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2/18/03 Response to FCC correspondence 24784
FCC ID: AZ489FT4855

A) Regarding your answer to question 2 the requested shortened SAR scans could not be located. Please provide for worst case operating conditions.

RA) See below for the requested shortened scans. Scan #1 presents the shortened scan for this device using battery model NTN8297A. Scan # 2 presents the representative "normal" scan for battery model NTN8297A. Scan # 3 presents the shortened scan for this device using battery model RNN4006A. Scan # 4 presents the representative "normal" scan for battery model RNN4006A. Scan # 5 presents the system performance scan measured on the day of the shortened scan assessment.
Note: Refer to RB for information regarding readjustment of power to the new Max Power of 5.7 watts reflected in these scans

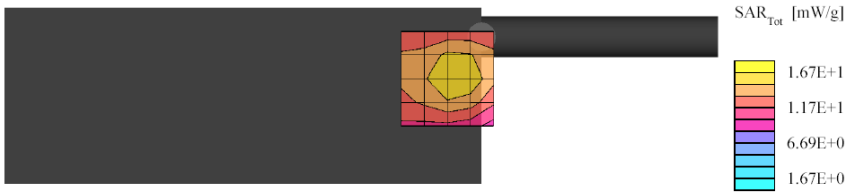
Scan #1

FCC ID: AZ489FT4855; Test Date: 02/14/03
Motorola CGISS EME Laboratory
Run #: Ab-R1-030214-03
Model #: H18QDH9PW7AN SN:B212C0011
TX Freq: 435 MHz
Sim Tissue Temp: 20.7 (Celsius)

Antenna: NAD6547
Battery Kit: **NTN8297A**
Carry: NTN8266B Belt clip
Audio Acc. NMN6191C

Shortened scan reflect highest S.A.R. producing configuration at the face. Run time 6.5 minutes
Representative "normal" scan run time was 23 minutes
"Shortened" scan max. calc. S.A.R. drift adjusted w/ 50% duty cycle = 6.31 mW/g
"Normal" scan max. calc. S.A.R. drift adjusted w/ 50% duty cycle = 6.95 mW/g

DUT w/ belt clip against phantom
Flat Phantom; Device Section; Position: (90°,90°);
Probe: ET3DV6R SN1545 (cal date 5-21-02) - SN1545; ConvF(7.10,7.10,7.10); Probe cal date: 21/05/02;
Crest factor: 1.0; FCC Body_425 MHz: $\sigma = 0.90$ mho/m $\varepsilon = 56.1$ $\rho = 1.00$ g/cm3; DAE3: 363-V1 DAE Cal Date: 5/23/02
Cube 5x5x7: SAR (1g): 11.2 mW/g, SAR (10g): 7.70 mW/g, (Worst-case extrapolation)
Power drift: -0.37 dB



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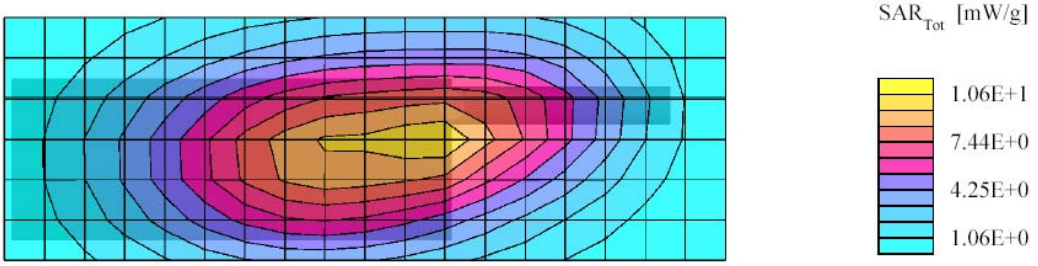
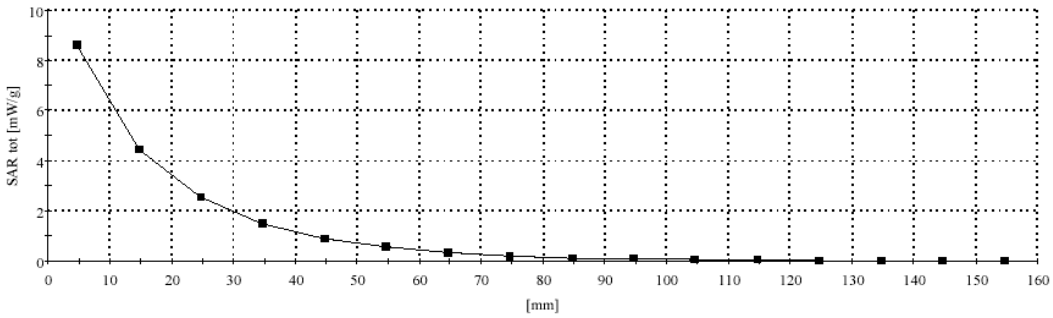
Scan #2
FCC ID: AZ489FT4855; Test Date: 02/14/03
Motorola CGISS EME Laboratory
Run #: Ab-R1-030214-03
Model #: H18QDH9PW7AN SN:B212C0011
TX Freq: 435 MHz
Sim Tissue Temp: 20.7 (Celsius)

