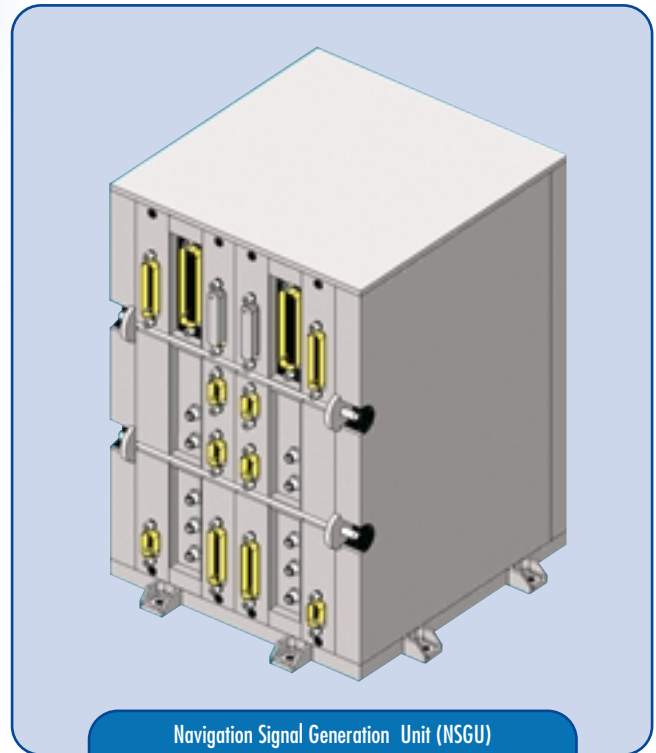


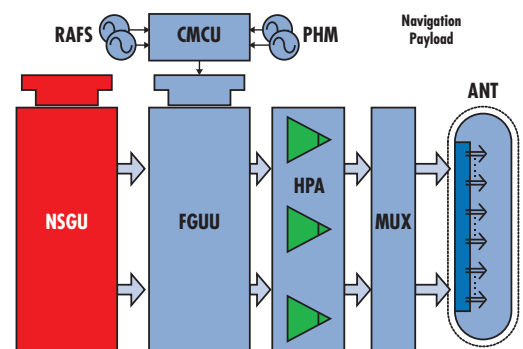
Navigation Signal Generation Unit (NSGU)

Satellite Navigation depends on truly precise signals, signals that convey accurate satellite time and ephemeris. The use of digital synthesis guarantees the high qualities as required for Galileo. The Navigation Signal Generation Unit (NSGU), generating these signals, is already under development.



Main Features:

- Composition of Navigation Data
- Generation of Navigation Ranging Codes
- Signal Generation in E5a, E5b, E6 and E2L1E1 bands
- Full Digital Signal Formatting and Modulation
- Reconfiguration Flexibility for Data, Rates and Codes



Signal Generation supported by NSGU

Band	E5A		E5B		E6			E2L1E1		
Frequency (MHz)after upconversion	1176.45		1207.14		1278.75			1575.42		
Multiple Access	CDMA		CDMA		CDMA			CDMA		
Sub-Carrier	I	Q	I	Q	A	B	C	A	B	C
Sub-Modulation					BOC (10,5)			BOC (m,n)	BOC (2,2)	BOC (2,2)
Purpose	DATA	Pilot	DATA	Pilot	DATA	DATA	Pilot	DATA	DATA	Pilot
Power Share (%)	50	50	50	50	50	25	25	50	25	25
Code Rate (Maps)	10.23		10.23		5.115	5.115		N	2.046	
Primary x Secondary Code Length	10230x20	10230x100	10230x4	10230x100	NP	5115	10230x50	NP	8184	8184x25
Service Data Allocation	OS	NA	OS	NA	PRS	CS#	NA	PRS	OS	NA
	SOL		SOL						SOL	
	CS		CS						CSA	

Subject to changes

Signal Service Definition:

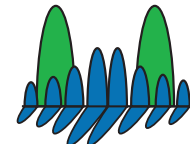
- OS: Open Service
- SOL Safety of Life Service
- CS: Commercial Service
- PRS: Public Regulated Service



E5a



E5b



E6

E2 L1 E1



History:

- 1999: Delivery of GNSS-2 Payload Processor Unit in the frame of GNSS-2 Comparative System Studies
- 2001: Kick-off of Navigation Signal Generation Unit Contract

Coming soon:

- Mid 2003: Delivery of a breadboard

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