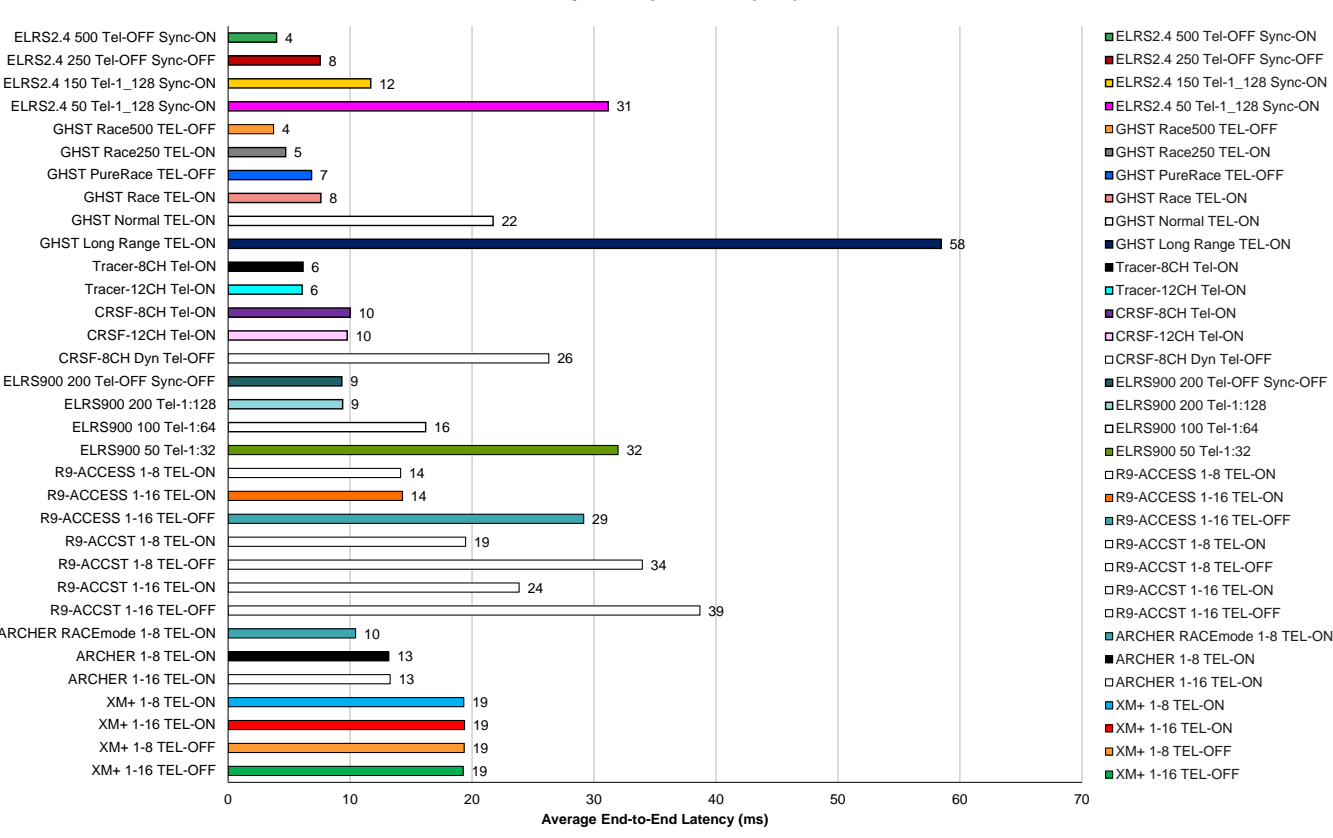
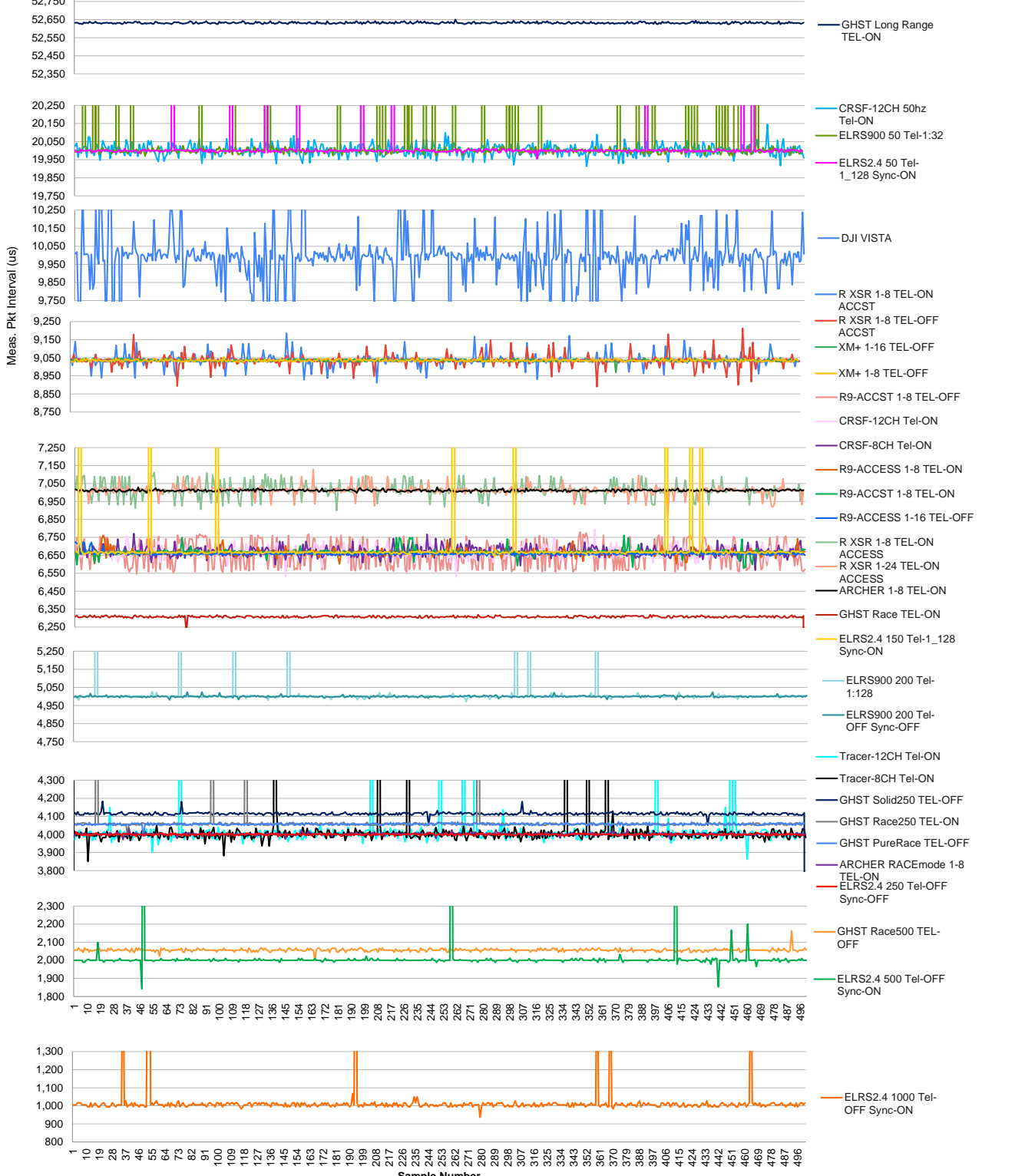


