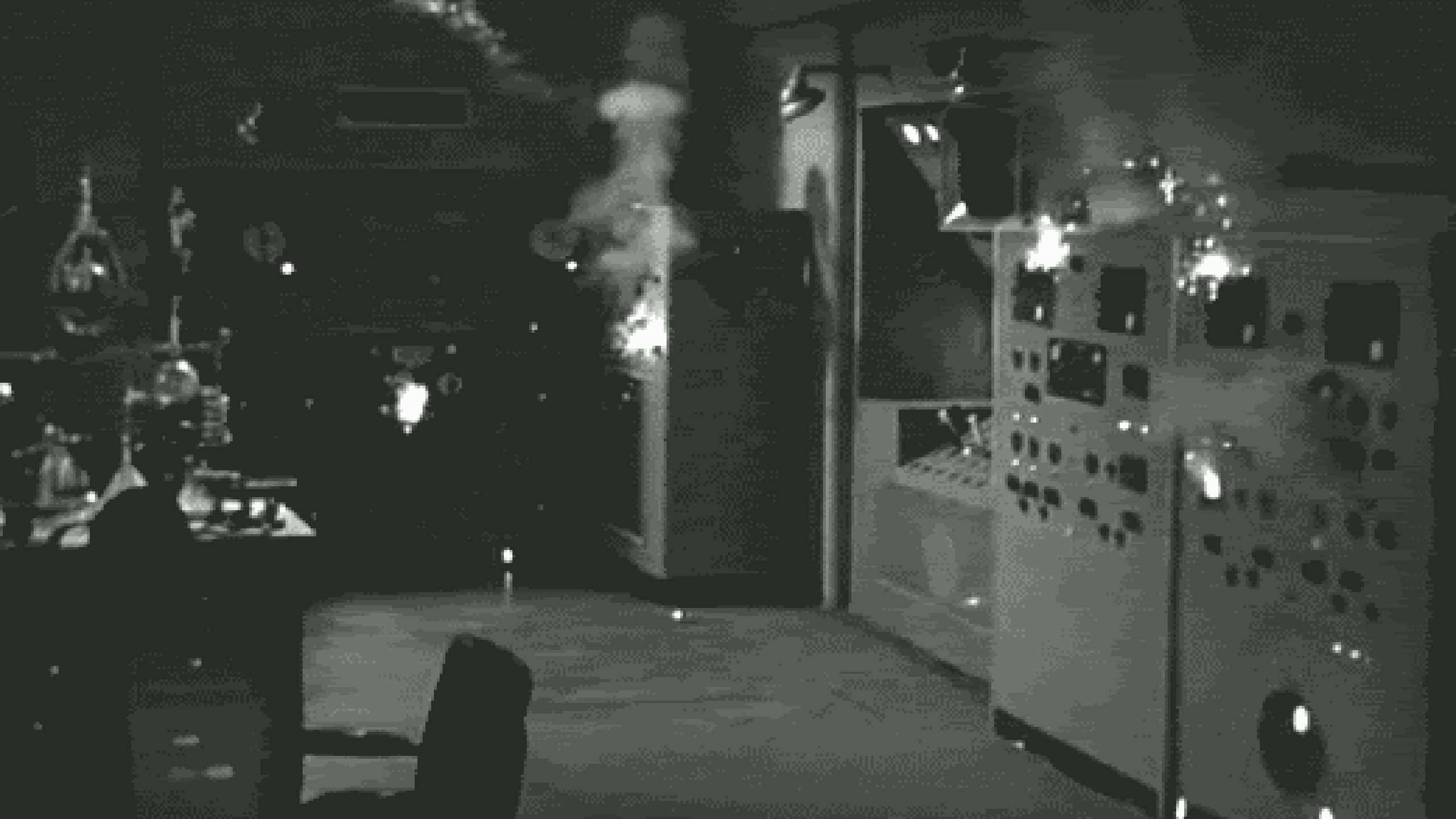
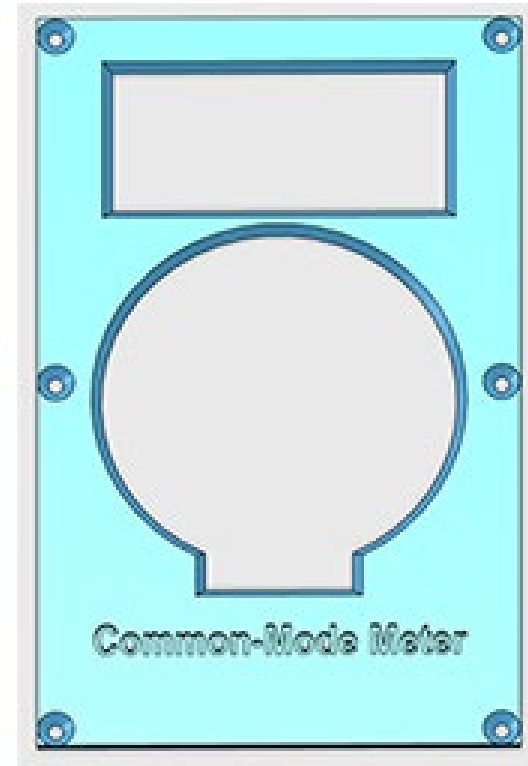


Build an RF Coax Shield Snooper Probe



RF Probes

owenduffy.net



<https://owenduffy.net/module/icm/#:~:text=An%20approach%20to%20measurement%20Common%20mode%20current%20can, half%20wave%20detector%20driving%20a%20high%20impedance%20voltmeter.>



