

CLAIMS

1. An electrosurgical generator comprising:
an electromagnetic signal supply unit for generating
5 microwave energy to be conveyed on each of a plurality of
microwave channels, wherein each of the plurality of microwave
channels is arranged to convey microwave energy at a different
frequency;
an output port configured to be connectable to a probe
10 for delivering microwave energy from the plurality of
microwave channels; and
a signal combiner configured to connect the plurality of
microwave channels to the output port,
wherein the signal combiner comprises:
15 a band stop filter module disposed at a distal end
of each of the plurality of microwave channels, wherein the
band stop filter module for each microwave channel is
configured to block microwave energy at the frequency conveyed
on the other microwave channels; and
20 a common signal pathway extending between the output
port and a junction at which the plurality of microwave
channels are connected.
2. The electrosurgical generator of claim 1, wherein
25 the electromagnetic signal supply unit comprises a plurality
of microwave sources each configured to output microwave
energy at one of the frequencies conveyed by the plurality of
microwave channels.
3. The electrosurgical generator of claim 1 or 2,
30 wherein there are three or more microwave channels.
4. The electrosurgical generator of any preceding
claim, wherein the plurality of microwave channels are
35 configured to output microwave energy having any combination
of two or more of 433 MHz, 915 MHz, 2.45 GHz, 5.8 GHz, 14.5
GHz, 24 GHz, 60 GHz.
5. The electrosurgical generator of any preceding
40 claim, wherein each microwave channel comprises a trunk
transmission line along which microwave energy having the

frequency corresponding to the microwave channel is conveyed from the electromagnetic signal supply unit to the junction.

5 6. The electrosurgical generator of claim 5, wherein
each band stop filter module comprising a three stub filter
for each frequency of microwave energy to be blocked, wherein
the three stub filter comprises three stubs connected to the
trunk transmission line to present an open circuit in shunt to
the junction at a wavelength of the microwave energy to be
10 blocked.

 7. The electrosurgical generator of claim 6, wherein
each of the three stubs has a length equal to a quarter
wavelength of the microwave energy to be blocked, wherein the
15 three stubs are separated along the trunk transmission line by
half a wavelength of the microwave energy to be blocked, and
wherein a first stub is spaced from the junction by a distance
equal to an odd number of quarter wavelengths of the microwave
energy to be blocked.

20 8. The electrosurgical generator of claim 7, wherein
the stubs are formed from lengths of coaxial transmission
line.

25 9. The electrosurgical generator of claim 7, wherein
the stubs are formed from lengths of microstrip transmission
line.

30 10. The electrosurgical generator of claim 7, wherein
the stubs are formed from lengths of waveguide.

 11. The electrosurgical generator of claim 7, wherein
one or more of the band stop filter modules is configured as a
stripline component.

35 12. The electrosurgical generator of any one of claims 5
to 11, wherein each trunk transmission line for each microwave
channel comprises:

40 a coaxial transmission line portion extending from the
electromagnetic signal supply unit to the band stop filter
module, and

a filter portion extending through the band stop filter portion,

wherein the band stop filter module has an SMA connector for connecting the coaxial transmission line portion to the filter portion.

13. The electrosurgical generator of any preceding claim, wherein the output port is connected to the probe via a waveguide isolator that is arranged in a combiner module for combining RF energy with the microwave energy.

14. A microwave signal combiner for an electrosurgical generator having a plurality of microwave channels each arranged to convey microwave energy at a different frequency, the signal combiner comprising:

a band stop filter module for connection at a distal end of each of the plurality of microwave channels, wherein the band stop filter module for each microwave channel is configured to block microwave energy at the frequency conveyed on the other microwave channels; and

a common signal pathway extending to an output port from a junction at which the plurality of microwave channels are connected.

15. A microwave signal combiner according to claim 14 comprising three or more band stop filter modules, each band stop filter module configured to block microwave energy at two or more different frequencies.

16. A microwave signal combiner according to claim 14 or 15, wherein each band stop filter module comprises a three stub filter for each frequency of microwave energy to be blocked, wherein the three stub filter comprises three stubs connected to a trunk transmission line to present an open circuit in shunt to the junction at a wavelength of the microwave energy to be blocked.