Antenna: NAD6547
Battery Kit: **NTN8297A**
Carry: NTN8266B Belt clip
Audio Acc. NMN6191C

Normal scan run time: 23 minutes

DUT w/ belt clip against phantom
Flat Phantom; Device Section; Position: (90°,90°);
Probe: ET3DV6R SN1545 (cal date 5-21-02) - SN1545; ConvF(7.10,7.10,7.10); Probe cal date: 21/05/02;
Crest factor: 1.0; FCC Body_425 MHz: σ = 0.90 mho/m ε = 56.1 ρ = 1.00 g/cm3; DAE3: 363-V1 DAE Cal Date: 5/23/02
Cube 5x5x7: SAR (1g): 9.95 mW/g, SAR (10g): 6.88 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 45.0, 160.5, 4.7
Power drift: -1.36 dB





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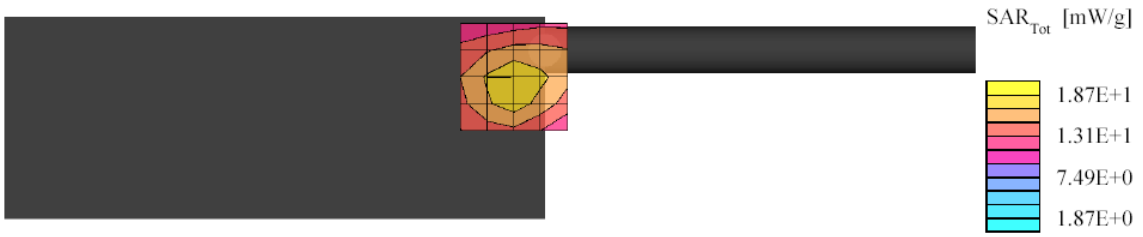
Scan #3
FCC ID: AZ489FT4855; Test Date: 02/14/03
Motorola CGISS EME Laboratory
Run #: Ab-R1-030214-07
Model #: H18QDH9PW7AN SN:B212C0011
TX Freq: 425 MHz
Sim Tissue Temp: 20.6 (Celsius)

- Accessories -
Antenna: NAE6549
Battery Kit: **RNN4006A**
Carry: NTN8266B belt clip
Audio Acc. BDN6671B & BDN6678A

Shortened scan reflect highest S.A.R. producing configuration at the face. Run time 6.5 minutes
Representative "normal" scan run time was 31 minutes
"Shortened" scan max. calc. S.A.R. drift adjusted w/ 50% duty cycle = 6.55 mW/g
"Normal" scan max. calc. S.A.R. drift adjusted w/ 50% duty cycle = 6.61 mW/g

DUT w/ belt clip against phantom
Flat Phantom; Device Section; Position: (90°,90°);
Probe: ET3DV6R SN1545 (cal date 5-21-02) - SN1545; ConvF(7.10,7.10,7.10); Probe cal date: 21/05/02;
Crest factor: 1.0; FCC Body_425 MHz: σ = 0.90 mho/m ε = 56.1 ρ = 1.00 g/cm3; DAE3: 363-V1 DAE Cal Date: 5/23/02
Cube 5x5x7: SAR (1g): 12.4 mW/g, SAR (10g): 8.52 mW/g, (Worst-case extrapolation)
Power drift: -0.07dB



