MOTOROLA

Date: 16th March 2009

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Federal Communications Commission Laboratory
7435 Oakland Mills Road
Columbia, MD 21046

Re: Correspondence Number: 65457, Confirmation Number: TC392020
with FCC ID: AZ489FT3822.

Dear Mr. Chan,

Motorola Inc., 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322, herein submits its response to your 27th February 2009 request for information via **Correspondence Number 65457.** The following contains the original FCC comments (in black Times New Roman) and Motorola's responses (in blue Times New Roman)

Concerning RF exposure information: SAR report should include the necessary supporting descriptions and explanations on test methodologies for the results to address compliance in a stand alone and consistent manner.

1) 22 audio accessories have been identified in section 3 and only 14 are used in the SAR tests. Rationale for selecting these audio accessories, in combination with the antenna, battery and body-worn options, is required in the SAR report. Results for a number of these audio accessories show higher SAR values than in other configurations. There are also non-negligible SAR variation among the channels tested for these audio accessories. Report must make it clear that the proper combinations of antenna, battery, audio and body-worn accessories have been included in the SAR evaluation. Additional clarification is necessary to determine the combinations of test required to demonstrate compliance. The report clarifications must address at least the following please.

a) Note: The FCC is aware of different proposals for test reduction methods; however, these remain to be finalized by standards committees and some still need work and lack specific protocol.

b) Please ensure descriptions for audio accessories selected are clear and without discrepancies in the different audio accessories part numbers; for example, AAPLN4885A vs. AAPLN4885B, WLAN4190B vs. WLAD4190B vs. WLAN4190A, etc. Does RLN4941A have an audio tube instead of a cable? If RLN6242A is identified, also needed in the subsequent list as similar devices.

R1b) The SAR Report and our previous response did not include any accessories identified as AAPLN4885A, AAPLN4885B or WLAD4190B. The audio accessories PMLN4620A, AARLN4885B, WADN4190B, and RLN4941A are receive only earpiece cables that are used in conjunction with the PMMN4013A Remote Speaker Microphone. The audio accessories AARLN4885B and RLN4941A were tested with the PMMN4013A Remote Speaker Microphone, and the max calculated SAR results for both of these are identical. Therefore, the audio accessories PMLN4620A and WADN4190B were done by similarity to the audio accessory AARLN4885B.

The table that lists the audio accessory cables indicated in Appendix I of the report is revised to include the reason why the audio accessories PMLN4442A, PMLN4620A, WADN4190B, RLN6231A, RLN6232A, RLN6241A, and RLN6242A were not tested.

Section 7.1 and Appendix I of the report have been revised to include the above clarification.

c) To avoid confusion with certain numerical simulation procedures, “calculated” SAR should be identified as “scaled” SAR throughout the SAR report.

R1c) Section 9.1 of the SAR Report has been revised to indicate the “SAR results scaling methodology”, and this is now located before the data tables to explain the scaling method for the “Max Calc.” 1g and 10g average SAR. The values are calculated based on the scaling methodology from the measured SAR data. This is different from the numerical simulation procedures, which involves no SAR experimental measurements.

d) SAR test reductions applied to AZ489FT3822 must be in accordance with the procedures agreed upon based on meetings between Motorola and the FCC Lab in 2001.

R1d) Consistent with the agreement reached with the FCC on July 2001 and with the test procedures in Supplement C, Motorola started to use the “Test Reduction” procedures in 2002. We continued to improve the process up to 2004 to locate the test configurations with the highest SAR values. As a reference bullet number 5 in the email from the FCC to Motorola states “We recommend testing all body-worn accessories and battery options for each antenna with the above procedures. When appropriate, the procedures in Supplement C may be used to reduce the number of test cases, to the extent that we have sufficient data and information to determine compliance.”

Hence, Motorola G&PS EME Laboratory uses procedures, based on sound engineering practice, to reduce the number of test configurations while still providing sufficient information to confirm compliance. The procedures comprise of a structured, sequenced methodology for evaluating combinations of offered antennas, batteries, body-worn accessories and audio accessories tested at body and face intended use positions. The G&PS EME Laboratory has dubbed this process the “One Factor at a Time Method”.