**MFJ-853H, CLAMP-ON,
MINI RF CURRENT METER, HI-PWR**

\$109.95

**Clamp-on ferrite
choke with an added
pickup coil & meter**

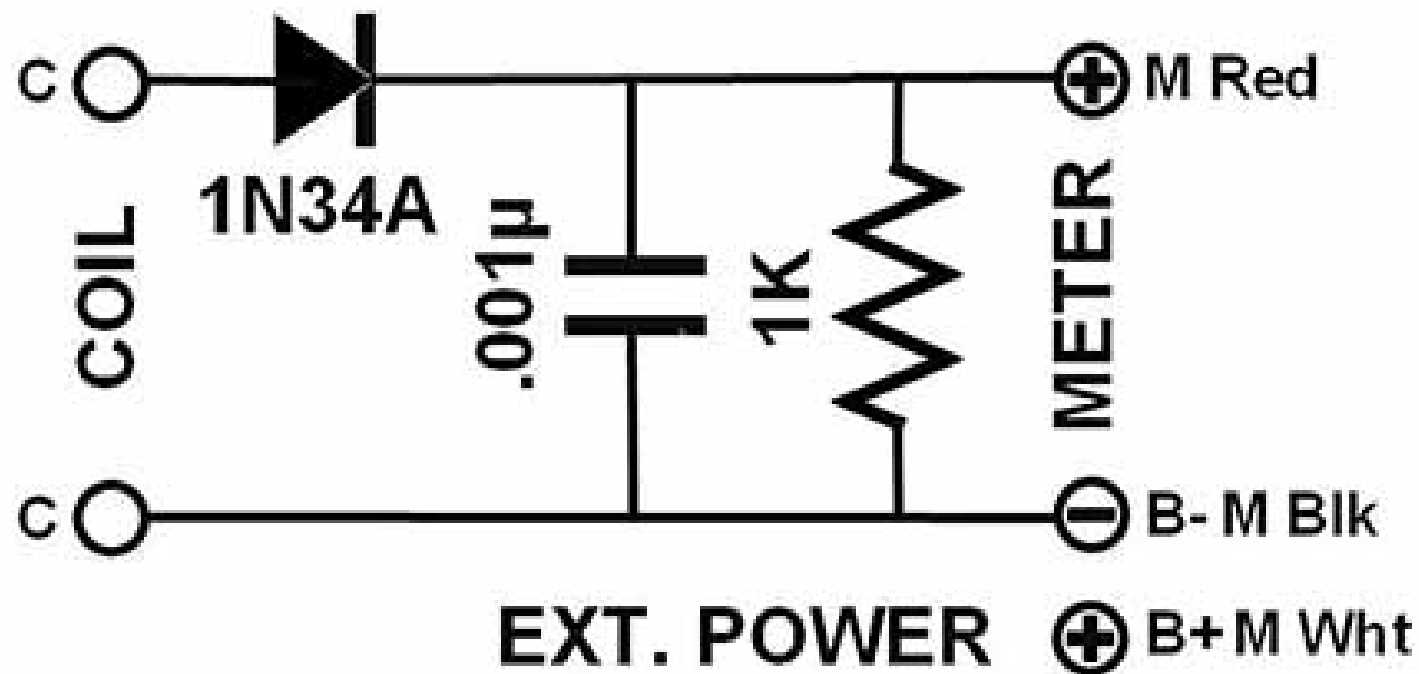
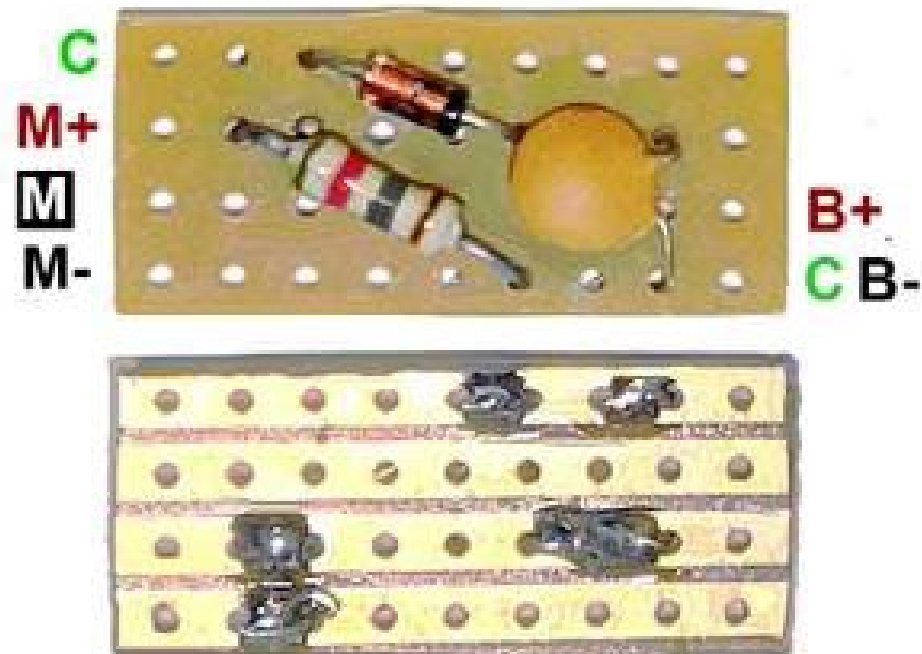