### Average End-to-End Latency Comparison (ms)



**Firmware Versions:**  
 ExpressLRS 2.4Ghz - v3.2  
 ExpressLRS 900MHz - RC7  
 Ghost - 1.0.8.0  
 TBS Tracer - 6.13  
 TBS Crossfire - 4.11  
 FrSky R9 ACCESS Module - 1.3.0  
 FrSky R9 ACCESS R9mm OTA receiver - 1.3.1  
 FrSky R9 ACCST Module - 190117  
 (Update Time: 2019-02-13)  
 FrSky R9 ACCST R9mm OTA Receiver - 190201  
 (Update Time: 2019-11-01)  
 FrSky QX7s 2.4Ghz - ISRM 2.1.6  
 FrSky Archer RS - 2.1.8

### UART Packet Jitter Comparison



## End-to-end Latency Distribution Plots

Transmitter	Receiver	Latency Range
ExpressLRS 2.4Ghz	ExpressLRS 1000hz (FLRC) Tel-OFF	2-6ms
	ExpressLRS 500hz (LoRa) Tel-OFF	3-15ms
	IMRC GHST Race250 Tel-ON	10-40ms
	IMRC GHST Race500 Tel-ON	20-50+ms
Ghost 2.4Ghz	IMRC GHST Race250 Tel-OFF	2-6ms
	IMRC GHST Race500 Tel-OFF	3-15ms
	IMRC GHST Race250 Tel-ON	10-40ms
	IMRC GHST Race500 Tel-ON	20-50+ms
TBS 2.4Ghz	TBS Tracer-12CH Tel-ON	2-6ms
	TBS Tracer-8CH Tel-ON	3-15ms
	TBS Tracer-12CH Tel-ON	10-40ms
	TBS Tracer-8CH Tel-ON	20-50+ms
TBS Crossfire	CRSF 8CH Tel-ON	2-6ms
	CRSF 12CH Tel-ON	3-15ms
	CRSF 12CH - 50hz Tel-ON	10-40ms
	CRSF 12CH - 50hz Tel-ON	20-50+ms
ExpressLRS 900Mhz	ExpressLRS 900 - 200hz Tel-OFF	2-6ms
	ExpressLRS 900 - 100hz Tel-1:64 end-to-end	3-15ms
	ExpressLRS 900 - 100hz Tel-1:64 end-to-end	10-40ms
	Distribution 900 - 50hz Tel-1:32 end-to-end	20-50+ms
R9 ACCESS	R9 ACCESS 1-8 CH Tel-ON	2-6ms
	R9 ACCESS 1-16 CH Tel-ON	3-15ms
	R9 ACCESS 1-16 CH Tel-OFF	10-40ms
R9 ACCST	R9 ACCST 1-8 CH Tel-ON	2-6ms
	R9 ACCST 1-16 CH Tel-ON	3-15ms
	R9 ACCST 1-8 CH Tel-OFF	10-40ms
Archer RS RaceMode	FrSky Archer RS 1-8 CH Tel-OFF	2-6ms
	FrSky Archer RS 1-8 CH Tel-ON	3-15ms
	FrSky Archer RS 1-16 CH Tel-ON	10-40ms
FrSky XM+	FrSky XM+ 1-8 CH Tel-OFF	2-6ms
	FrSky XM+ 1-16 CH Tel-OFF	20-50+ms
FrSky R XSR	FrSky R XSR 1-8 CH Tel-ON	2-6ms
	FrSky R XSR 1-16 CH Tel-ON	3-15ms
	FrSky R XSR 1-8 CH Tel-OFF	10-40ms
	FrSky R XSR 1-16 CH Tel-OFF	20-50+ms