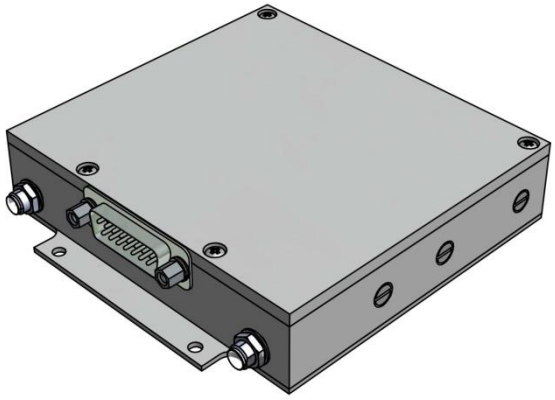


The preselector PS512 is digitally tunable filter operating from 30 MHz to 512 MHz. This module consists of three (3) internal tunable bandpass filters (the frequency range divided between them in the following way: 30-96 MHz, 96-262 MHz and 262-512 MHz). PS512 uses serial or parallel interface for tuning.

PS30-512
Specification:

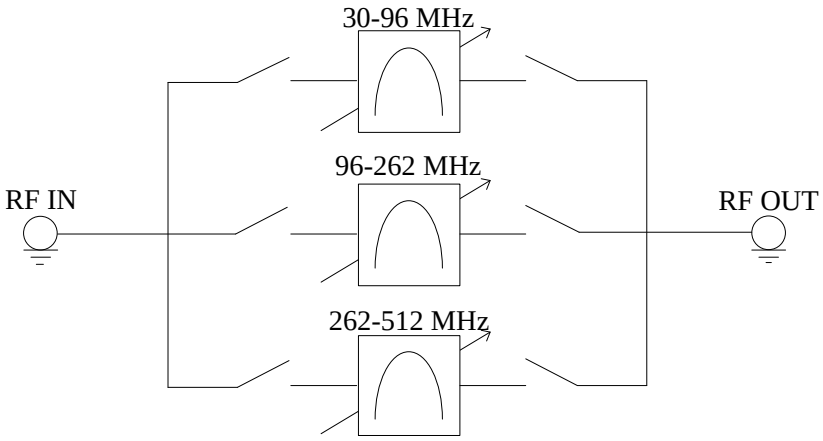
Frequency Coverage (3 bands)	30 to 512 MHz
Input/Output Impedance:	50 Ω
In-band Input/Output VSWR	2:1
In-band RF Power Handling	2 Watt (input)
Out-band RF Power Handling	Up to 20 Watt
In-band Second Order Intercept Point	+100 dBm(input)
In-band Third Order Intercept Point	+40 dBm (input)
Center Frequency Drift:	±80 PPM/ºC
Tuning Control	Parallel, Serial
Tuning Speed	10 µS
DC Power Consumption (Static)	5V @1A
Shape Factor (30 dB/ 3 dB)	8 typical
Operating TemperatureRange	-40°C to +65°C
Size:	107x104x24.7 mm
Weight:	600 g
RF Connection	SMA

PS512 filters' specification

FrequencyRange	#	Bandwidth (3 dB), %	Insertion Loss, dB	Shape factor (30 dB)		
				Overall	Low Side	High Side
30-96 MHz	7	6.5/7.5	2.4/3.0	6.5/7.1	7.5/9.0	4.8/6
	5	4.6/5.5	5.0/5.9	5.8/6.1	6.8/7.3	4.8/4.9
	3	2.5/3.5	5.6/6.5	5.8/6.2	6.8/7.1	4.8/5.0
96-262 MHz	7	6.5/7.5	2.5/3.0	6.5/7.1	8.2/9.2	4.8/5.8
	5	4.6/5.5	4.9/6.3	6.0/7.2	7.0/7.2	5.0/5.5
	3	2.5/3.5	5.8/7.0	6.0/6.2	6.9/7.2	4.9/5.2
262-512 MHz	7	6.5/7.5	2.6/3.0	6.5/7.1	8.5/9.5	4.7/5.5
	5	4.6/5.5	4.3/5.2	6.1/6.3	7.0/7.4	5.1/5.2
	3	2.5/3.5	5.1/6.2	5.9/6.0	6.6/6.7	5.2/5.4

