Missiles and launchers
Detailed testing capabilities

Model type	Model rigging	Wind tunnel	Typical test program	Test objective	Mach number range
Full scale model. Maximum length: 6 m.	Straight sting. Top wall mast mounting.	S1MA	• α sweep polars. • β sweep polars internal flow variations.	• Missile loadings. • Air intake performance. • Engine operation. • Infrared signature. • Dynamic wing opening. • Missile head drop test.	M<1
Full model. Typical diameter: 110 mm.	Straight sting. With / without jet simulation (hot or cold gas).	S2MA	• α sweep polars. • β sweep polars. • Roll polars. • Internal flow.	• Fin loading. • Full model loading. • Pressure distribution. • Booster separation (with CTS). • Jet simulation (hot and cold gas).	0,2<M<3,1
Full model. Typical diameter: 200 mm.	α/β support With / without jet simulation (hot or cold gas).	S4MA	• α sweep polars. • β sweep polars. • Internal flow.	• Full model loading. • Jet simulation (hot and cold gas).	2<M<12
Isolated air intake model.	Standard sting holder. Mass flow control and measurement units.	S2MA	• Internal flow characteristics. • α sweep polars. • β sweep polars.	Air intake performance (efficiency, steady distortion).	0,2<M<3,1
Rotating model.	Self rotating model. Actuated roll motion.	S2MA	• α sweep polars. • β sweep polars.	Full model loading.	0,2<M<3,1
Full model (typical diameter: 70 mm).	Sting mounted, with / without jet simulation (hot or cold).	S3MA	• α sweep polars. • Roll polars.	• Fin loading. • Full model loading.	0,1<M<5,5
Model parts (wings, fins,...).	Wall mounted.	S3MA	α sweep polars.	• Model loads. • Pressure distribution.	0,1<M<5,5
Air intake model (isolated or model integrated)	Sting or strut mounted.	S3MA	Internal flow characteristics.	Air intake performance.	0,1<M<5,5
Full model for dynamic derivative measurements	Specific rigs: - pitching moment, - roll moment (100Hz).	S3MA	• Pitch and pause. • α sweep polars.	Model dynamic stability coefficients.	0,1<M<5,5
Full model for Magnus effects	Specific rigs: roll motion (400Hz).	S3MA	• α sweep polars.	Side force induced effect on rotating missiles.	0,1<M<5,5
Nozzles	Wall mounted balance. Supply pipe equipped with strain gages and accelerometers.	S4b	• Mass flow variation. • Very high pressure ratio.	• Steady thrust measurement. • Unsteady loads on nozzle.	

Model type	Model rigging	Wind tunnel	Typical test program	Test objective	Mach number range
Radome scaled down model.	Sting mounted, specific rig.	S3MA	Analysis of rain or sand impact.	Erosion effects.	0,1<M<5,5
Nozzles / afterbodies tests with heated core and secondary floors		BD2		nozzle and afterbody performances	