**The W60EK
Version
Without and
With 3D
Printed Cover**

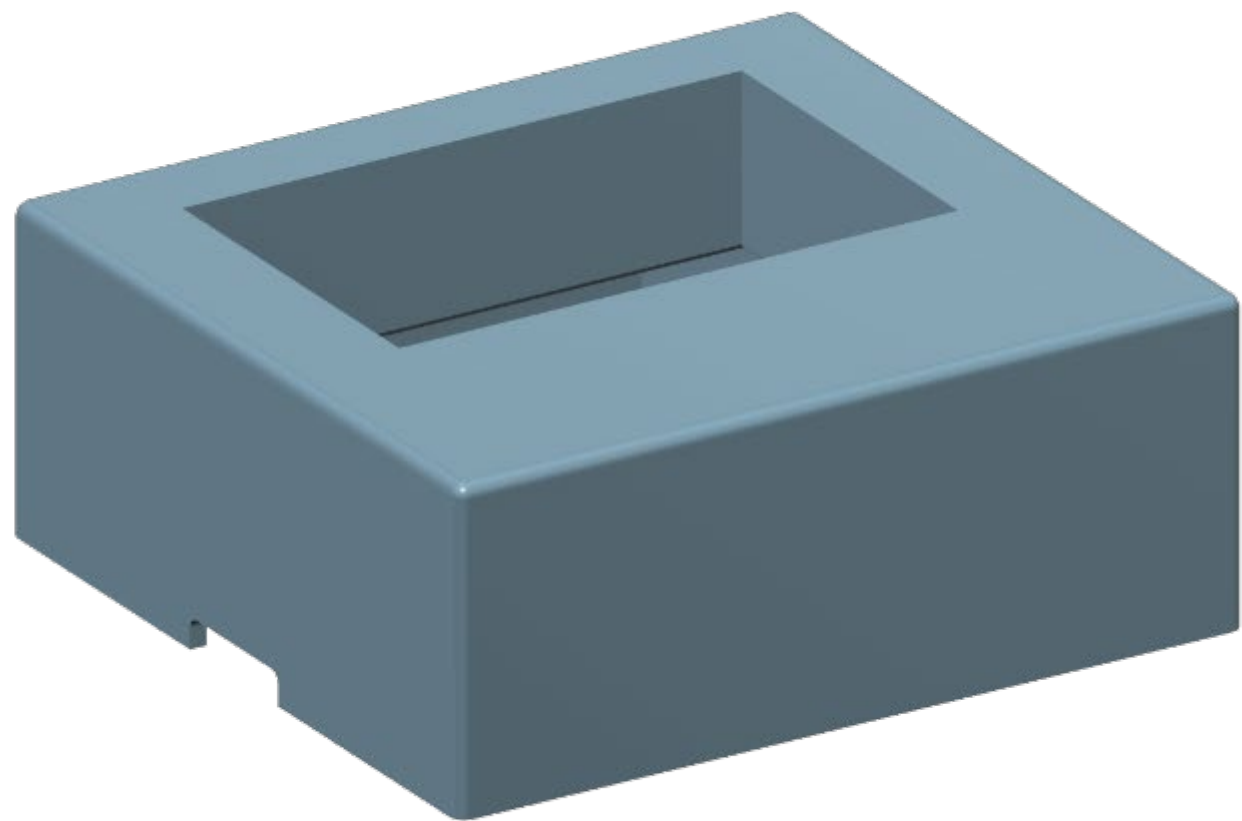
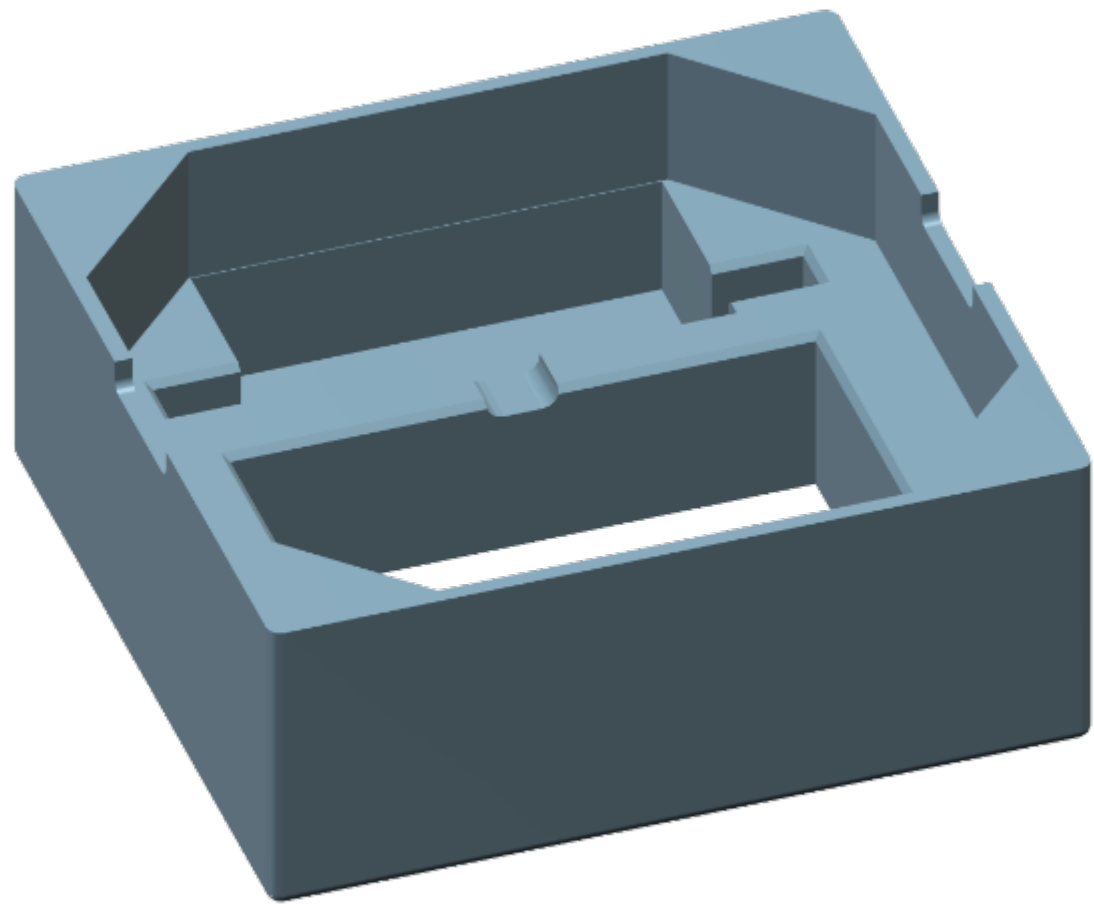
Bill of Materials

