

EUROVISION SERVICES TECHNICAL NOTICE

PGA TOUR - International Distribution Europe

23 November 2021

Version 1.1

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INTRODUCTION

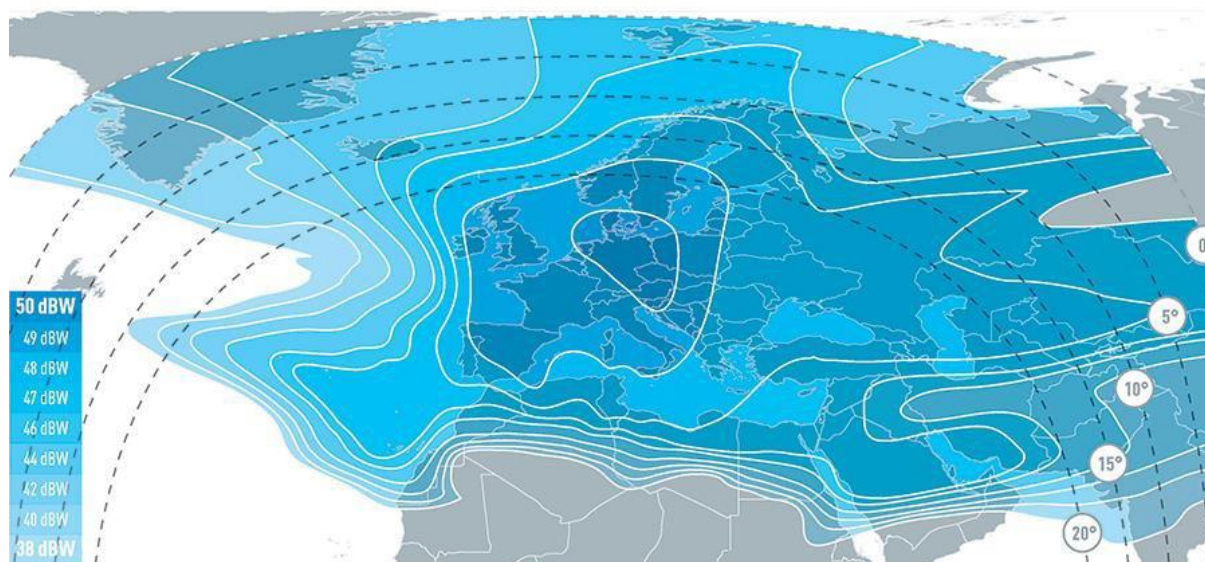
Eurovision Services is establishing a permanent satellite multiplex to distribute the PGA TOUR content across Europe. This satellite multiplex will enhance and facilitate broadcasters' technical ability to access PGA TOUR content more easily, as it will be permanently available throughout PGA TOUR Tournament event days.

In order to provide a highly efficient service to Europe, Eurovision services will use the NS3 modulation scheme (NS4 at a later stage) for this permanent satellite multiplex. The carrier parameters are optimised to achieve higher spectrum efficiency and an improved C/N margin on the receive side.

The Eurovision Services will set up a permanent satellite multiplex, which will operate in NS3 mode to the Eutelsat 7B transponder C02 from 1 January 2022.

SATELLITE EUTELSAT 7B

Eutelsat 7B (7 deg East) KU-Band EIRP (dBW)



SATELLITE	EUTELSAT 7B
ORBITAL POSITION	7 DEG E
TRANSPONDER	C02
DOWNLINK FREQUENCY	11222,00 (POLARIZATION Y)
BANDWIDTH	36 MHZ

SATELLITE RECEPTION

Antenna Requirements

ANTENNA DIAMETER	2.4 M
GAIN G/T RX	25.53 DB/K
VSWR RX	BETTER THAN 1.3:1
OPERATING FREQUENCY	10.95 – 11.70 GHZ
POLARIZATION	LINEAR VERTICAL (Y)
LNB PLL TYPE	WITH L.O. STABILITY BETTER THAN +/- 25 KHZ

ANTENNA DIAMETER	3.0M
GAIN G/T RX	27.47 DB/K
VSWR RX	BETTER THAN 1.3:1
OPERATING FREQUENCY	10.95 – 11.70 GHZ
POLARIZATION	LINEAR VERTICAL (Y)
LNB PLL TYPE	WITH L.O. STABILITY BETTER THAN +/- 25 KHZ