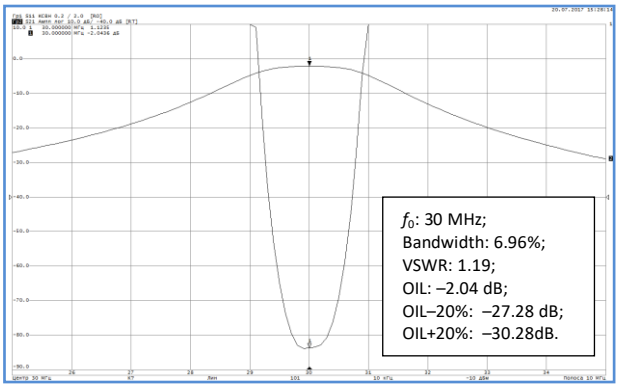
Note: table values are shown as average/maximum.

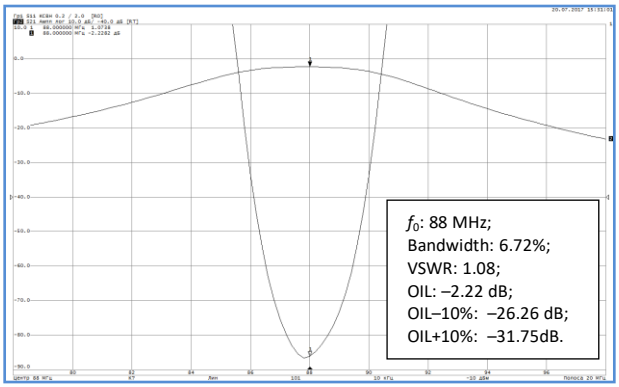
PS512 block diagram

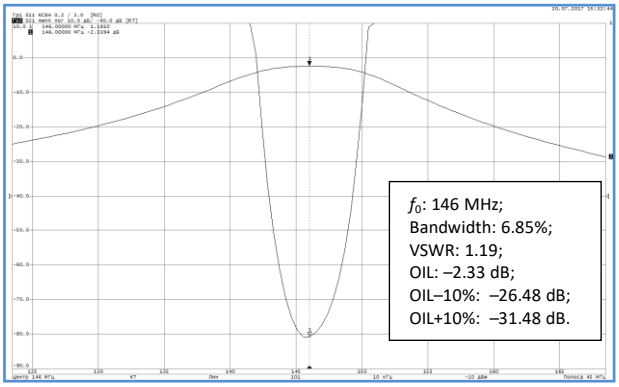


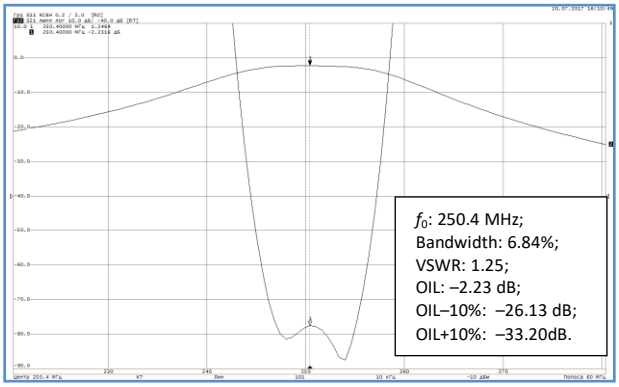
Frequency response functions and VSWR functions

