

1-TO-5 RF SPLITTER

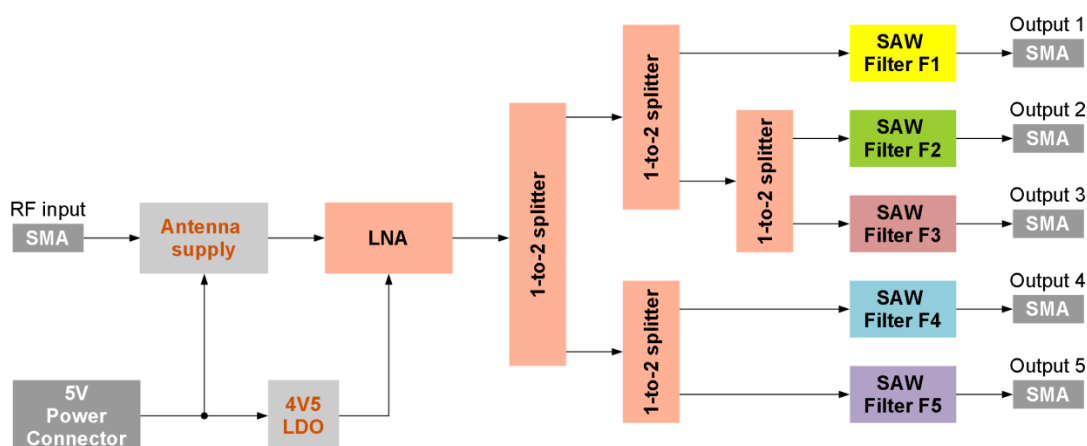
1. OVERVIEW

SPL15 is 1-to-5 active splitter with L1, L2, L3, L5, S subbands RF preselection. It is intended to be used with navigational receivers if active antenna (cable losses included) will be plugged in. SPL15 provides less than 2dB of noise figure and more than 35dB out of band RF rejection. Every channel can be independently assembled to pass through one of available GNSS bands. SPL15 is optimal to be paired with NT1065, NT1066 or NT1068 (coming soon) evaluation boards (<https://ntlab.lt/product-category/evaluation-kits/>).

2. KEY FEATURES

- 1 RF input with antenna supply capability (5V)
- 5 RF outputs
- 5V power supply connector

3. STRUCTURE



4. ORDERING INFORMATION

SPL15 –					S band	L1 GLO	L1 GPS	L1 QZSS	B1-C BeiDou	B1-A BeiDou	E1 Galileo	LEX QZSS	E6 Galileo	B3 BeiDou	L2 GLO	L2 GPS	L2 QZSS	L3 GLO	E5b Galileo	B2b BeiDou	E5a Galileo	B2a BeiDou	L5 GLO	L5 GPS	L5 QZSS	L5 NavIC
-	-	-	F4	-	1 – AV32 (2484–2500MHz)	•																				
					2 – TA0550A (1593–1609MHz)		•																			
					3 – TA0549A (1569–1582MHz)			•	•	•																
					4 – B3423 / TA1785A (1560–1606MHz)		•	•	•	•	•															
F1	F2	F3	-	F5	5 – TA1104A (1145–1253MHz)										•	•	•	•	•	•	•	•	•	•	•	•
					6 – TFS1278A (1263–1293MHz)							•	•	•												
					7 – B3439 / TA0836A (1215–1254MHz)										•	•	•									
					8 – TA0582A (1180–1220MHz)													•	•	•						
					9 – B3452 / TA0675A (1166–1186MHz)																•	•	•	•	•	•

Default assembly options are SPL15-45514 and SPL15-465X5. Availability of other assembly options should be requested.

Write **X** instead of filter number if no filter is needed in the channel, e.g. SPL15-455**X**4 if S band filter is not required, or SPL15-455**1**4 – if AV32 must be soldered in channel #4.

5. PACKAGE CONTENT

- 1-to-5 RF splitter
- Power supply cable
- 5 SMA-to-SMA RF cables



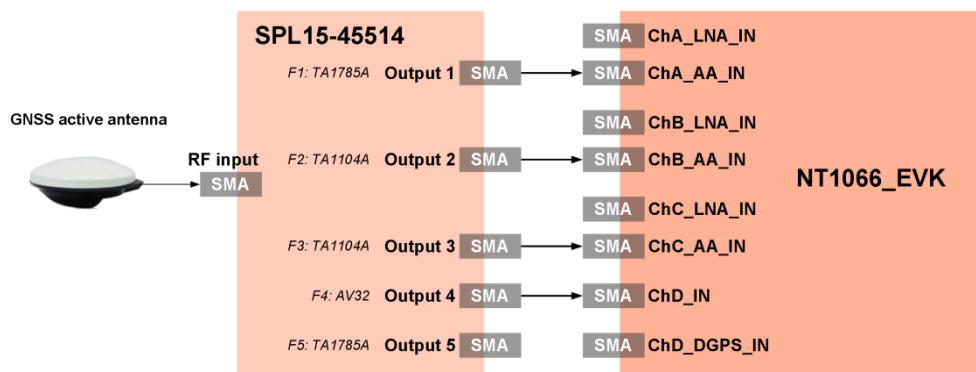
- Antenna supply indicator ●
- Antenna shortage indicator ●
- Splitter supply indicator ●