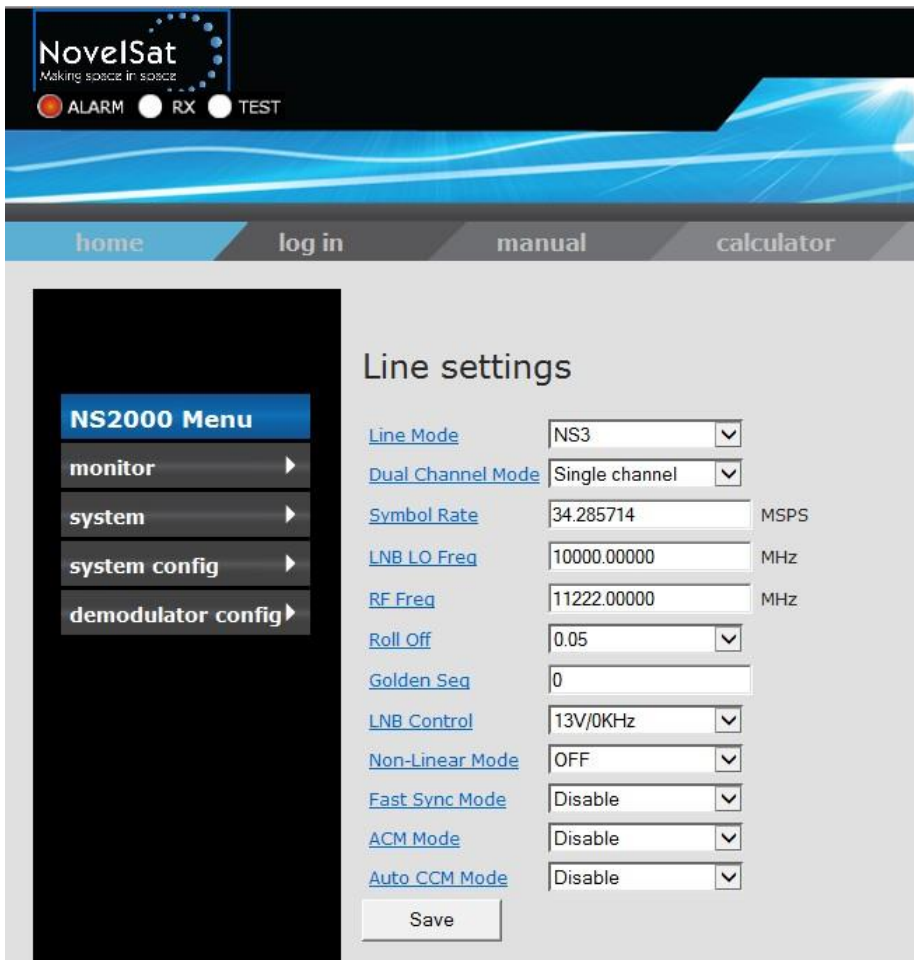
Equipment

In order to receive the signal from the satellite, each receiving Broadcaster in Europe will need to install NS3/NS4 demodulators (NS2000) and MPEG4 compatible decoders. The receiving broadcasters are invited to contact the relevant manufacturers to purchase directly the adequate equipment.

MODULATION SCHEME (NS3 AND NS4)

Total TS Rate	encoder or mux output	96620	93741
		NS4	NS3
Modulator			
	Info bit-rate (188) [Mb/s]	96,62	93741
	Modulation	16APSK	16APSK
	FEC (LDPC)	32/45	32/45
	Pilot	ON	ON
	Frame	normal	normal
	Roll-off factor [%]	2	5
	Symbol rate [Ms/s]	35,29412	34,285714
	Occupied bandwidth [MHz]	36	36
	Allocated bandwidth [MHz]	36	36

The NS2000 demodulator needs to be configured accordingly. Please see screenshot attached for NS3.