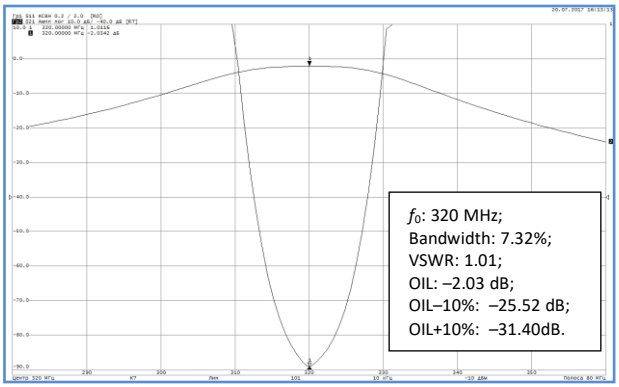
Some frequency response functions and VSWR functions are shown below:

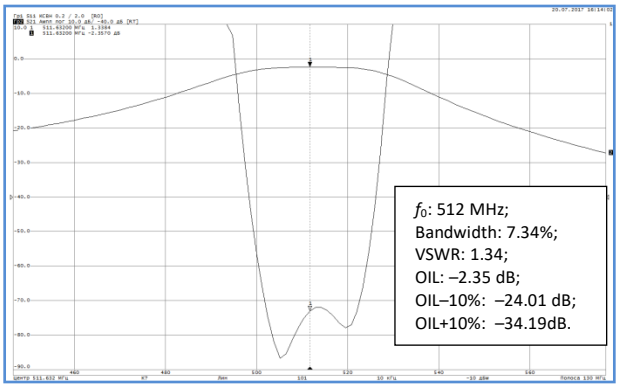








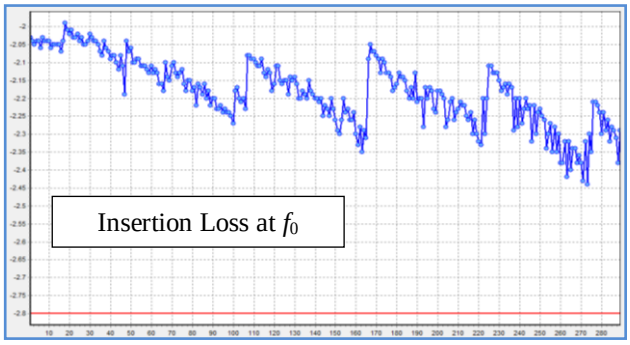


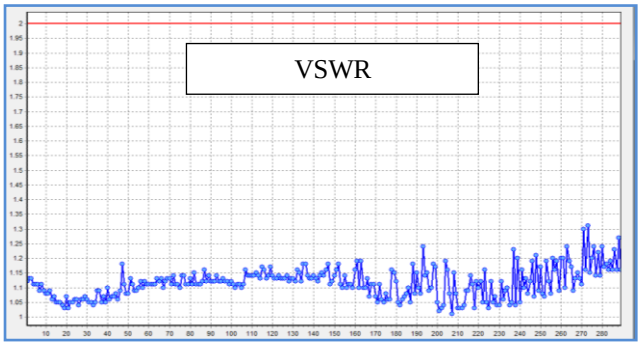


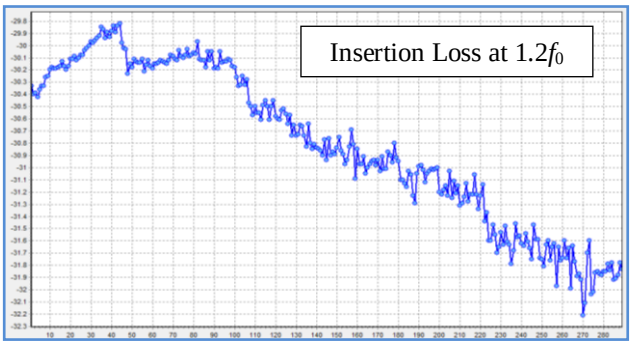
Note: f_0— tuning frequency;VSWR — VSWR at $f_0$frequency;OIL — insertion loss at f_0; OIL–20% — insertion loss at0,8f_0;OIL+20% — insertion loss at 1,2f_0.