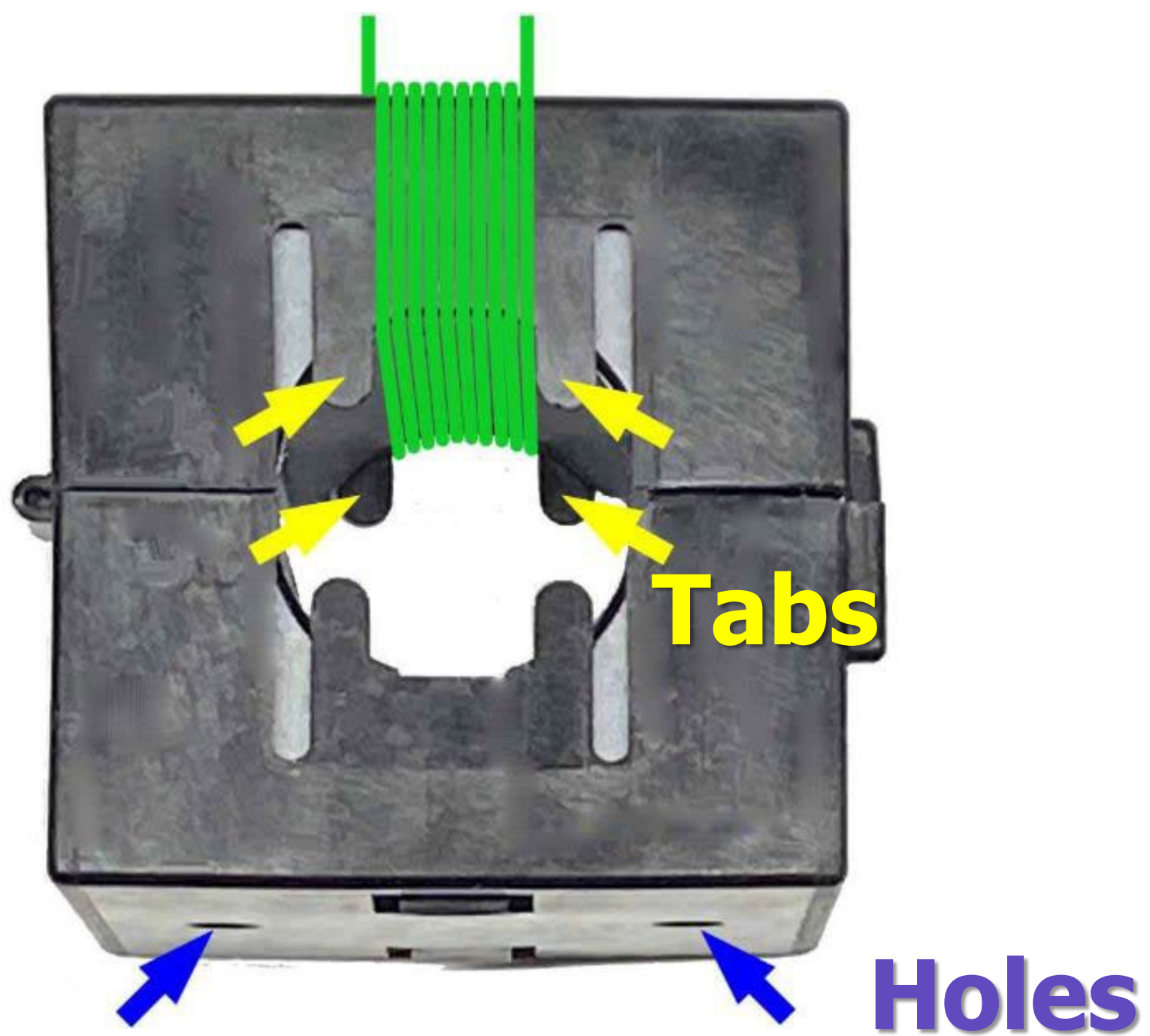
w6nbc.com
/slides

1	Snap-on mix 43 Ferrite choke for RG-8, RG-213 size coax. (0.405 in.)	e.g. Fair-Rite 0443164151 snap-in, Palomar Engineers FSB43-1/2, ID=1/2" or similar
10 turns	Insulated magnet wire, AWG 24 (or smaller)	Electronic parts supplier
1	3-digit digital voltmeter, 3-wire 100V version (see text)	Amazon, EBay , mpja.com, Walmart, surplus electronics dealers
1	1N34 diode	Electronic parts supplier
----	100 mil linear copper strip perfboard	Electronic parts supplier
1	2 cell (6V) 2032 coin cell holder with cells and switch	https://www.amazon.com/dp/B092VFFCR8?psc=1&ref=ppx_yo2ov_dt_b_product_details Amazon, EBay
----	3M VHB Double Sided Heavy Duty Outdoor Mounting Tape or sticky squares	Local hardware store, internet
1	3D printed probe cover	.stl 3D printer file: xxxxxx



