

## How can we produce the splitter 1x128 for you?



Cellco's Laboratory consistently for nearly three years developing the production of splitters. *As the first in Poland started production of PLC splitters symmetrical and asymmetrical*, indirectly contributing to the promotion of their use in data communication networks, systems FTTx, GPON and CATV.

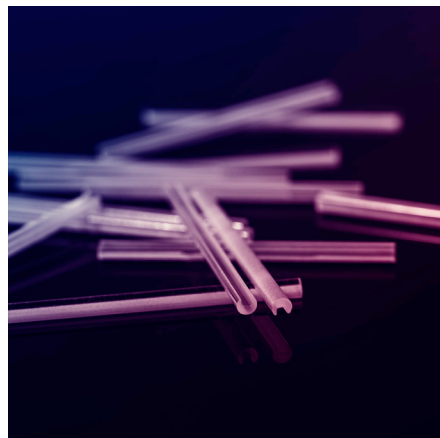
A typical product leaving out our clean room is PLC splitter with power ratio of 1x128. Such a division requires a bigger budget, although this kind of splitters have an extremely low attenuation - close to the theoretical value, compact size, and thermal mechanical stability.

1x128 splitter is composed of chip, made in planar technology which has superior low uniformity parameter (difference between highest and lowest insertion loss). This ensures equal distribution of the signal up to 128 subscribers with a single module. Splitter placed in ABS module with lead tubes 2.0 mm cables allowing convenient installation and organization in chassis. The use of fiber G.657.A1 or G.657.A2 - kink resistant - allows for installation in cabinets with limited space.

Optic couplers are manufactured according to standards (Bellcore

GR 1202 and GR 1209, BSEN 60793-1-40: 2005), facilitating the creation of data transmission systems.

Splitter 1x128 in planar technology has the highest number of channels with relatively low insertion loss and extremely low uniformity. Maximum difference between channel with highest insertion loss and lowest insertion loss is 2,8 dB (theoretical value). Stable optical and mechanical parameters splitter owes adhesive forces between chip and fiber arrays.



# Technical card of splitter 1x128

## I. Optical parameters of splitter with two chips 1x64 spliced together with 1x2 splitter.

a) Tables of maximum optical parameters for standard splitter without connectors

Splitter FBT 1x2 50/50% Premium

Partition	Max. Insertion Loss	Max. Uniformity (dB)
1x2	3,4	0,6

Splitter PLC 1x64 Standard

Partition	Max. Insertion Loss	Max. Uniformity (dB)
1x64	21,5	2,2

Spliced 1x128 Standard

Partition	Max. Insertion Loss	Max. Uniformity (dB)
1x128	25	2,8



b) Tables of maximum optical parameters for premium splitter without connectors

Splitter FBT 1x2 50/50% Premium

Partition	Max. Insertion Loss	Max. Uniformity (dB)
1x2	3,4	0,6

Splitter PLC 1x64 Premium

Partition	Max. Insertion Loss	Max. Uniformity (dB)
1x64	20,5	2,0

Spliced 1x128 Premium

Partition	Max. Insertion Loss	Max. Uniformity (dB)
1x128	24	2,6

## II. Optical parameters for splitter with one chip 1x128

Spliced 1x128 Standard

Partition	Max. Insertion Loss	Max. Uniformity (dB)
1x128	23,5	2,0

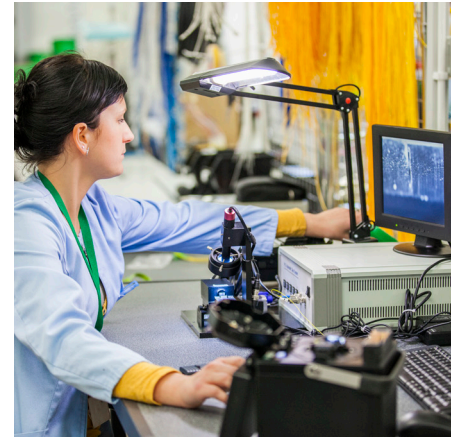


### III. Conclusions

a) Difference between premium and standard splitters spliced with two chips 1x64

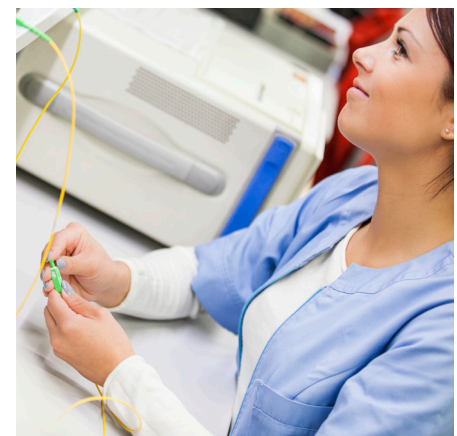
Partition	Max. Insertion Loss	Max. Uniformity (dB)
1x128 Standard, including splice	25,0	2,8
1x128 Premium, including splice	24,0	2,6
Difference	-1,0	-0,2

In the table is clearly shown that the main difference between a premium and standard splitter is very high. Insertion loss is lower by **1,0 dB** and uniformity by **0,2 dB**.



b) Difference between premium splitter spliced with two chips 1x64 and splitter with one chip 1x128 without splice

Partition	Max. Insertion Loss	Max. Uniformity (dB)
1x128 Premium, including splice	24,0	2,6
1x128 Standard, without splice	23,5	2,0
Difference	-0,5	-0,6



In the table is clearly shown that the main difference between a premium and standard splitter is very high. Insertion loss is lower by **0,5 dB** and uniformity by **0,6 dB**. The difference in uniformity is so high because in splitter with one chip there is no additional splitter that would increase the maximum parameter.

Two types of splitter 1x128. First type spliced with two chips 1x64 and second

with one chip 1x128. First divided by parameters into premium and standard.

Maximum theoretical parameters:

1x128 Standard with two spliced chips:

IL ≤ 25,0 dB ; Uni ≤ 2,8 dB

1x128 Premium with two spliced chips:

IL ≤ 24,0 dB ; Uni ≤ 2,6 dB

1x128 Standard with one chip without splice:

IL ≤ 23,5 dB ; Uni ≤ 2,0 dB

The main difference is in insertion loss which is very important for dividing signal in so many channels, also there is a huge difference in uniformity between spliced and non spliced splitter. To maintain the highest quality the best option is a splitter with the lowest parameters, which is the non spliced splitter with one 1x128 chip.

### SCIENTIFIC STUDY

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