



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:

Ultratec CapTel

FCC ID: D8K-CAPTEL2400

Prepared by:

Shane Rismeyer, EMC Engineer

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Product Description:

The EUT is a caption telephone which uses an internet connection (WiFi or Ethernet) to provide captions to the user.

Associated Antenna(s):

The antenna used is a custom antenna.

Statement of compliance:

The EUT was evaluated against the SAR test exclusion threshold listed in KDB 447498 D01 General RF Exposure Guidance v05r01. Based on the measurements of the output power and the peak antenna gain of the antenna, the EUT is excluded from SAR testing.

Separation Distance:

The EUT is a telephone and the transmitter is located in the base of the unit. A separation distance of 100mm was used.



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SAR Test Exclusion Threshold:

SAR test exclusion threshold for 100MHz to 6GHz at minimum separation distance of 100mm.

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)	Modulation
1	13.43	1 Mbps
6	13.41	
11	12.76	
1	19.15	6 Mbps
6	18.82	
11	18.29	
1	19.19	24 Mbps
6	19.08	
11	18.18	
1	19.60	54 Mbps
6	19.96	
11	18.90	
1	18.67	MCS7
6	18.65	
11	18.30	



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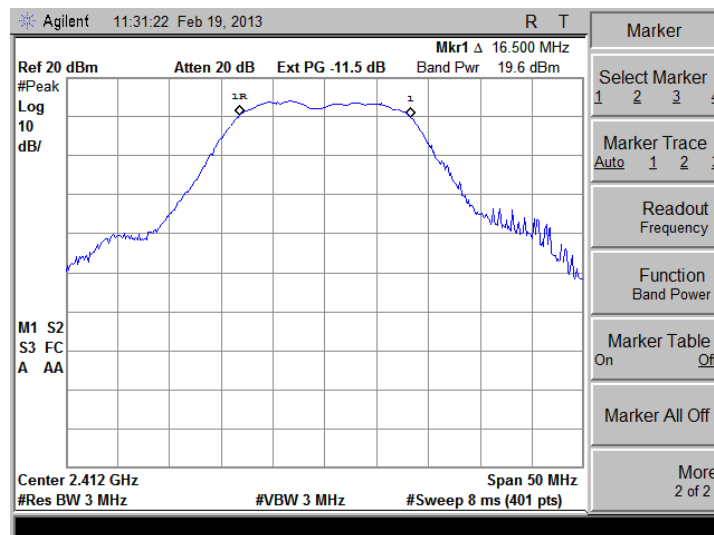
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Screen Captures

Screen captures are for the 54 Mbps mode only.

Lowest Channel, MHz





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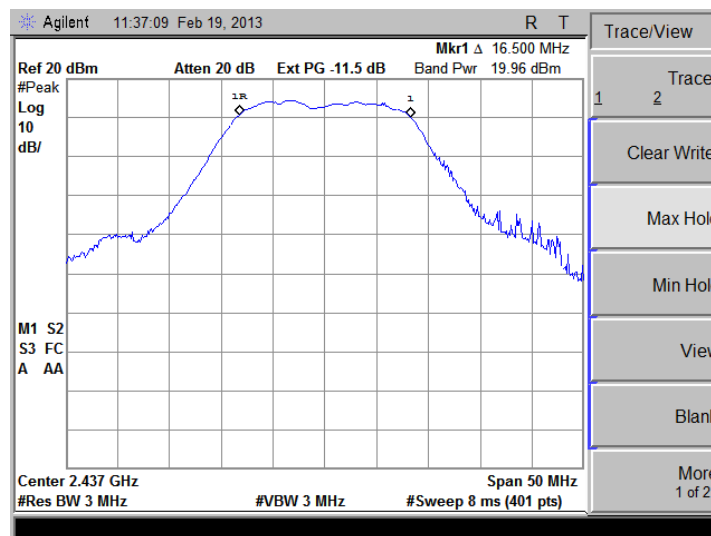
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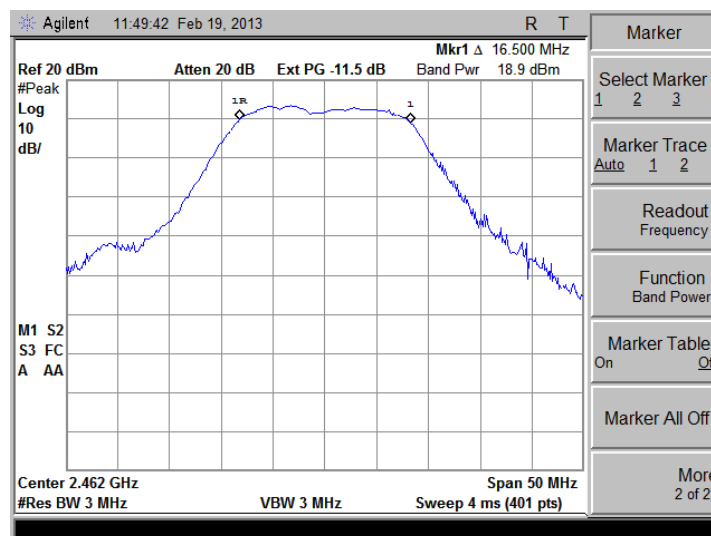
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Middle Channel, MHz



Highest Channel, MHz





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Comparison to SAR threshold:

Frequency = 2.437 GHz

Antenna gain = 1.3 dBi

EIRP (dBm) = 19.96 dBm + 1.3 dBi = 21.26 dBm

EIRP (mW) = 133.66 mW

Minimum separation distance = 100 mm

Threshold in Appendix B for 2450 MHz at 50mm is 596 mW.

$$\underline{133.66 \text{ mW}} \leq 596 \text{ mW}$$