w6nbc.com/slides

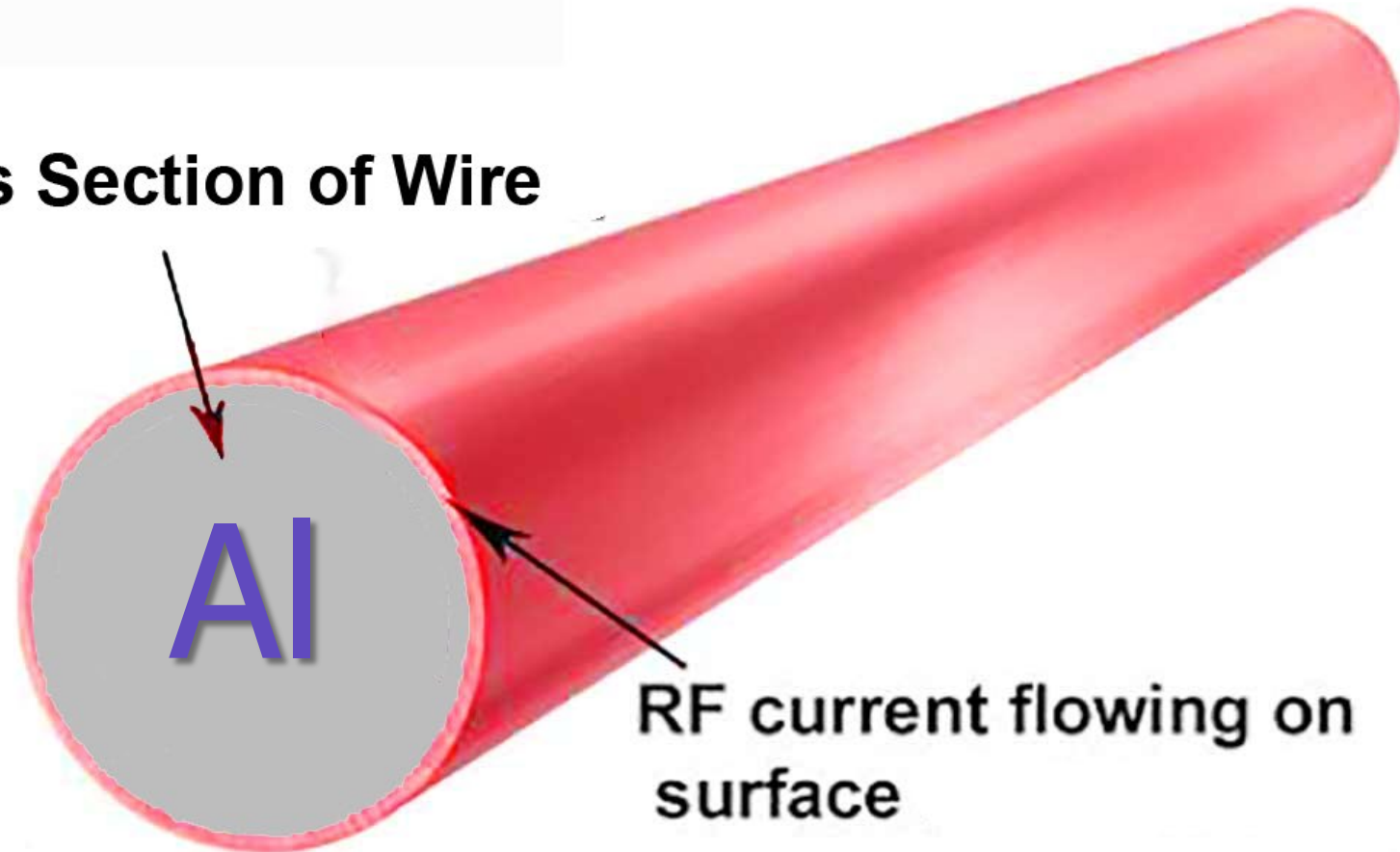




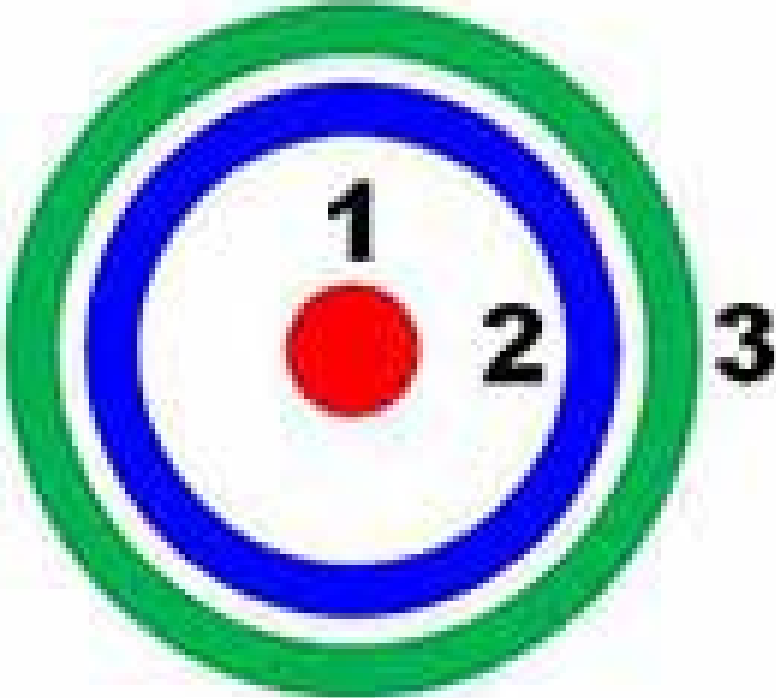
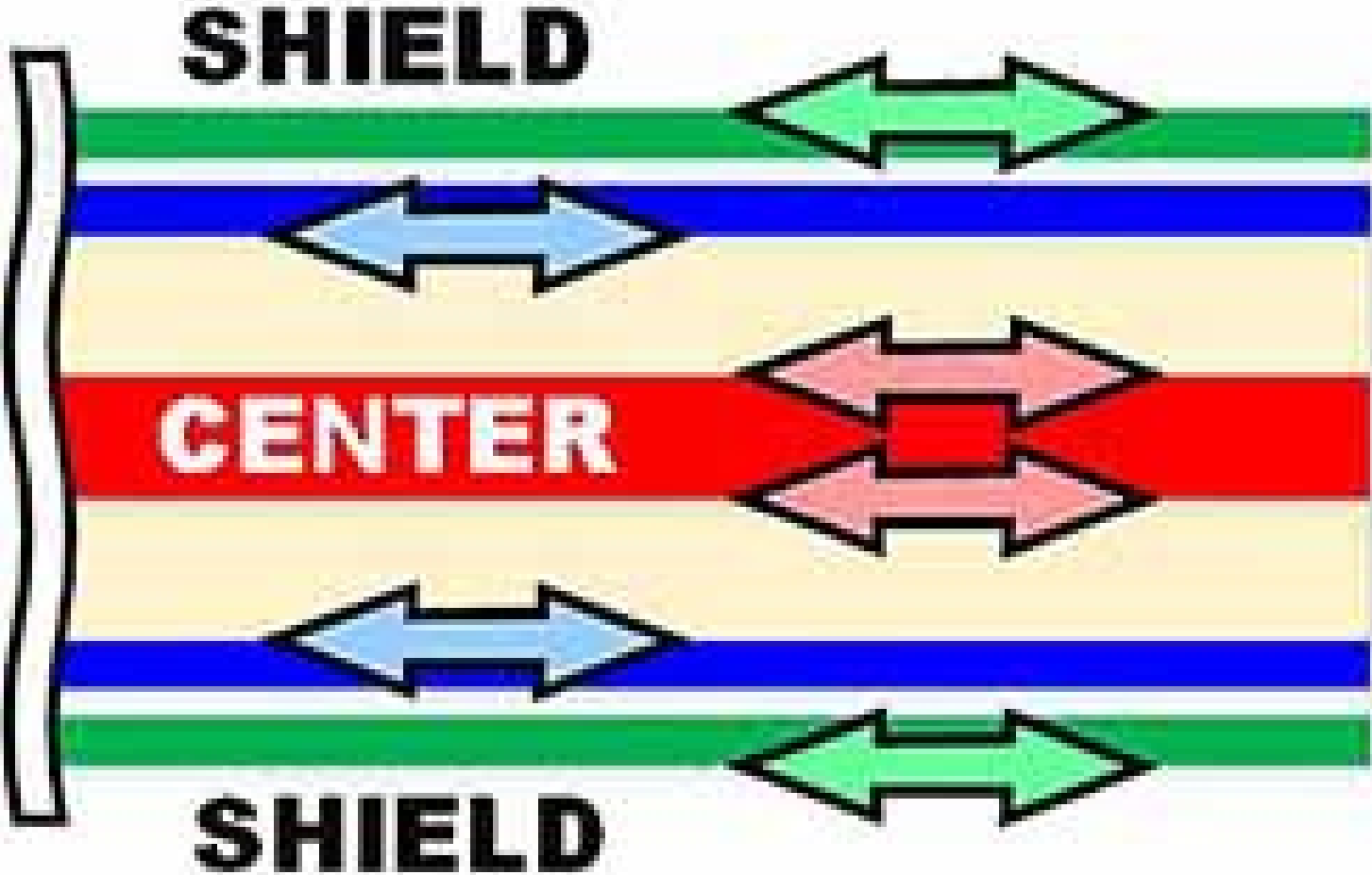
A Bigger Picture of Baluns

