What's inside this noname Chinese Lightning Protector

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Hello,

As I need to add some coaxial lightning protection devices to one of my ham radio stations, I was screening some of my existing devices. I also found one without any label which I probably bought quite some time ago from China. As I did not find any information in the internet I decided to open it and have a look inside how it is constructed.

Here is how the device looks like when still closed:

As you can see, the device has an N-Jack on one side and an N-Plug on the other side. The big Philips crew shall be used to provide ground to the device.

Opening the device is not a problem as the N-Jack and the N-Plug are both simply screwed in. Make sure that you remove the ceramic overvoltage device inside before screwing off the Jack and Plug..

Here are some pictures with the internals clearly visible:

The inner conductor is tapered in the middle section

The inner conductor is screwed to the N-Plug and clamped to the N-Jack

The N-Plug has a threaded center pin

N-Jack and N-Plug both feature a rubber seal-ring

In summary we can see that the lightning protector is quite simply made. The inner connector is tapered where the ceramic overvoltage device is clamped between the inner connector and the encasing.

Interestingly this protector can be used with ceramic and glass tube protecting devices. I am using an 8mm ceramic device from EPCOS with a protection voltage of 230 Volts, which corresponds to a maximum RF power handling capability of 300 Watts (up to a VSWR of 3:1).

I measured the insertion loss versus frequency with this 230V ceramic device and achieved the following results:

Frequency	Insertion Loss
145 MHz	0.1dB
435 MHz	0.1dB
1280 MHz	0.35dB

I would judge that the device can be used for the full frequency range from HF bands up to 70cm band. On 23cm it can be used but I recommend to use better devices with lower insertion loss especially when using high transmit power.

I am always grateful for any comments or further hints. I will be also happy to answer any questions. Please address them by Email to me.

Best regards

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