CLAIMS:

1. A light source to be powered by microwave energy, the source having:
   - a dielectric body of material which is lucent for exit of light therefrom,
     - a void within the dielectric body,
   - a microwave-enclosing Faraday cage surrounding the dielectric body,
     - the dielectric body within the Faraday cage providing a microwave resonant cavity,
   - a sealed plasma enclosure of lucent material within the void within the dielectric body,
   - means for locating the plasma enclosure within the void with respect to the dielectric body,
   - a fill, sealed in the plasma enclosure, of material excitable by microwave energy to form a light emitting plasma, and
   - an antenna extending within the Faraday cage for transmitting plasma-inducing, microwave energy to the fill, the antenna having:
     - a connection extending outside the body for coupling to a source of microwave energy.

2. A light source as claimed in claim 1, wherein the body and the enclosure are of quartz.

3. A light source as claimed in claim 1 or claim 2, wherein the void is a bore in the body and the sealed plasma enclosure is accommodated in the bore with a gap between the enclosure and the bore.

4. A light source as claimed in claim 1, claim 2 or claim 3, wherein the sealed plasma enclosure is formed of drawn tube.

5. A light source as claimed in claim 4, wherein:
   - the tubular enclosure has fused on quartz caps, sealing its ends,
   - the enclosure and discs structure is located by fusing of the caps to the body with the enclosure in the void.

6. A light source as claimed in claim 4, wherein the enclosure has necked, sealing portions of its tube.

7. A light source as claimed in claim 6, wherein the necked sealing portions are supported by discs fused across ends of the void.

8. A light source as claimed in claim 6, wherein at least one tubular portion outwards of the necked down portion of the enclosure tube is un-necked and is fused to the body.

9. A light source as claimed in claim 8, wherein the or each tubular portion outwards of the necked down portion is upset to fit the void.

10. A light source as claimed in claim 6, wherein one or two tubular portions outwards of the necked down portions of the enclosure tube are fused into one or two respective tubular pieces attached to face or faces of the body at its void having the enclosure.

11. A light source as claimed in claim 10, wherein the enclosure is held at one end only by a tubular piece and the other end of the void is open.

12. A light source as claimed in claim 10, wherein the enclosure is held at one end only by a tubular piece and the other end of the void is closed.

13. A light source as claimed in any one of claims 8 to 12, wherein the or one of the tubular portions is open and is arranged to provides accommodation for the antenna to extend into the body.

14. A light source as claimed in any preceding claim, wherein a gap between the enclosure and the body is sealed and evacuated independently of the enclosure.

15. A light source as claimed in claim12, wherein the evacuated gap is filled with inert gas.

CLAIMS:

1. A light source to be powered by microwave energy, the source having:
a dielectric body of material which is lucent for exit of light therefrom,
a void within the dielectric body,
a microwave-enclosing Faraday cage surrounding the dielectric body,
the dielectric body within the Faraday cage providing a microwave resonant cavity,
a sealed plasma enclosure of lucent material within the void within the dielectric body,
means for locating the plasma enclosure within the void with respect to the dielectric body,
a fill, sealed in the plasma enclosure, of material excitable by microwave energy to form a light emitting plasma, and
an antenna extending within the Faraday cage for transmitting plasma-inducing, microwave energy to the fill, the antenna having:
a connection extending outside the body for coupling to a source of microwave energy.

2. A light source as claimed in claim 1, wherein the body and the enclosure are of quartz.

3. A light source as claimed in claim 1, wherein the void is a bore in the body and the sealed plasma enclosure is accommodated in the bore with a gap between the enclosure and the bore.

4. A light source as claimed in claim 1, wherein the sealed plasma enclosure is formed of drawn tube.

5. A light source as claimed in claim 4, wherein:
the tubular enclosure has fused on quartz caps, sealing its ends,
the enclosure and discs structure is located by fusing of the caps to the body with the enclosure in the void.

6. A light source as claimed in claim 4, wherein the sealed plasma enclosure has necked, sealing portions of its tube.

7. A light source as claimed in claim 6, wherein the necked sealing portions are supported by discs fused across ends of the void.

8. A light source as claimed in claim 6, wherein at least one tubular portion outwards of the necked down portion of the enclosure tube is un-necked and is fused to the body.

9. A light source as claimed in claim 8, wherein at least one tubular portion outwards of the necked down portion is upset to fit the void.

10. A light source as claimed in claim 6, wherein one or two tubular portions outwards of the necked down portions of the enclosure tube are fused into one or two respective tubular pieces attached to face or faces of the body at its void having the enclosure.

11. A light source as claimed in claim 10, wherein the enclosure is held at one end only by a tubular piece and the other end of the void is open.

12. A light source as claimed in claim 10, wherein the enclosure is held at one end only by a tubular piece and the other end of the void is closed.

13. A light source as claimed in claim 8, wherein at least one of the tubular portions is open and is arranged to provides accommodation for the antenna to extend into the body.

14. A light source as claimed in claim 1, wherein a gap between the enclosure and the body is sealed and evacuated independently of the enclosure.

15. A light source as claimed in claim 12, wherein the evacuated gap is filled with inert gas.