Baluns → A Consequence of Skin Effect

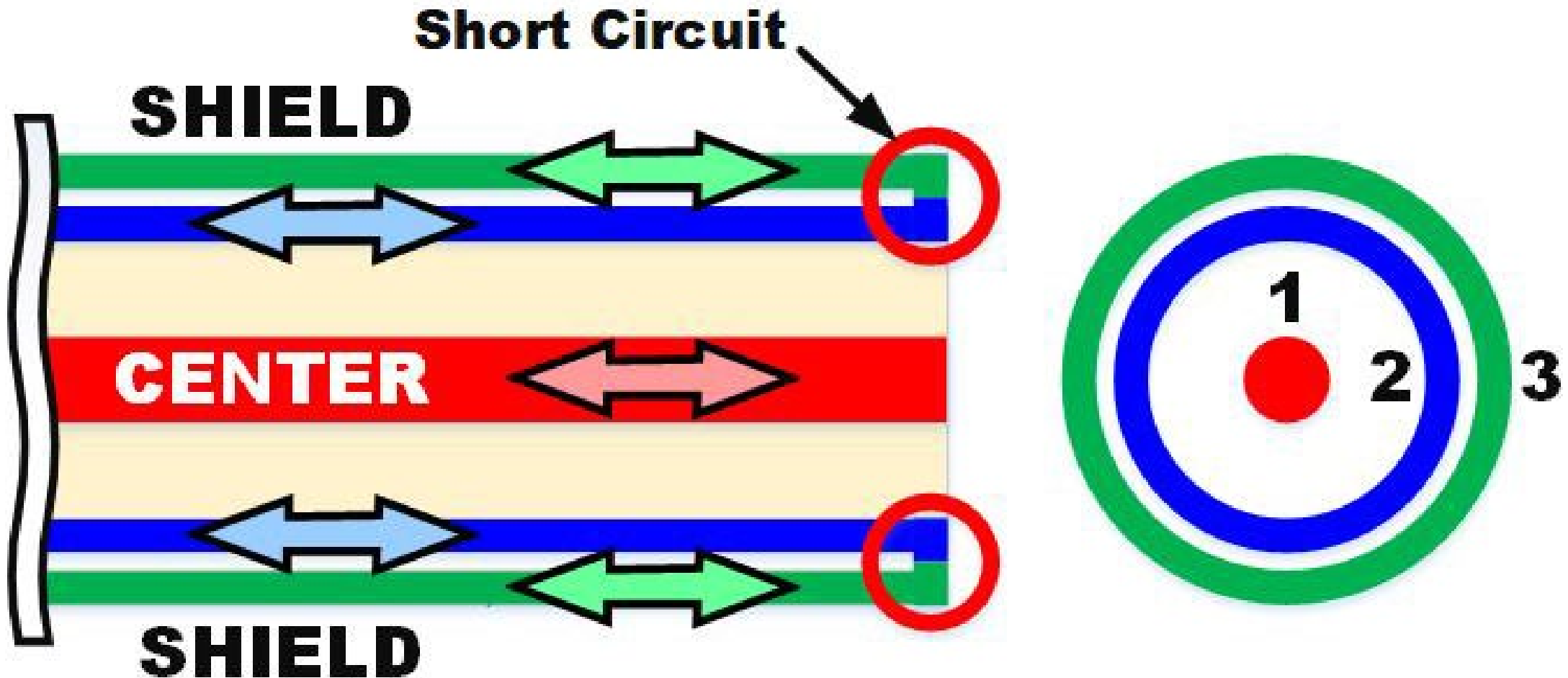
Cross Section of Wire



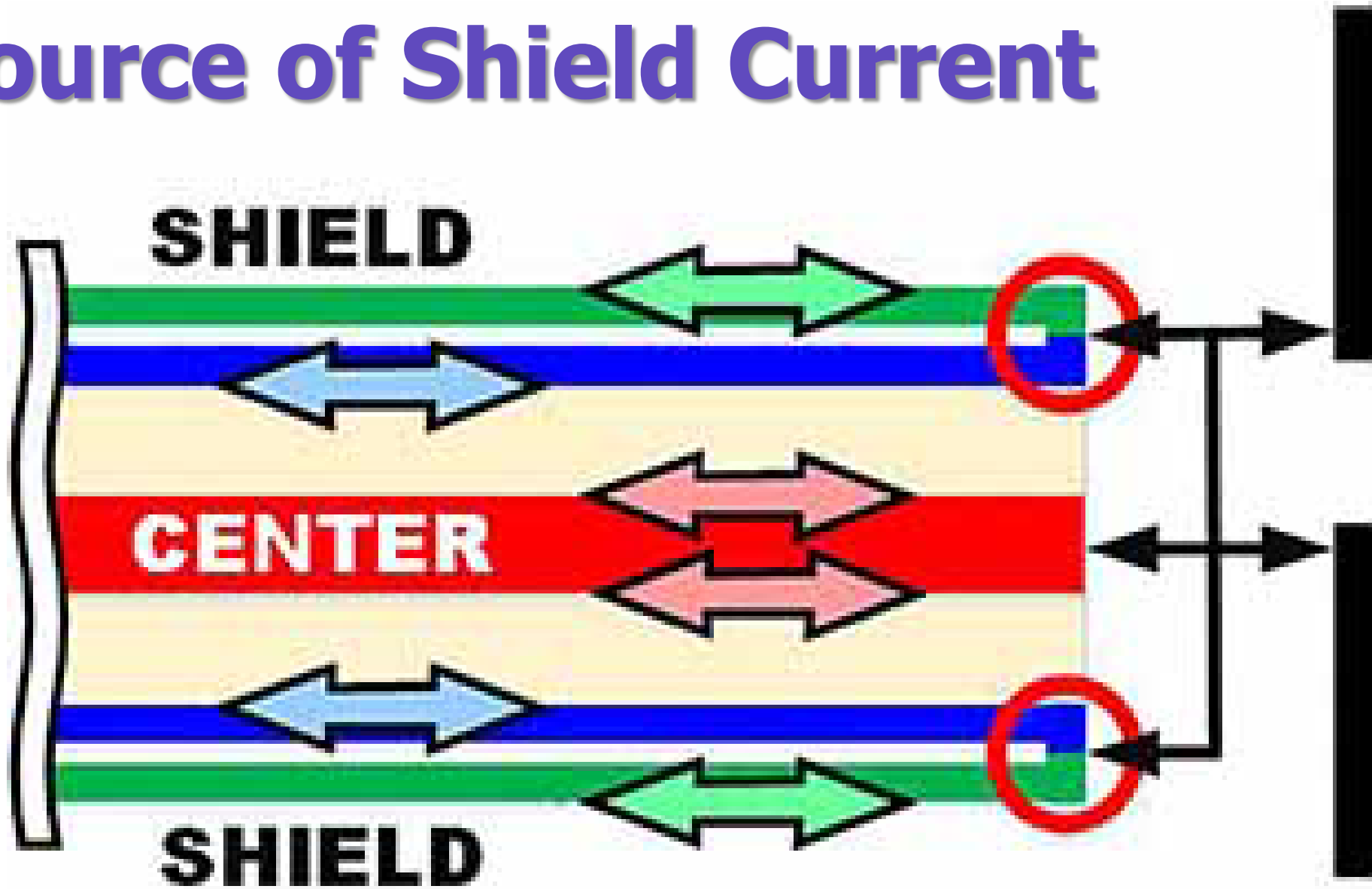
Surprise One: Coax has 3 wires



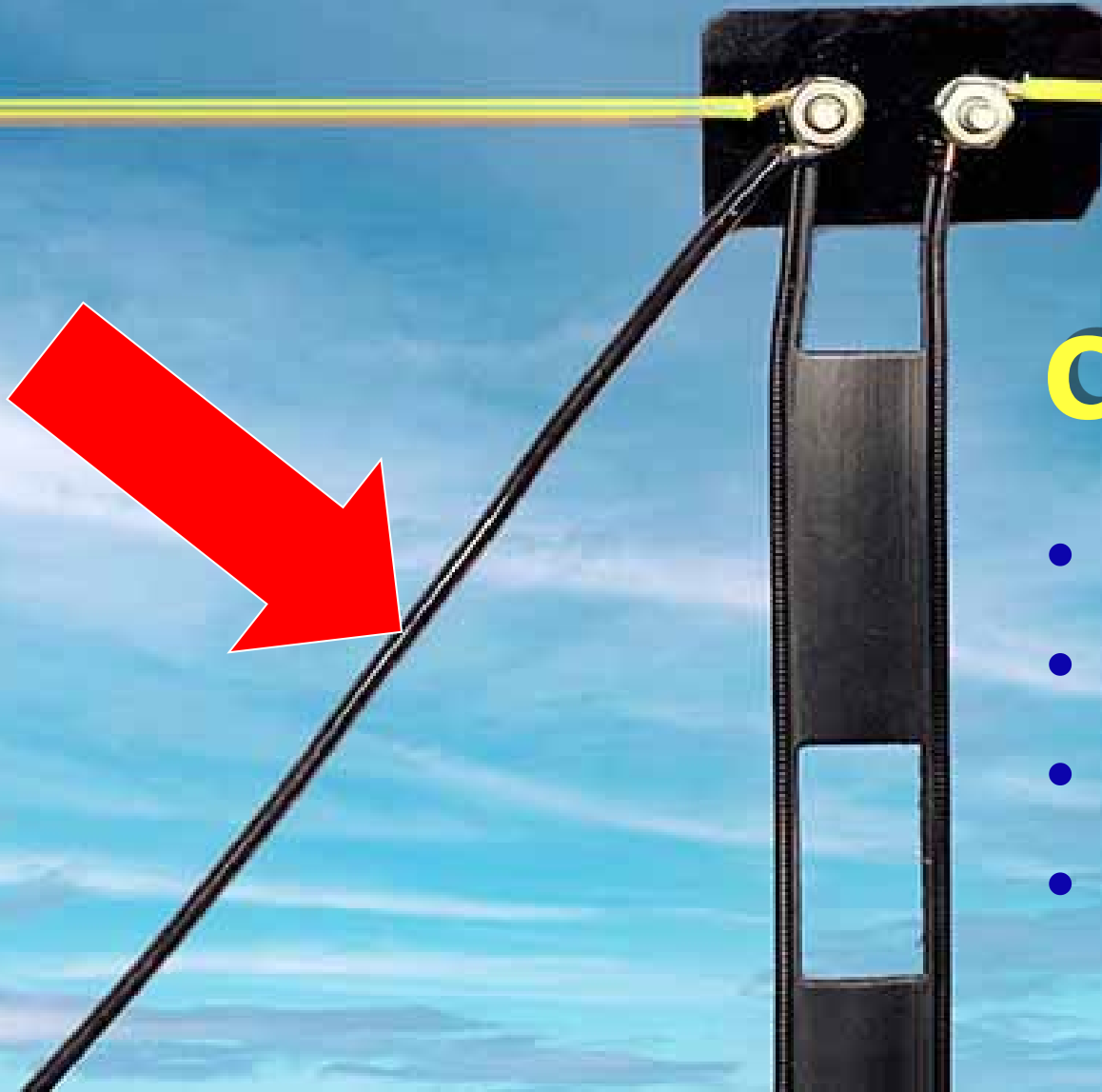
Surprise Two: The Ends are Shorted



Source of Shield Current

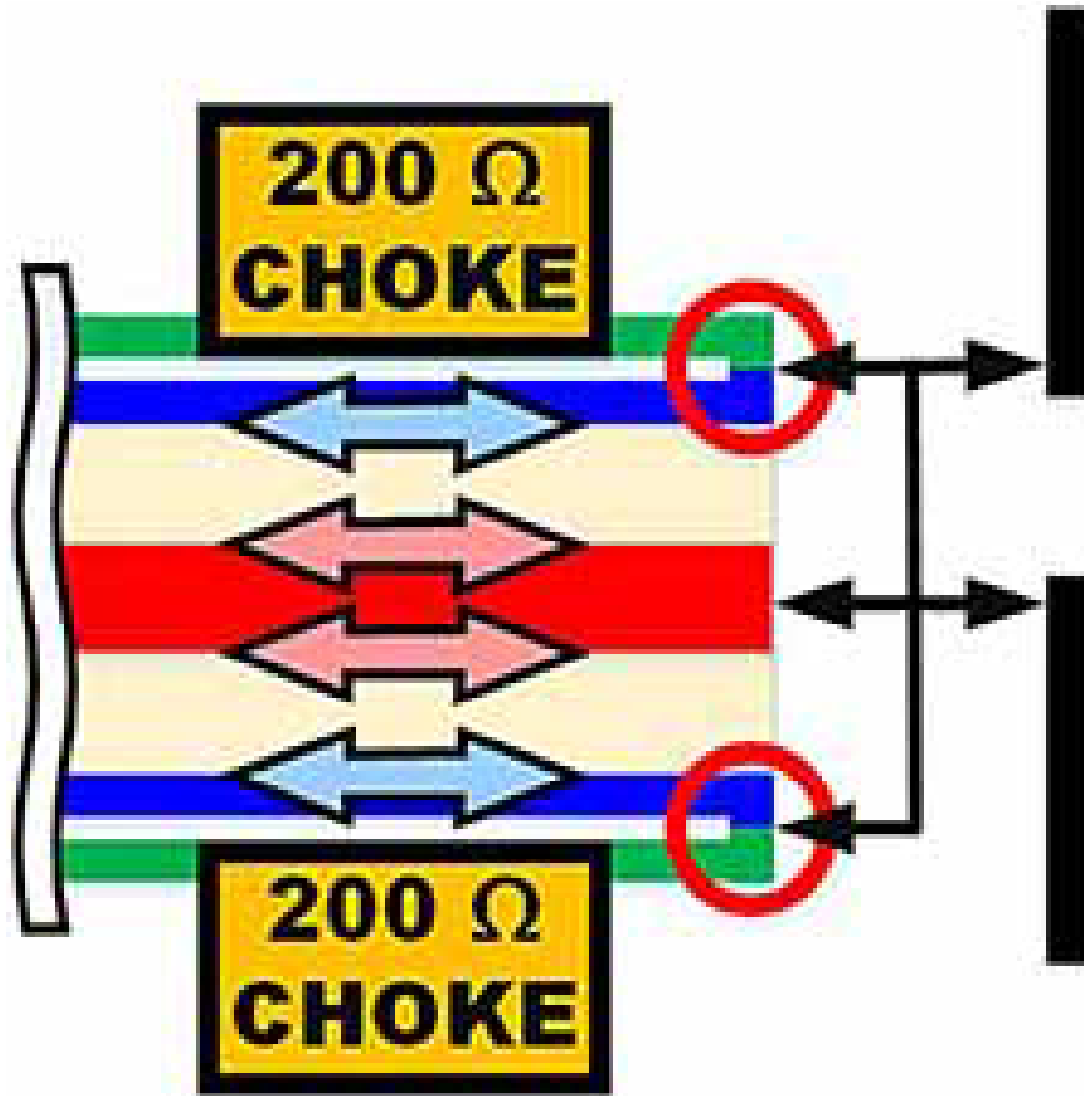


Add a Third Wire?



