

CLAIMS

1. An electrosurgical instrument for delivering radiofrequency (RF) and/or microwave energy into biological tissue, the electrosurgical instrument comprising:

a coaxial cable for conveying radiofrequency (RF) and/or microwave energy, the coaxial cable having an inner conductor, an outer conductor formed coaxially with the inner conductor, and a first dielectric material separating the inner conductor and outer conductor,

a radiating tip portion disposed at a distal end of the coaxial cable to receive the RF and/or microwave energy from the coaxial cable,

an image sensor disposed at the distal end of the coaxial cable for generating digital images of a treatment site, wherein the image sensor is mounted at a distal end of an imaging cable; and

a handpiece, wherein the coaxial cable and the imaging cable are connected to and extend away from the handpiece;

wherein the handpiece comprises a communication module arranged to communicate information relating to the digital images to a remote device, the communication module comprising a transceiver that is communicably connectable to a wireless network.

2. An electrosurgical instrument according to claim 1, wherein the image sensor is a complementary metal-oxide-semiconductor (CMOS) image sensor.

3. An electrosurgical instrument according to claim 1 or claim 2, wherein the imaging cable comprises a bundle of optical fibres for providing illumination at a treatment site.

4. An electrosurgical instrument according to claim 1 or claim 2, further comprising a light source mounted at the distal end of the imaging cable.

5. An electrosurgical instrument according to claim 4, wherein the light source comprises a light emitting diode.

6. An electrosurgical instrument according to any preceding claim, wherein the inner conductor of the coaxial cable is hollow to form an optical channel, and wherein the imaging cable is located within the optical channel.

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7. An electrosurgical instrument according to claim 6, wherein the optical channel extends through a bore in the radiating tip portion.

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8. An electrosurgical instrument according to claim 7, wherein the optical channel terminates at an aperture formed in an outer surface of the radiating tip portion.

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9. An electrosurgical instrument according to any one of claims 1 to 5, comprising an instrument cable for conveying the coaxial cable and the imaging cable, wherein the instrument cable comprises a working channel for conveying the coaxial cable.

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10. An electrosurgical instrument according to claim 9, wherein the instrument cable comprises an optical channel for conveying the imaging cable, wherein the optical channel runs adjacent to the working channel.

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11. An electrosurgical apparatus according to any preceding claim, wherein the coaxial cable and/or the imaging cable is detachable from the handpiece.

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12. An electrosurgical instrument according to any preceding claim, wherein the communication module is arranged to upload image data to a remote server.

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13. An electrosurgical apparatus comprising:
an electrosurgical instrument according to any preceding claim;
a display device arranged to receive and display the information relating to the digital images.

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14. An electrosurgical system comprising:
an electrosurgical generator arranged to generate RF and/or microwave EM energy; and

an electrosurgical instrument according to any one of
claims 1 to 13,

wherein the electrosurgical instrument is connected to
the generator to receive the RF and/or microwave EM energy and
5 couple it into the coaxial cable.