



LS RESEARCH LLC

Wireless Product Development



TESTING CERT #1255.01

W66 N220 Commerce Court • Cedarburg, WI 53012

Phone: 262.375.4400 • Fax: 262.375.4248

www.lsr.com

SAR Test Exclusion Exhibit For:

SF551 Pendant Transmitter

FCC ID: QZ8-SF551

Prepared by:

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Product Description:

The SF551 pendant is a patient worn transmitter to be used in a Nurse Call System. Calls are initiated by the patient by a press of a button and communicated over a 900MHz radio link to the nurse call station.

Associated Antenna:

The SF551 has a PCB trace loop antenna with a -3.4dBi antenna gain (based on measurements over a conducting ground plane).

Statement of compliance:

Based on KDB 447498 D01 General RF exposure Guidance v05r01section 4.3.1, it was found that SAR test exclusion can be applied to the SF551 pendant.

Separation Distance:

The SF551 pendant is used similar to a necklace. In normal use, the pendant will be against a patient's chest. Due to the pendant casing, the antenna of the SF551 will have a separation distance of at least 5mm.



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SAR Test Exclusion Threshold:

SAR test exclusion threshold for 100MHz to 6GHz at minimum separation distance of $\leq 50\text{mm}$.

1-g SAR test exclusion threshold equation:

$$[(\text{maximum power of channel including tune-up tolerance}) / (\text{minimum separation distance})] * [\sqrt{f_{(\text{GHz})}}] \leq 3.0$$

10-g SAR test exclusion threshold equation:

$$[(\text{maximum power of channel including tune-up tolerance}) / (\text{minimum separation distance})] * [\sqrt{f_{(\text{GHz})}}] \leq 7.5$$



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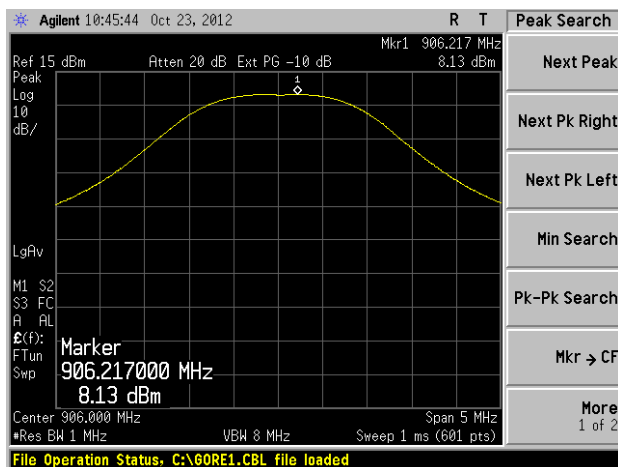
Data and calculation:

Maximum Peak Conducted Output Power:

Channel	Power (dBm)	Power (mW)
906.0	8.1	7
916.0	8.0	6
924.0	7.9	6

Screen Captures

Lowest Channel, 906MHz





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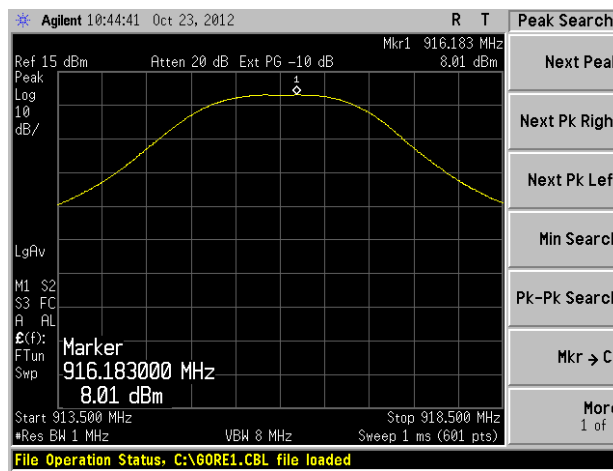
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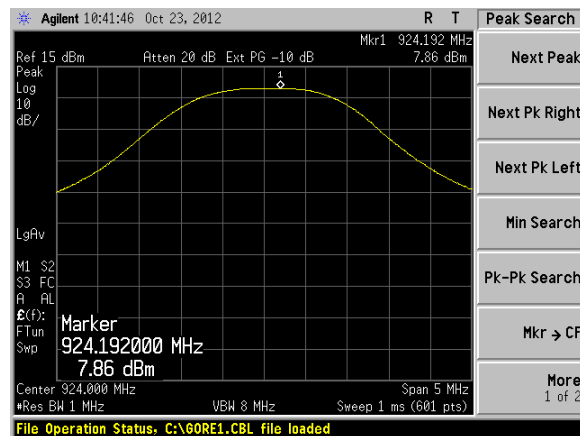
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Middle Channel, 916MHz



Highest Channel, 924MHz





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SF551 comparison to SAR threshold:

Note: The antenna associated with the SF551 has a negative gain. In the interest of reporting worst case scenario, the antenna gain was not added to the conducted measurement for threshold calculation.

Frequency = 0.906GHz

Output power = 7 milliwatt

Minimum separation distance = 5mm

$$[7\text{mw}/5\text{mm}] * [\sqrt{0.906\text{GHz}}] = 1.40 * 0.95 = \underline{\underline{1.33}}$$