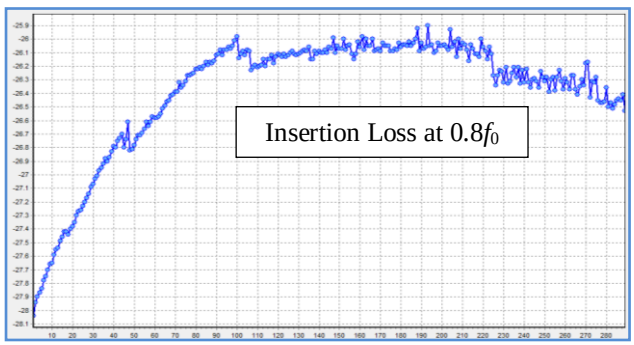
30-96 MHz filter performance

The following diagrams show value of Insertion Loss at f_0, Insertion Loss at $0.8f_0$, Insertion Loss at $1.2f_0$ and VSWR at each tuning frequency for 30-96 MHz filter.



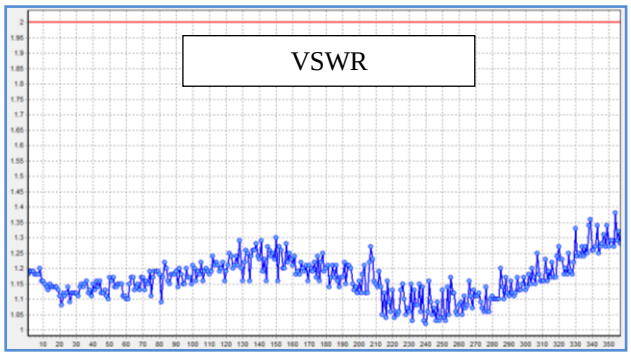


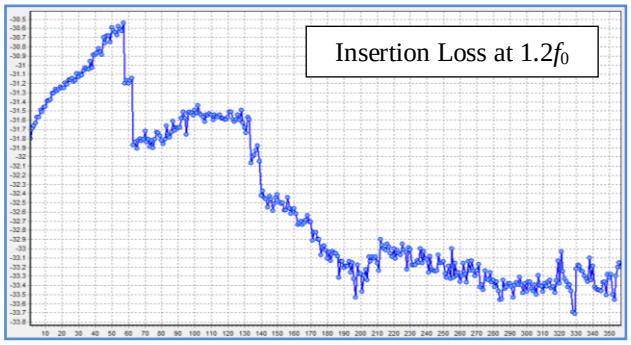


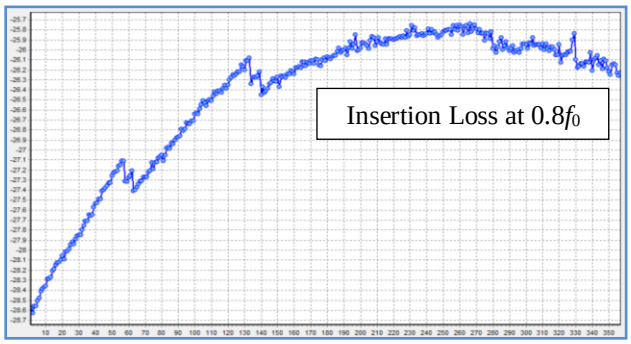


96-262 MHz filter performance

The following diagrams show value of Insertion Loss at f_0, Insertion Loss at $0.8f_0$, Insertion Loss at $1.2f_0$ and VSWR at each tuning frequency for 96-262 MHz filter.