6. OPERATING CHARACTERISTICS

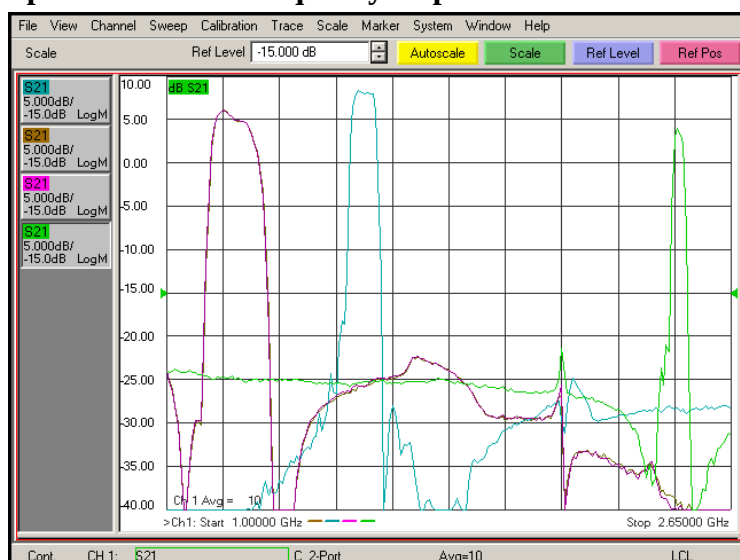
Parameter	Condition		Typical value	Unit
Supply voltage			5.0	V
Current consumption	At default assembly option		75	mA
Operating temperature			−40 ... +85	°C
Input frequency range	Channel #1	L1 band	1560–1606	MHz
		L2, L3, L5 bands	1145–1293	
	Channel #2	L1 band	1560–1606	
		L2, L3, L5 bands	1145–1293	
	Channel #3	L1 band	1560–1606	
		L2, L3, L5 bands	1145–1293	
	Channel #4	S band	2484–2500	
	Channel #5	L1 band	1560–1606	
		L2, L3, L5 bands	1145–1293	

7. APPLICATION EXAMPLES

7.1. SPL15-45514 & NT1066_EVK



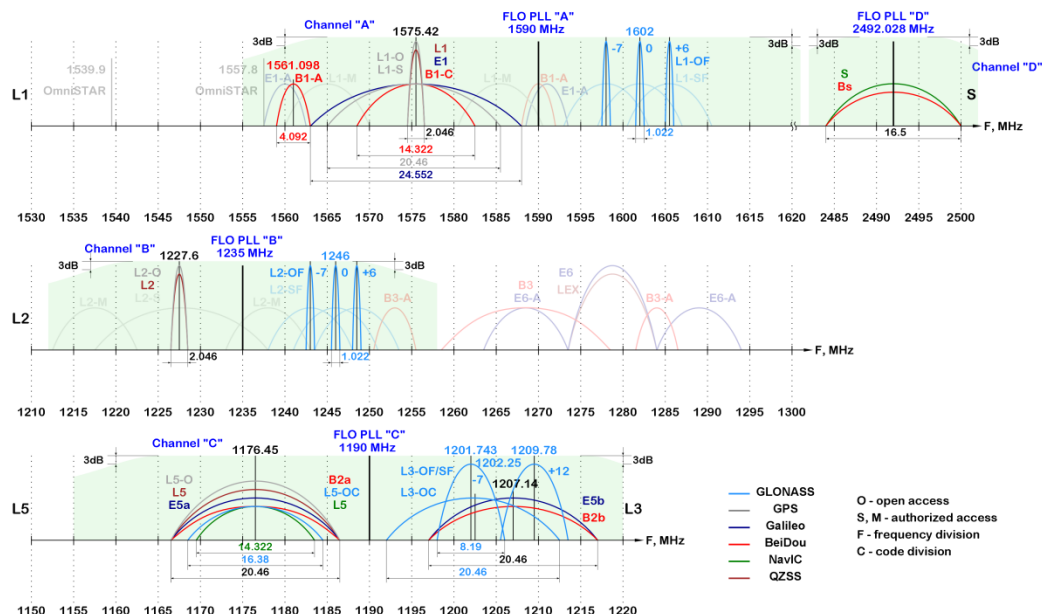
Splitter channels frequency response:



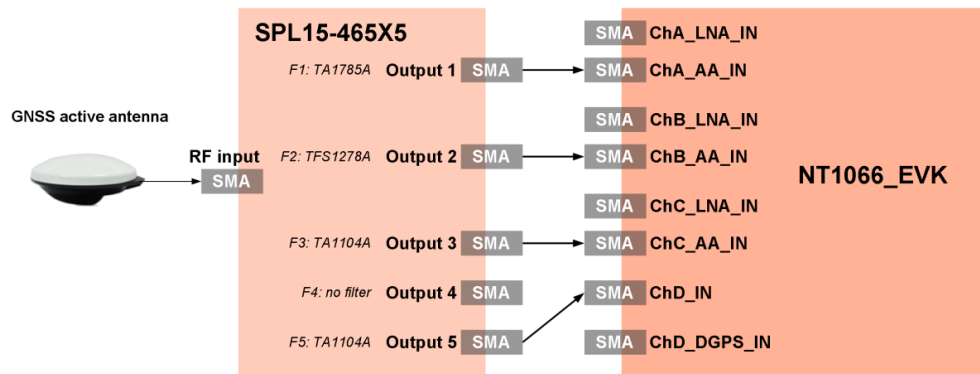
Splitter parameters:

<u>Power gain, dB (typ)</u>	
Channel #1	8.0
Channel #2	5.0
Channel #3	5.0
Channel #4	4.0
Channel #5	8.0
<u>Noise figure, dB (typ)</u>	
Channel #1	1.6
Channel #2	2.0
Channel #3	2.0
Channel #4	1.8
Channel #5	1.6

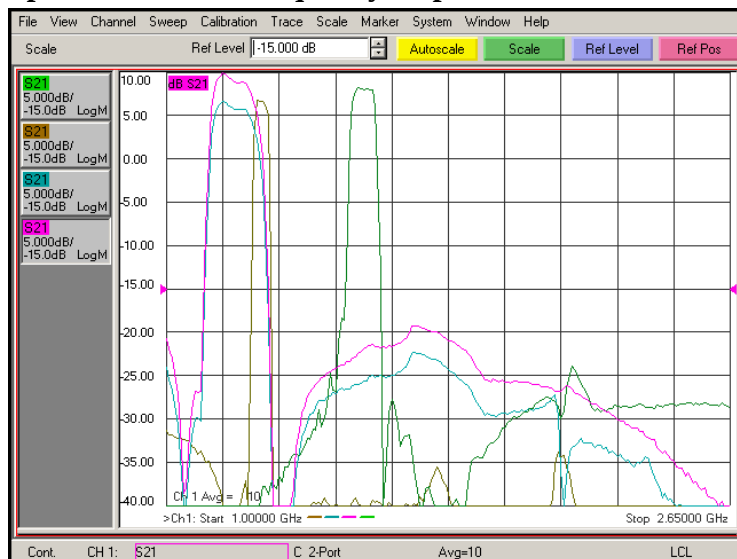
The following signals can be received with NT1066 IC:



7.2. SPL15-465X5 & NT1066_EVK



Splitter channels frequency response:



Splitter parameters:

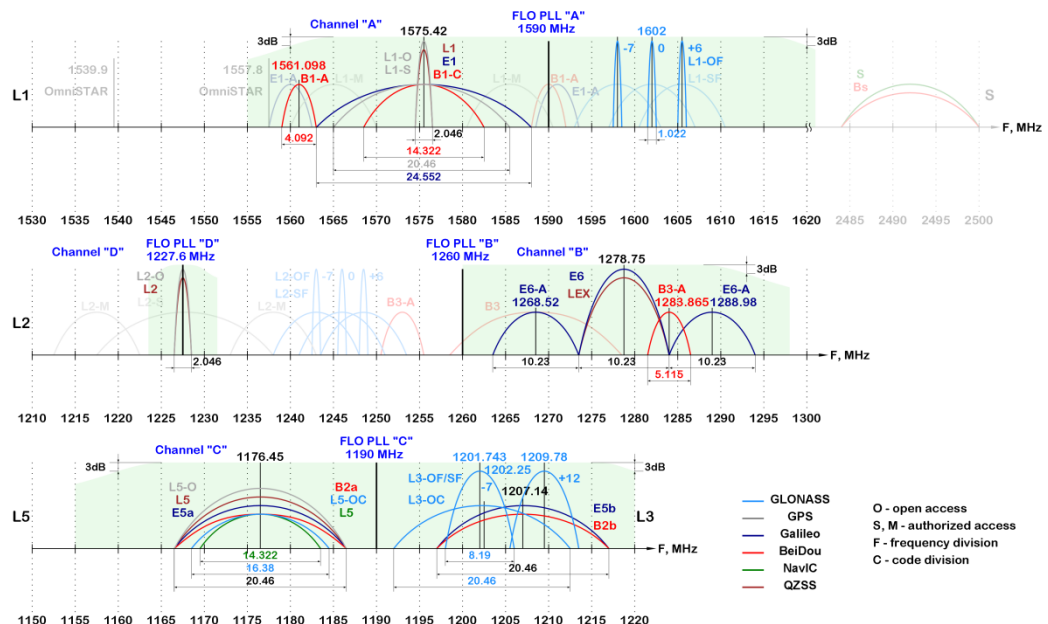
Power gain, dB (typ)