NovelSat
Making space in space

ALARM RX TEST

home log in manual calculator

NS2000 Menu

- monitor
- system
- system config
- demodulator config

Line settings

Line Mode: NS3

Dual Channel Mode: Single channel

Symbol Rate: 34.285714 MSPS

LNB LO Freq: 10000.00000 MHz

RF Freq: 11222.00000 MHz

Roll Off: 0.05

Golden Seq: 0

LNB Control: 13V/0KHz

Non-Linear Mode: OFF

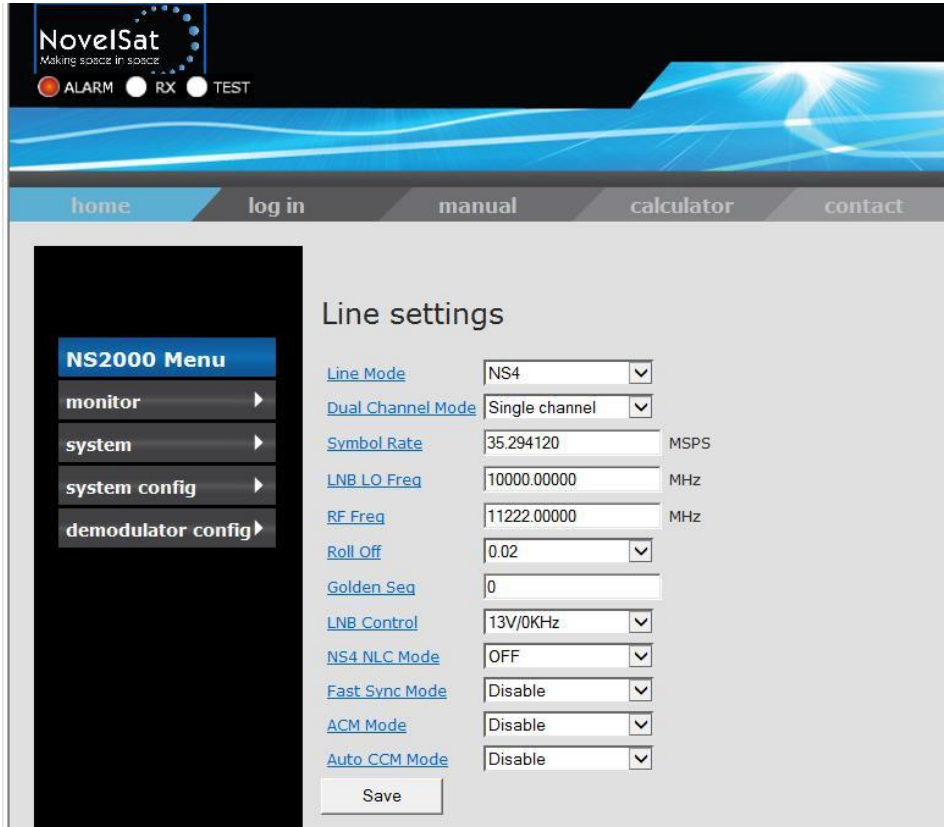
Fast Sync Mode: Disable

ACM Mode: Disable

Auto CCM Mode: Disable

Save

Please see screenshot attached for NS4.



The screenshot shows the NovelSat NS2000 Menu interface. The top navigation bar includes links for home, log in, manual, calculator, and contact. The left sidebar contains the NS2000 Menu with options: monitor, system, system config, and demodulator config. The main content area is titled 'Line settings' and displays various configuration parameters for the NS4 line mode.

Parameter	Value	Unit
Line Mode	NS4	
Dual Channel Mode	Single channel	
Symbol Rate	35.294120	MSPS
LNB LO Freq	10000.00000	MHz
RF Freq	11222.00000	MHz
Roll Off	0.02	
Golden Seq	0	
LNB Control	13V/0KHz	
NS4 NLC Mode	OFF	
Fast Sync Mode	Disable	
ACM Mode	Disable	
Auto CCM Mode	Disable	

A 'Save' button is located at the bottom of the settings panel.

MULTIPLEX PLATFORM

The total bit rate allows to accommodate 6 channels of MPEG4 encoded streams individually encrypted. The mode used for given service will be communicated for each individual service separately with the Eurovision Services Synopsis

Following encoding profiles are planned to be used:

Video

HD_16 Profile PGA - MPEG-4 AVC/H.264 (4:2:0 8-bit) - HD

Audio

Stereo - MPEG-1 Layer II

TYPICAL RECEPTION INSTALLATION