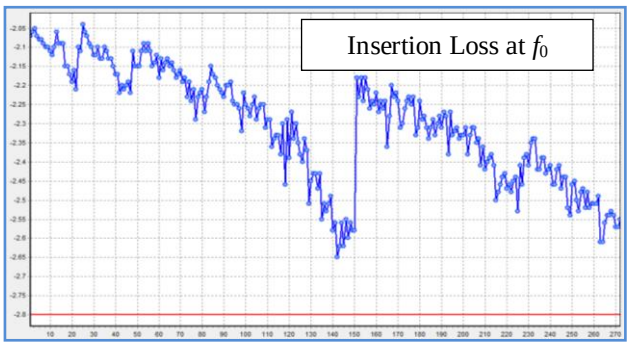


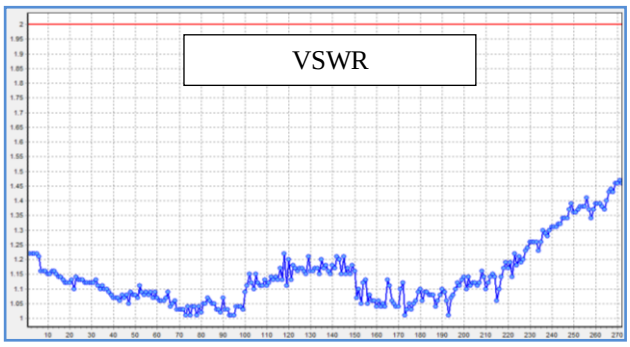


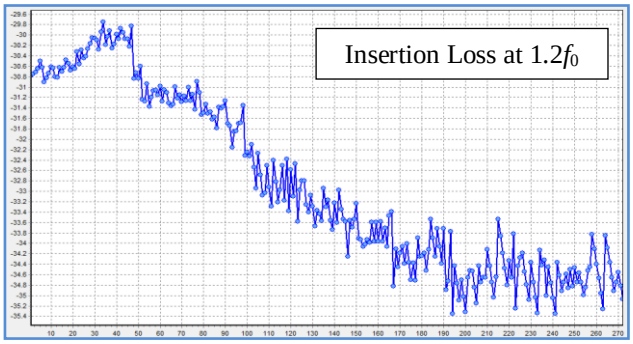


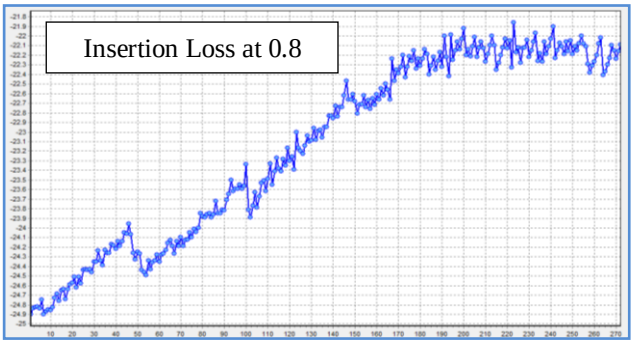
262-512 MHz filter performance

The following diagrams show value of Insertion Loss at f_0, Insertion Loss at $0.8f_0$, Insertion Loss at $1.2f_0$ and VSWR at each tuning frequency for 262-512 MHz filter.









Pinout & Ratings

PIN #	Reference designator	Description	Notes
1	A2	Tune Bit 2	Active: 5V; Inactive: 0V
2	A3	Tune Bit 3	Active: 5V; Inactive: 0V
3	A4	Tune Bit 4	Active: 5V; Inactive: 0V
4	A5	Tune Bit 5	Active: 5V; Inactive: 0V
5	A6	Tune Bit 6	Active: 5V; Inactive: 0V
6	A7	Tune Bit 7	Active: 5V; Inactive: 0V
7, 9, 11, 12	GND	Digital/RF Ground	—
8	VCC	+5V Power Supply Input	4.75 to 5.25V @ 800mA
10	N/C	No Connect	—
13	STB	Strobe	Active: 0V; Inactive: +5V
14	A0, CLK	Tune Bit 0, Serial Clock	Active: 5V; Inactive: 0V
15	A1, DI	Tune Bit 1, Serial Data Input	Active: 5V; Inactive: 0V

Serial interface description

Serial interface consists of 3 signals: CLK (clock), DI (data input), STB (strobe). Data input is 11 bits code. First 8 bits determine the tuning frequency and the last 3 bits determine the frequency band.