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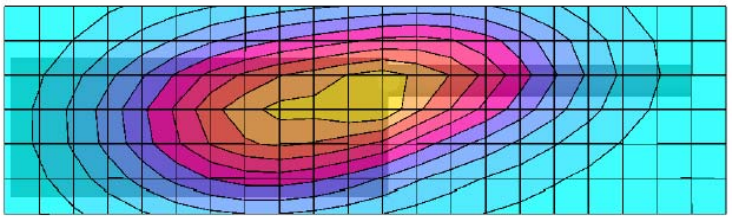
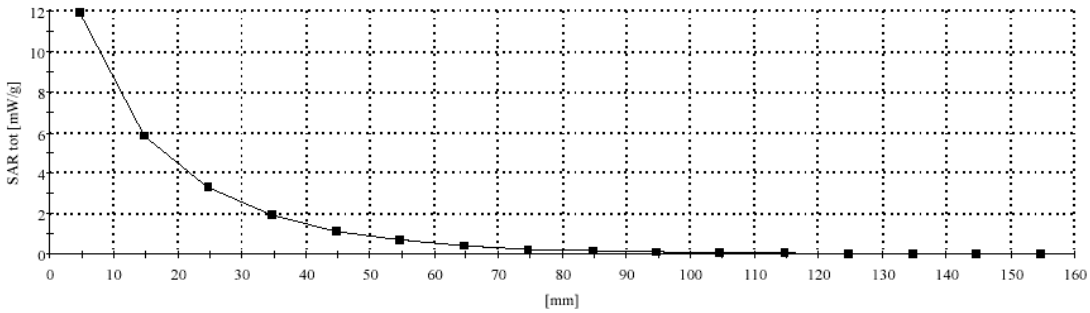
Scan #4
FCC ID: AZ489FT4855; Test Date: 02/14/03
Motorola CGISS EME Laboratory
Run #: Ab-R1-030214-07
Model #: H18QDH9PW7AN SN:B212C0011
TX Freq: 425 MHz
Sim Tissue Temp: 20.6 (Celsius)

Antenna: NAE6549
Battery Kit: **RNN4006A**
Carry: NTN8266B belt clip
Audio Acc. BDN6671B & BDN6678A

Normal scan run time: 31 minutes

DUT w/ belt clip against phantom
Flat Phantom; Device Section; Position: (90°,90°);
Probe: ET3DV6R SN1545 (cal date 5-21-02) - SN1545; ConvF(7.10,7.10,7.10); Probe cal date: 21/05/02;
Crest factor: 1.0; FCC Body_425 MHz: σ = 0.90 mho/m ε = 56.1 ρ= 1.00 g/cm3; DAE3: 363-V1 DAE Cal Date: 5/23/02
Cube 5x5x7: SAR (1g): 12.2 mW/g, SAR (10g): 8.33 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 40.5, 159.0, 4.7
Power drift: -0.22 dB





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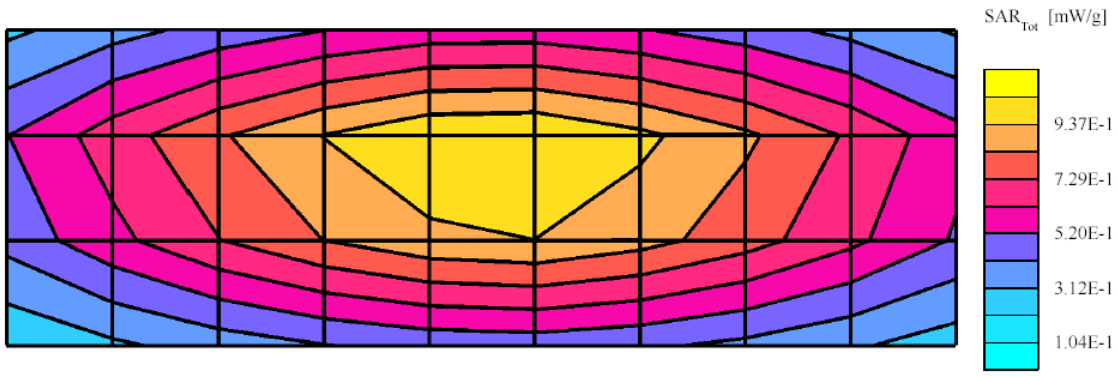
Scan #5
SPEAG 450 MHz Dipole D450V2; SN-1002; Test Date: 2/14/03
Motorola CGISS EME Lab
Run #: Sys Perf-R1-030214-01
TX Freq: 450 MHz
Sim Tissue Temp: 21.0 (Celsius)
Start Power; 250mW