A summary of the methodology is as follows:

(1) Using the battery which positions the radio closest to the body, i.e. the thinnest battery, the standard body-worn accessory and the Remote Speaker Microphone (RSM) are evaluated to determine the antenna with highest SAR at the body and to confirm the location of highest SAR is similar for all antennas;
(2) Using the highest SAR antenna along with the standard body-worn accessory and the RSM, all other offered batteries are tested to evaluate SAR at the body and to confirm that the location of highest SAR is similar for all batteries;

(3) Using the highest SAR battery-antenna combination along with the RSM, the other body-worn accessory is tested which, based on physical dimensions and/or materials of construction, is most likely to produce the highest SAR at the body;
(4) Using the highest SAR battery, antenna and body-worn accessory combination, each audio accessory is tested to determine the SAR at the body and to confirm the location of highest SAR is similar for all such accessories;
(5) Using the highest SAR battery, antenna, body-worn accessory and audio accessory combination, the device is tested at low, middle and high frequencies for each of the offered antennas to determines highest SAR at the body;
(6) All offered antennas are grouped by type, e.g. helical, whip, stubby, etc., and the highest SAR antenna for each type is used to evaluate SAR of the device at 2.5 cm (front and back of device) from the body;
(7) For assessments at the face, (a) the thinnest battery is used to evaluate each of the offered antennas at respective center frequencies per range; (b) the highest SAR antenna is used to evaluate all other batteries and; (c) using the battery and antenna combination with the highest SAR, the device is tested at low, middle and high frequencies for each of the offered antennas to determines highest SAR at the Face.

Section 7.1 of the SAR report has been revised to include the detailed clarification of the test method applied to this product.

e) Use of "Coarse-to-Cube approximation" or "Motorola Fast SAR" procedures and how it applies in conjunction with engineering judgments to determine worst-case combinations and test configurations must be fully explained in the SAR report. Also see additional comments on Fast SAR in subsequent items below.

Please see the response R3a.

2) Section 3 indicates the device has a maximum output power of 6.0 W and identifies this to be the upper limit used for final production line testing. Many of the measured power levels shown in Tables 1 and 2 are higher than 6.0 W. The results seem to indicate the SAR numbers have been scaled to around 6.3-6.5 W. What is the absolute maximum output consider for this device, and what specific method(s) or scaling factor(s) are used for each SAR values? The SAR values in Tables 1-3 appear to be scaled with respect to different maximum output levels; however, no specific maximum value is identified in Section 9.1 for scaling. Note: The 5 % identified in Supplement C relates to scaling of SAR by no more than 5 % to cover certain production tolerances where the specific test device may not be able to transmit at the absolute maximum power specified for the product. SAR results herein indicate device output power measurements exceeding the 6 W absolute maximum identified for production. It appears the device has a nominal output of 5 W and according to Part 90 requirements the device must not exceed 120% of this output, which is 6 W. SAR report must clarify why device was tested at as high as e.g. 6.28 W, and/or all parts of filing should be revised where appropriate to address actual device power.

R2) The maximum power is 6 Watts and as shown on Table 1 thru 10 of the SAR Report, the power can exceed the maximum power by <5%. As shown in the 12M excerpt below that the factory Tuning Window is 5.2-5.6 Watts. All radios leaving the factory cannot exceed 5.6 Watts. This 5.6 Watts insures that the customer gets a guaranteed nominal power of 5 Watts.

Manufacturer max power +/- 20% (EIA)
Tuning Window: 5.2 ~ 5.6W
ALT Spec: (5W ±0.5dB); (4.46W ~ 5.61W)

Per Part 90, the radio is certified at 5 Watts Nominal Power and 20% above that is 6 Watts maximum. So, the radio meets the requirements of Rule Part 90.

For SAR testing purposes, the radio is manually tuned to as close as possible to 6 Watts. Please note that the tuning capability of the software is limited to step-increments and does not allow for exact tuning.

When the power is tuned for one channel it typically affects the adjacent channels. Therefore, to conservatively achieve the best case scenario of all channels being tuned to maximum power some channels will be slightly above the stated maximum power but not by more than 5% which is what was observed in Tables 1 thru 10 of the SAR Report.

