

Claims

1. An implantable medical device (1), comprising: a sensing device (103) for sensing a magnetic field (M); and a processing device (101) configured to detect a presence of an MRI device (3) based on measurement values (S) obtained from the sensing device (103); wherein the processing device (101) is configured to conclude that an MRI device (3) is present if a multiplicity of measurement values (S) obtained from the sensing device (103) indicates an increase of a strength of the magnetic field (M), **characterized in** that the sensing device (103) is configured to conduct measurements at a specified frequency in between 1 Hz and 50 Hz, in particular at 4 Hz, and to provide measurement values (S) at a predefined sampling rate.
2. The implantable medical device (1) of claim 1, **characterized in** the processing device (101) is configured to conclude that an MRI device (3) is present if a multiplicity of consecutive measurement values (S) indicate an increase of the strength of the magnetic field (M).
3. The implantable medical device (1) of one of claims 1 or 2, **characterized in** that the processing device (101) is configured to increment a counter value (C) if a measurement value (S) indicates an increase of the strength of the magnetic field (M).
4. The implantable medical device (1) of claim 3, **characterized in** that the processing device (101) is configured to increment the counter value (C) if a measurement value (S) indicates an increase of the strength of the magnetic field (M) exceeding a predefined count threshold (A1).
5. The implantable medical device (1) of claim 4 or 3, characterized in that the processing device (101) is configured to decrement the counter value (C) if a measurement value (S) indicates a decrease of the strength of the magnetic field (M), wherein the decrease of the magnetic field strength exceeds a predefined countdown threshold.

6. The implantable medical device (1) of claim 3 to 5, **characterized in** that the processing device (101) is configured to conclude that an MRI device (3) is present if the counter value (C) is increased for a predefined number of times or if the counter value (C) reaches or exceeds a predefined detection threshold (A3).
7. The implantable medical device (1) of claim 6, **characterized in** that the processing device (101) is configured to conclude that an MRI device (3) is present if the counter value (C) is increased for a predefined number of consecutive times or if the counter value (C) reaches or exceeds a predefined detection threshold (A3).
8. The implantable medical device (1) of one of claims 3 to 7, **characterized in** that the processing device (101) is configured to reset the counter value (C) to a start value if the counter value (C) is not increased in a predefined period of time.
9. The implantable medical device (1) of one of claims 3 to 8, **characterized in** that the processing device (101) is configured to reset the counter value (C) to a start value if a measurement value (S) indicates a decrease of the strength of the magnetic field (M) by a value larger than a predefined reset threshold (A2).
10. The implantable medical device (1) of one of claims 3 to 9, **characterized in** that the processing device (101) is configured to reset the counter value (C) to a start value if a predefined number of consecutive measurement values (S) each indicate a decrease of the strength of the magnetic field (M) by a value larger than a predefined countdown threshold.
11. The implantable medical device (1) of one of the preceding claims, **characterized in** that the processing device (101) is configured to modify operation of the implantable medical device (1) if it is concluded that an MRI device (3) is present.

12. The implantable medical device (1) of claim 11 referring to one of the claims 5 to 9, wherein the processing device (101) is configured to
- terminate modification of operation of the implantable medical device (1) if counter value (C) is reset, or
 - 5 - start a termination timer if counter value (C) is reset, and terminate modification of operation of the implantable medical device (1) when the termination timer reached a predefined time margin.
13. The implantable medical device (1) of one of the preceding claims, **characterized in**
- 10 that the processing device (101) is configured to conclude that an MRI device (3) is present if a at least a part of a curve associated with the multiplicity of consecutive measurement values (S) corresponds to at least a part of a reference curve.
14. Method for operating an implantable medical device (1), comprising: sensing a
- 15 magnetic field (M) using a sensing device (103) of the implantable medical device (1); and detecting a presence of an MRI device (3), using a processing device (101) of the implantable medical device (1), based on measurement values (S) obtained from the sensing device (103); concluding, by the processing device (101), that an
- 20 MRI device (3) is present if a multiplicity of measurement values (S) obtained from the sensing device (103) indicates an increase of a strength of the magnetic field (M), characterized by conducting measurements at a specified frequency in between 1 Hz and 50 Hz, in particular at 4 Hz, and providing measurement values (S) at a predefined sampling rate.