Channel #1	8.0
Channel #2	6.5
Channel #3	5.0
Channel #4	6.0
Channel #5	9.0

Noise figure, dB (typ)

Channel #1	1.6
Channel #2	2.0
Channel #3	2.0
Channel #4	1.4
Channel #5	1.4

The following signals can be received with NT1066 IC:



SPL15-45514

GNSS active antenna → RF input SMA

F1: TA1785A Output 1 SMA → SMA RF1_IN
 F2: TA1104A Output 2 SMA → SMA RF2_IN
 F3: TA1104A Output 3 SMA → SMA RF3_IN
 F4: AV32 Output 4 SMA → SMA RF4_IN
 F5: TA1785A Output 5 SMA → SMA RF4_IN

NT1065_EVK2 /
NT1065_FMC2 /
NT1065_USB3

File View Channel Sweep Calibration Trace Scale Marker System Window Help

Scale Ref Level -15.000 dB Autoscale Scale Ref Level Ref Pos

S21
5.000dB/
-15.3dB LogM

S21
5.000dB/
-15.0dB LogM

S21
5.000dB/
-15.0dB LogM

S21
5.000dB/
-15.0dB LogM

Ch 1 Avg = 10

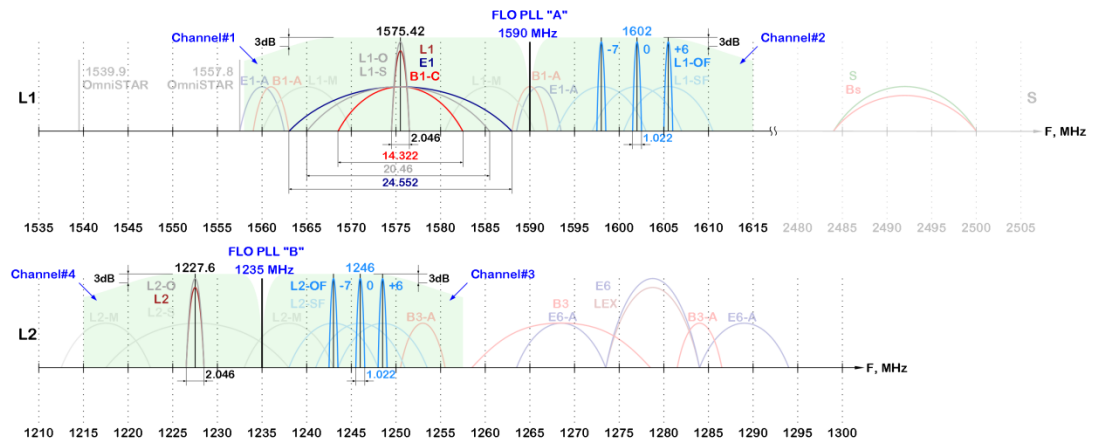
>Ch1: Start 1.00000 GHz — — — — — Stop 2.65000 GHz

Cont. CH 1: S21 C 2-Port Avg=10 LCL

Channel #1	1.6
Channel #2	2.0
Channel #3	2.0
Channel #4	1.8
Channel #5	1.6

Figure 1: Frequency spectrum of the receiver. The figure consists of three subplots showing the frequency spectrum of the receiver. The top subplot (L1) shows the 1530-1560 MHz range, highlighting the FLO PLL 'A' at 1590 MHz and Channel #1. The middle subplot (L2) shows the 1210-1300 MHz range, highlighting the FLO PLL 'B' at 1190 MHz and Channel #3. The bottom subplot (L5) shows the 1150-1220 MHz range, highlighting the FLO PLL 'B' at 1190 MHz and Channel #4. The plots show various GNSS signals (GLONASS, GPS, Galileo, BeiDou, NavIC, QZSS) and their frequency divisions. A legend on the right identifies the signal types: O - open access, S, M - authorized access, F - frequency division, and C - code division.

2.



8. DIMENSIONS