To further clarify, we manually tune the power as close to 6 Watts as possible, using for the capability of the software, as possible but not exceeding the 5% scaling threshold. In the factory, if the power exceeds the upper factory tuning limit (5.6 Watts) then that radio will be rejected and not shipped to the customer.

Hence, manually tuning the radio as close as possible to 6 Watts is a more conservative approach for SAR testing.

Concerning the comments "The results seem to indicate the SAR numbers have been scaled to around 6.3-6.5 W ". The G&PS Lab does not scale the measured SAR results to around 6.3-6.5 Watts. The Lab also does not scale the measured SAR results for SAR drift (Pdrift) or max power if the following conditions are observed:

a. If the Pdrift result is positive, then 10^(Pdrift/10) is equal to the value of 1.
b. If the measured power is higher than the max power, then (Pmax/Pint) is also equal to the value of 1.

For example, the highest Max Calc. 1g-SAR results indicated for the Body and Face are scaled as follow:

For Body: ((6.22mW/g / (1)*(6.0W/5.89W))* 50% = 3.17mW/g
For Face: ((2.98mW/g / (1)*(6.0W/5.70W))* 50% = 1.57mW/g

Section 9.1 of the SAR report has been revised to clarify the "Max Calc." scaled method for the positive drift and when the initial power is higher than the max power.

3) Section 7.1 (DUT Configurations) identifies an incorrect and/or out-of-scope frequency range (136-

2484 MHz) in the description. More detailed explanations about the Coarse-to-Cube approximation methodology and its implementation within the SAR measurement system should be included the SAR report to support the test methodology. The reference publication on Motorola Fast SAR algorithms indicates the methodology has been verified for 150-2450 MHz using handsets. Additional clarification on implementation variations; for example, whether a frequency-dependent or measured penetration depth model has been applied, and if the algorithm can be extended to 136 MHz, should be explained in the SAR report.

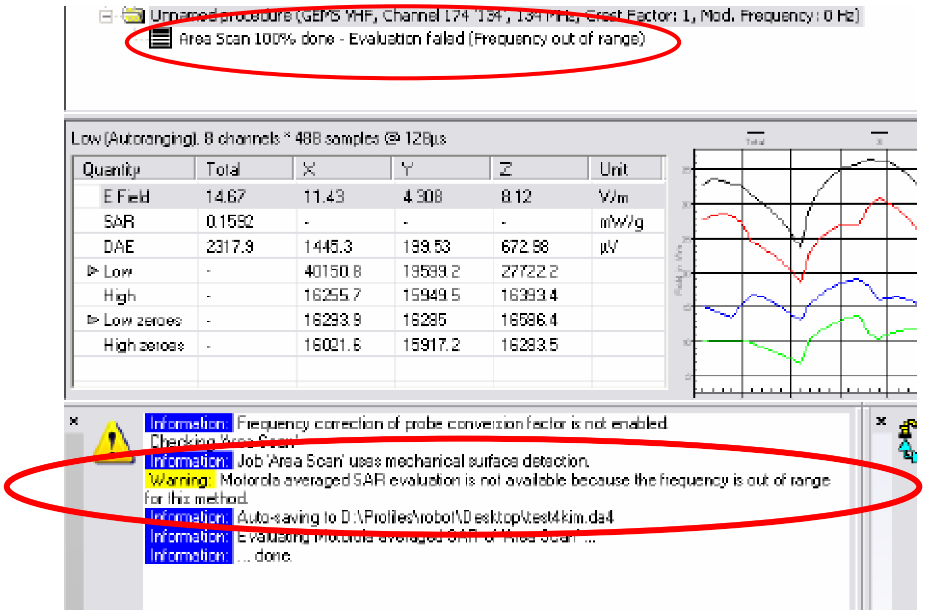
R3) Section 7.1 of the SAR report has been revised to explain the algorithm can be extended from 150 - 2450 MHz to 136-2480 MHz. See response below in R3a.

a) Clarifications should explain differences between two versions of the algorithm and both are referred to as Motorola Fast SAR I in the DASY manual. The DASY4 manual identifies Motorola SAR I and Motorola SAR II. It is unclear which implementation applies to the measurements performed for this device.