Parallel interface description

Serial interface consists of 9 signals: A0-A7 (tuning frequency code) and STB (strobe).

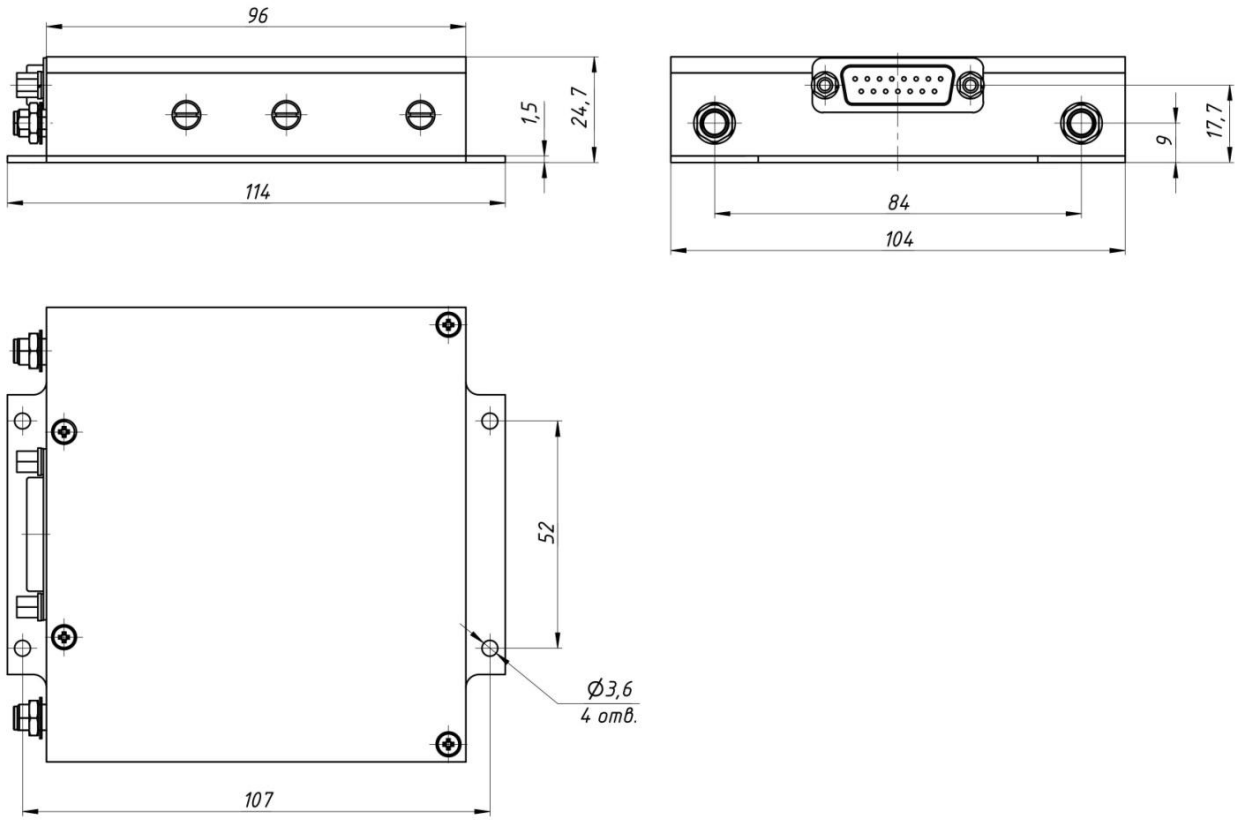
Tuning frequencycode

Tuning frequency code is calculated by X_{10} conversion into binary code. X_{10} is calculated by the formula:

$$X_{10} = \left(\frac{f_0 - f_l}{f_h - f_l}\right) \times 250\,,$$

f_0 — tuning frequency; f_l — low frequency of the band; f_h — high frequency of the band.

Mechanical Outline



Note:sizes are shown in millimeters.