Target at 1W is 4.52 mW/g (including drift) (1g)
SAR calculated is 4.48 mW/g, Percent from target (including drift) for 1g is 0.88 %

Flat Phantom; Probe: ET3DV6R SN1545 (cal date 5-21-02) - SN1545;Probe Cal Date: 21/05/02ConvF(7.10,7.10,7.10); Crest factor: 1.0; FCC Body_450 MHz: σ= 0.93 mho/m ε= 55.6 ρ= 1.00 g/cm3; DAE3: SN363-V1 DAE Cal Date: 05/23/02
Cubes (2): Peak: 1.72 mW/g ± 0.05 dB, SAR (1g): 1.12 mW/g ± 0.05 dB, SAR (10g): 0.743 mW/g ± 0.06 dB, (Worst-case extrapolation) Penetration depth: 12.9 (11.6, 14.6) [mm]
Power drift: 0.00 dB



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B) Regarding your answer to question 3 please provide new SAR values using SAR drift rather than "initial" and "end" power to scale SAR values. According to your answer to question 1 SAR drift appears to better represent droop experienced during testing.

RB) The maximum transmit power for this device has been changed from 5.8 watts to 5.7 watts to reflect the actual product Final Test Specification. The device was assessed at this lower transmit power. S.A.R. drift was used to calculate the maximum compliance results.
Table 1 below presents recalculated compliance results of the highest S.A.R. producing configurations presented in section 7.1 of the submitted S.A.R. report dated 11/22/02 as well as in Motorola's response to FCC correspondence 24662. The new results are based on S.A.R. drift and the updated maximum transmit power of 5.7 watts.
Note: In Motorola's response to question 3 in correspondence 24662 the first line item in the table was incorrectly inserted. Please disregard.

Table 1

Run Number/ SN	Freq. (MHz)	Antenna	Battery	Test position	Carry Case	Additional attachments	Initial Power (mW)	Dasy Drift (dB)	Measured 1g-S.A.R. (mW/g)	Dasy Drift Max Calc. 1g-S.A.R. (mW/g)
Ab-R1-020926-03/B212C0011 (New # Ab-R1-030212-04)	425	NAE6549	RMN4006A	Against phantom	NTN8266B	NMN6191C	5.58	-0.33	10.9	6.01
Ab-R1-021010-04/B212C0011 (New # Ab-R1-030213-13)	407	NAE6546	NTN8295A	Against phantom	NTN8266B	NMN6191C	5.50	-0.99	9.73	6.33
Ab-R1-021014-06/B212C0011 (New # Ab-R1-030213-11)	452	NAE6547	NTN8297A	Against phantom	NTN8266B	NMN6191C	5.45	-2.45	4.68	4.30
Ab-R1-021014-11/B212C0011 (New # Ab-R1-030213-09)	425	NAE6549	RNN4006A	Against phantom	NTN8725A	NMN6191C	5.51	-0.35	8.83	4.95
Ab-R1-021016-07/B212C0011 (New # Ab-R1-030214-02)	407	NAE6546	NTN8295A	Against phantom	NTN8725A	NMN6191C	5.54	-1.01	7.42	4.82
Ab-R1-021021-05/B212C0011 (New # Ab-R1-030214-03)	435	NAE6547	NTN8297A	Against phantom	NTN8266B	NMN6191C	5.58	-1.36	9.95	6.95
Ab-R1-021024-02/B212C0011 (New # Ab-R1-030213-04)	425	NAE6549	RNN4006A	Against phantom	NTN8266B	BDN6671B &BDN6678A	5.55	-0.15	12.90	6.86
Ab-R1-021025-02/B212C0011 (New # Ab-R1-030214-06)	425	NAE6549	RNN4006A	DUT back @ 2.5cm	None	BDN6671B &BDN6678A	5.50	-0.21	7.65	4.16