R3a) Only Motorola Fast SAR I has been implemented in the DASY4 system, SPEAG has confirmed that the Motorola Fast SAR II has not been implemented in the DASY4 system. The following statement has added to section 7.1 of the SAR report:

The "Coarse-to-Cube approximation methodology" is also known as the "Motorola Fast SAR I" which implements in the DASY4 software system. This algorithm is described in the Motorola publication (M.Y. Kanda, M.G. Douglas, E. Mendivil, M. Ballen, A.V. Gessner, C.K. Chou, "Faster Determination of Mass-Averaged SAR from 2-D Area Scans," IEEE Transactions on Microwave Theory and Techniques, vol. 52, no. 8, pp. 2013 – 2020, August, 2004.). In the published paper, the data were grouped and labeled by the center frequency, but the data taken for this study included data from 136MHz to 2484MHz.

The DASY4 test system will not evaluate the 1g and 10g average SAR if the test frequencies are below the 136 MHz or exceed the 2484 MHz. The following error message will appear to indicate that the evaluation failed due to *"Motorola averaged SAR evaluation is not available because the frequency is out of range for this method."*



b) As we understand the first version of the exact algorithm described in a Motorola publication is implemented in the DASY4, and a subsequent version is implemented in DASY5. Based on the DASY manuals, Fast SAR I and Fast SAR II are both identified in the DASY4 manual but no specific version has been specified in the DASY5 documentation.

The DASY manuals do not provide implementation specifics and neither DASY5 nor the Motorola/BEMS abstract are applicable because the device was tested with the DASY4.

The Motorola publication has described implementation variations, including frequency-dependent and penetration depth models or possibly the combination of these. Implementation specifics and details are necessary in the SAR report to support the test methodology and results.

R3b) The testing for this product was done using the DASY4 test system; and Motorola Fast SAR I was used for the pre-evaluation of the accessories for this product. The configurations of battery, antenna, body-worn and audio accessories that provided highest SAR results at the body and face were then measured using the full zoom scan. The next highest SAR test configuration determined by the pre-evaluation was 17% below the peak SAR 3.17mW/g determined by full zoom scan, and therefore it was concluded no additional full zoom scans were necessary for the lower SAR conditions.

It is the Motorola understanding that the Fast SAR I algorithm implemented in DASY4 is exactly as published in "Faster Determination of Mass-Averaged SAR From 2-D Area Scans" by Kanda et al., IEEE Trans. on Microwave Theory and Techniques, August 2004. As a matter of fact, the DASY4 manual states:

"MOTOROLA Fast SAR I: This approach is based on the area scan measurement applying a frequency dependent attenuation parameter. This attenuation parameter was empirically determined by analyzing a large number of phones. The MOTOROLA FAST SAR was developed and validated by the MOTOROLA Research Group in Ft. Lauderdale. For the sample size studied, the root-mean-squared errors of the algorithm are 1.2% and 5.8% for 1 g and 10 g averaged SAR, respectively."

As it can be noticed, the DASY manual states the same r.m.s. errors (1.2% and 5.8%) as those reported in the aforementioned article.

The revised SAR Report includes specific details, e.g., the frequency-dependent expression of the attenuation parameter (penetration depth), of the Fast SAR I algorithm.

c) Three SAR plots have indicated that the Fast SAR results are 5 % and 10 % lower and 1 % higher than the regular/complete zoom scans performed for these three measurements. This range of difference is non-negligibly larger than the 1-g SAR variations described in the Motorola publication or the DASY4 manual. Given that all the other measurements are based on Fast SAR only without performing full zoom scans, additional information is needed to establish the extent of overestimation or underestimation for the Fast SAR procedures used to test this specific device. An analysis or its equivalent should be included in the SAR report to support the Fast SAR results. It should be noted the DASY4 manual has indicated that the Fast SAR procedures are not suitable for compliance testing; they are mostly intended for preliminary evaluations.

R3c) As previously noted, the Fast SAR I algorithm in DASY4 is based on a peer-reviewed publication illustrating the validation of the method against a large number of actual measurements. In particular, at VHF band (150 MHz) the method was validated against 32 SAR measurements relative to 7 products, yielding 0.8% r.m.s difference between 1-g SAR averages obtained using the full scan and those computed using the Fast SAR I algorithm.