CONSEQUENCES

- SWR
- Frequency
- Radiation Pattern
- Interference

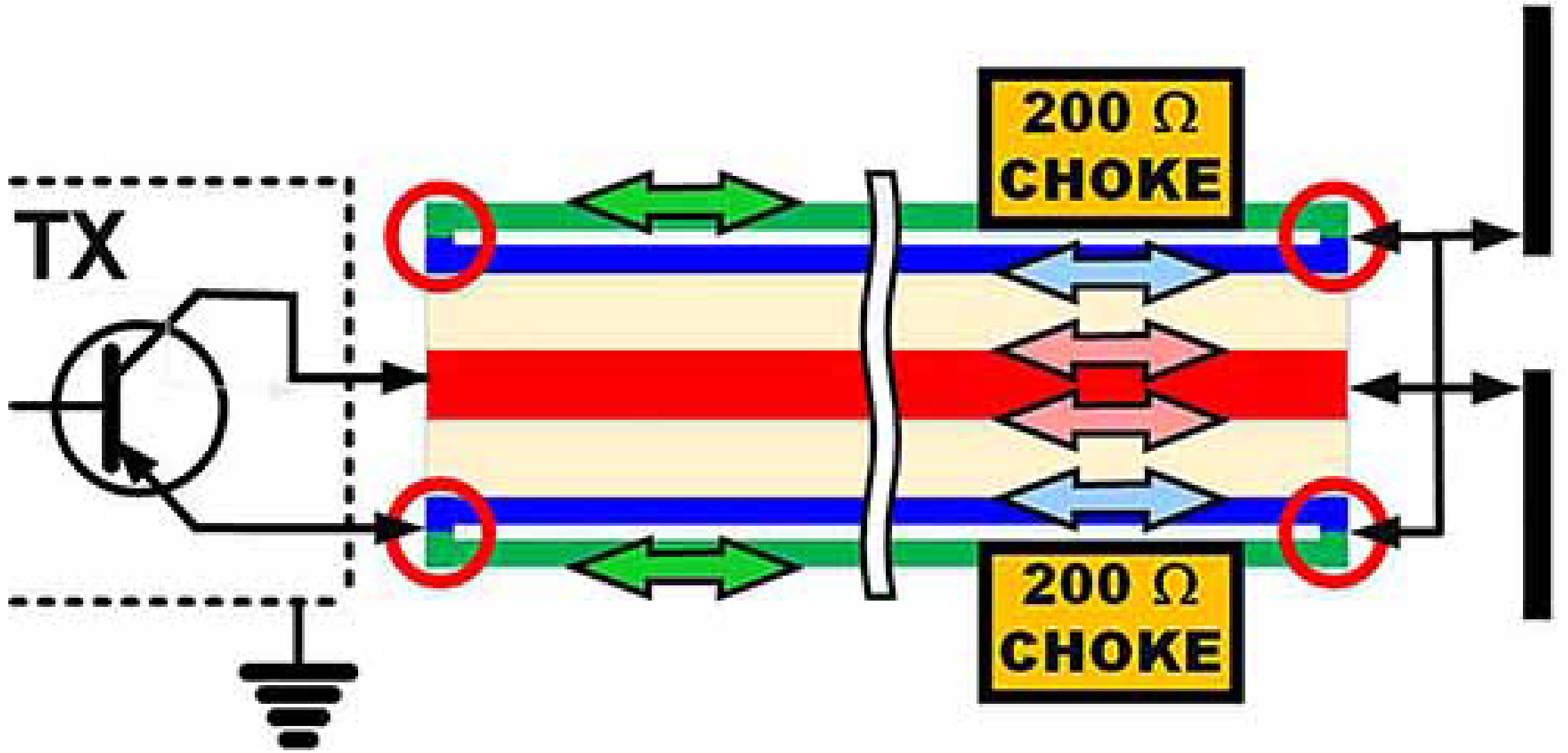


The **PRIMARY** job
of **ALL** baluns is
ALWAYS
to **choke off**
outside shield
current

200Ω (4x system Z)
is the commonly
accepted “minimum”
choking value

**A secondary job
may also be to be an
impedance
transformer
4:1, 7:1 etc.**

The Big Surprise



AXIOM

**Any place coax ends and there's
a balanced source of energy,
RF can get onto the shield**

Jim's Experience

Conductive Fabric Faraday Shield



So, Choke, Choke, Choke

Beginning & End

Not only at the antenna

More the one okay

Even also with a 4:1, 9:1 etc.



DØGGY



**w6nbcmail@
gmail.com**

w6nbc.com / probe

"That's all Folks!"