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Table 1 (continued)

Run Number/ SN	Freq. (MHz)	Antenna	Battery	Test position	Carry Case	Additional attachments	Initial Power (mW)	Dasy Drift (dB)	Measured 1g-S.A.R. (mW/g)	Dasy Drift Max Calc. 1g-S.A.R. (mW/g)
Ab-R1-021028-03/B212C0011 (New # Ab-R1-030213-05)	407	NAE6546	NTN8295A	Against phantom	PSM clip	NMN6251A PSM & NTN8327A	5.50	-0.03	14.2	**7.41**
Face-R1-021029-04/B212C0011 (New # Face-R1-030216-02)	425	NAE6549	NTN8610B	DUT front @ 2.5cm	None	None	5.47	-0.12	6.46	3.46
Face-R1-021029-08/B212C0011 (New # Face-R1-030216-03)	407	NAE6546	NTN8610B	DUT front @ 2.5cm	None	None	5.47	-0.17	7.47	**4.05**
Face-R1-021104-03/B212C0011 (New # Face-R1-030216-05)	435	NAE6547	NTN8297A	DUT front @ 2.5cm	None	None	5.56	-0.29	6.04	3.31

Max. Calc. 1-g Avg. SAR = ((S.A.R. meas. / (10^(Pdrift/10))*(Pmax/Pint))* DC%)

P_{max} = Maximum Power (W)

P_{int} = Initial Power (W)

Pdrift = DASY drift results (dB)

$SAR_{meas.}$ = Measured 1 gram averaged peak S.A.R. (mW/g)

DC % = Transmission mode duty cycle in % where applicable

The highest Operational Maximum Calculated 1-gram average S.A.R. values found for FCC ID: AZ489FT4855

At the abdomen: 7.41 mW/g
At the Face: 4.05 mW/g

These test results clearly demonstrate compliance with FCC Occupational/Controlled RF Exposure limits of **8.0 mW/g** per the requirements of 47 CFR 2.1093(d)

C) Please provide users additional information in your RF safety statement of how to control their exposure. Information about the large variation in exposure from the numerous accessories the user could choose from would be appropriate.

RC) Motorola shares the Commission's interest in assuring that users of Part 90 portable two-way radios are provided with RF exposure awareness, control information and operating instructions. The information provided in this User Manual is consistent with user exposure control guidelines and operating instructions that Motorola has provided and the Commission has accepted over the past several months. As the Commission is aware, the Telecommunications Industry Association (TIA) is in the final stages of approving Telecommunications Systems Bulletin (TSB) 133, Private Land Mobile Radio (FCC Part 90) Two-Way Mobile and Portable Equipment RF Exposure (EME) Labeling, Product Manual, User Awareness and Control Information to Meet FCC MPE/SAR Guidelines. Over the past year, Motorola has made changes to it user manual to incorporate language proposed by the TIA in bulletin drafts last fall as well as language suggested by FCC. When TSB 133 is formally approved by TIA, Motorola plans modify future User Manual language where necessary to be consistent with the final, published TIA bulletin.

Given the large number of accessories offered with this radio, variations in SAR levels are to be expected. Variations in SAR, however, do not mean there are variations in safety or in compliance. All the measurement data submitted for this device and all its approved accessory and antenna combinations clearly demonstrate compliance with the Commission's relevant RF exposure limit. Users, therefore, can choose any of the numerous approved accessories with the assurance that all meet the Commission's compliance requirements. By using only approved accessories and following the operational instructions in the user manual, users can indeed control their exposure to assure that it is within the FCC limits.