The new data presented in this application warrant further analysis involving additional cases besides those analyzed in the *Kanda et al.* paper. Such a broader, pooled analysis may improve the accuracy estimate of the Fast SAR I method. Motorola plans to conduct this analysis and share the results with the FCC.

The Motorola Fast SAR I procedures were used for pre-evaluations of battery, antenna, body-worn accessory and audio accessory combinations/configurations to determine the highest SAR. Given the facts that (a) the radio was fully evaluated at an operating power of 6.0W (+/-5%) and (b) the highest SAR of any battery, antenna and accessory combination was 3.17 W/kg or 60% below the limit, as measured by full zoom scan, compliance is both demonstrated and assured.

4) Table 1 has included 66 SAR measurements to demonstrate compliance for the combinations of 10 antennas, 3 batteries, 2 body-worn accessories and 22 audio accessories in the proposed operating conditions, with and without accessory in the high, middle, and low channels (estimated to be over 4000 possibilities).

a) Body SAR with body-worn and audio accessories - Each antenna was initially tested on its middle channel frequency using a specific battery, belt clip and audio accessory. The measured SAR for the antenna ranges from 0.35 to 1.99 W/Kg. Only the highest SAR configuration (1.99 W/Kg case) was used to test the additional 2 batteries and the extra leather carry case.

Since battery thickness have not been identified in the SAR report, it is unclear whether battery thickness might have influence on the measured SAR. This highest SAR configuration (1.99 W/Kg case) was also used to test 14 of the 22 audio accessories, may influence the SAR of the other 9

antennas, and basis why the other 8 audio accessories have not been considered for testing.
Among the 14 audio accessories tested with one of the antennas, the audio accessory that produces the highest measured SAR (4.6 W/Kg) was used to re-test the 10 antennas on their high, middle and low channel frequencies. The measured SAR ranges from 0.392-5.56 W/Kg. The results show non-negligible SAR variations, i.e. factor of 2 to 6, among the high, middle and low channels for each antenna when tested with this specific audio accessory. Some antennas show lower measured SAR, and others have non-negligibly higher SAR that those tested initially using a different audio accessory (0.35-1.99 W/kg).

It must be clarified how these measurement can be analyzed to determine that tests for other audio accessories and antenna combinations are unnecessary. The results do not seem to identify a consistent pattern for implementing the test reductions considered for this device.

The specific rationale for testing or not testing the various combinations must be clearly explained in the SAR report to support the test results.

Clarifications must describe not only the rationale for test reduction of audio accessories, but also the overall rationale for test reduction with respect to antennas, batteries, body-worn and audio accessories as identified.

R4a) Please see the response indicated in R1b and R1d. Section 7.1 of the SAR report has been revised to include the detailed clarification of the test method applied to this product.

b) Body SAR with audio accessory only (no body-worn accessory) - The device was also tested using one of the two audio accessories test earlier that produced the highest SAR with a specific antenna. Body-worn accessory was not used and the device was tested with either its front surface at 2.5 cm from the phantom or its back facing the phantom with the antenna at 2.5 cm from it.

However, it is unclear why the 2.5 cm test separation was treated differently in testing the front and back of the device.

Only 5 of the 10 antennas were tested with this specific audio accessory in these configurations but needed explanation is missing in the SAR report.

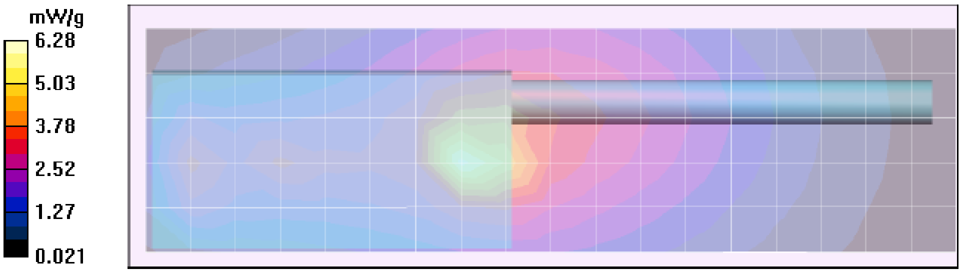
The SAR measured without audio accessories are generally lower than with audio accessories. The highest SAR measured using the same audio accessory and w/o body-worn accessories with closer antenna to phantom separation (4.11 W/kg with antenna tilted at 25-26 mm from phantom) is lower that that measured with body-worn accessory where the antenna to phantom separation distance is larger (5.56W/Kg with antenna tilted at 36-37 mm from phantom).

Without identifying the peak SAR locations and their relationship to the device and its antenna for these measurements, the cause for this non-intuititive reversal of SAR and test distance relationship is unclear. This further complicates basis for which test combinations are necessary to show compliance.

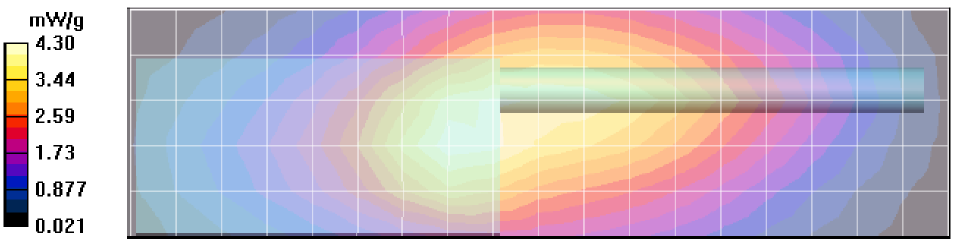
R4b) Please see the response in R1d regards to the antenna selection for 2.5cm measurements at the body. Section 7.1 of the SAR report has been revised to include the detailed clarification of the test method applied to this product.

The difference in the results when tested with and without the body-worn accessory is due to the intensification effect of the belt clip's metallic content as indicated in the following SAR plots for the 5.56 mW/g and 4.11 mW/g, although the antenna is closer for the w/o body-worn accessory case.

SAR plot for the 5.56mW/g measured SAR.



SAR plot for the 4.11mW/g measured SAR



c) The Safety Manual for this product indicates both the antenna and radio are kept at least 2.5 cm from the user's body.

The issue of testing with the front of the device at 2.5 cm from the phantom; therefore, the antenna is further away, is inconsistent with the manual instructions. SAR report and test setup must be consistent with user operating instructions.

R4c) The 2.5cm separation from the antenna with the front of the device facing the phantom is not evaluated, since the 2.5cm separation from the antenna had been already evaluated with the back of the device facing the phantom. Section 7.1 of the SAR Report has been revised to include additional clarification for the 2.5cm assessment.

d) Clarifications must be consistent to describe correct number of antennas, i.e. 10, including 4 stubby antennas.

R4d) There are 10 antennas offered for this product, and the antenna description for each of the offered antennas are indicated on the cover pages of the SAR Report.

e) Where appropriate clarification should compare PMAD4049A to both PMAD4014A and PMDA4015A.

R4e) There is no PMDA4015A antenna indicated on the report or on previous responses to FCC. As described on the cover pages of the SAR Report, the antennas PMAD4049A, PMAD4014A and PMAD4015A are the same type of antenna, 1/4W helical. Antenna PMAD4049A covers a broader frequency range and has a higher antenna gain than the PMAD4014A and PMAD4015A.

5) Table 2 contains 41 face/head SAR measurements to demonstrate compliance for about 90 expected antenna, battery, and channel combinations. Each antenna was tested at its middle channel frequency with the front of the device at 2.5 cm from phantom, without using any body-worn and audio accessories. The measured SAR ranged from 1.21 to 3.14 W/kg. The highest SAR configurations (3.14 W/kg) were used to test the two additional batteries. Two of the three batteries produced almost identical SAR, and the battery that produced the highest SAR was used to re-test the 10 antennas on high, middle and low channels. It appears the body SAR measurement results could be analyzed to reduce the number of tests required for face/head configurations; however, explanation has not been included in the SAR report.

Note: simply indicating that head and body tissue parameters are different and not used to justify testing reduction for the face configurations is generally not appropriate. The rationale for test reduction for the face configuration needs to be included in the SAR report.

R5) Please see the response above in R1d. Section 7.1 of the SAR report has been revised to include the detailed clarification of the test method applied to this product.

6) SAR plots, especially for configurations that show non-negligible variations, are necessary to analyze the test results and address test reduction concerns. One version of SAR report we reviewed had 11 SAR plots for the dipole measurements, 6 for body-equivalent dielectric parameters and 5 for head-equivalent dielectric parameters.

A dipole calibration certificate (with data) for head dielectric parameters was also included for the 300 MHz dipole. The calibration is within 1 year of the measurements. However, the target SAR value (2.74 W/kg) in the dipole calibration was not used. Two other numbers (2.69 and 2.85 W/kg) seem to be derived from these additional head dipole measurements was/were used as dipole target(s) for SAR system verification. There is no explanation on why these alternative targets are used instead of the manufacturer calibrated SAR target. A dipole calibration certificate for body-equivalent tissue parameters is not available in the SAR report. It appears the body target SAR has been derived from the 6 dipole measurements using body tissue parameters. After the system has been validated using head parameters for the same dipole at the same frequency, with a clearly written protocol (not available in the test report) and some additional considerations, the body SAR target can usually be accepted. Additional clarification is necessary.

Please note also following general considerations concerning SAR probe and dipole calibrations by parties other than the SAR system manufacturer, and address in SAR report as appropriate.

SAR probes and system accessories, such as dipoles and other relevant instrumentation electronics, not calibrated by the original equipment manufacturer or its designated calibration facilities, are required to have prior FCC coordination before such probes and system accessories are used for compliance measurements and have the test reports reviewed or approved by a TCB.

A validated target SAR value with respect to the specific tissue-equivalent parameters must be available before a dipole can be used to validate or verify SAR system measurement accuracy. While target SAR values are available in SAR measurement standards for specific dipoles at selected frequencies according to head-equivalent dielectric parameters, appropriate means must be used to determine and validate target SAR values for dipoles with other specifications and tissue dielectric requirements. These other dipoles must be validated according to procedures recommended by SAR measurement standards, using both numerical simulation and experimental techniques. While a dipole with a validated target SAR value provided by its original equipment manufacturer may be subsequently calibrated by a third-party according to approved protocols, independent validations of SAR targets are necessary for dipoles with different mechanical, electrical or SAR characteristics than those specified in the standards. In general, long term stability data for both SAR and electrical characteristics are necessary to support dipoles with an established and validated target SAR value subsequently calibrated by a third-party. The validity of a dipole target SAR value must be clearly identified in the SAR report. SAR systems require calibrated dipoles to validate and verify measurement accuracy; however, the typical user may have difficulties calibrating dipoles if the SAR system is not validated. When the measurement and calibration concerns are not fully addressed, the traceability of such measurements can become questionable.

R6) The SAR result indicated on the Manufacture's Calibrated certificate for dipole D300V3 S/N 1003 was not used because of the following reasons:

-- The IEEE1528-2003 and the FCC OET-65 Supplement C, System Verification section indicated that "The measured 1-g SAR should be within 10% of the expected target values specified for the specific phantom and RF source used in the system verification measurement."

-- SPEAG calibration certificate indicated that the allowed tolerance for this dipole is higher than +/- 10% (e.g. 2.75 +/-18.1% at k=2 for the D300V3 S/N 1003).

-- The allowed tolerance for the probes is also higher than +/- 10% (e.g. 18% at k=2 at 150MHz for the probe being used to assess this product).

Due to probe, dipole and system tolerances noted above, the lab averages dipole results across multiple probes to establish a set of averaged targets for each dipole using the following procedure:
• The System Validation was conducted per IEEE 1528-2003 and the latest draft of IEC 62209-2 (10/3/08) standards using the simulated head tissue and multiple probes that are available and applicable for the dipole under test. Results for this dipole are within the measurement system uncertainty of the reference SAR values indicated within the latest draft of IEC 62209-2 (10/3/08) when flat phantom with 2mm thickness is used. These results then are averaged and used as the target for the daily system performance check when the simulated head tissue is used.
•The dipole targets for the body are set immediately following the same process noted above. Since there is no standard referencing the SAR values for the System Validation using the simulated body tissue, the compliant System Validation results using the simulated head tissue are used to justify the use of the System Validation results using the simulated body tissue due to the same setup except for the simulated tissue type.

The targets set in this report were conducted following the above process. However only one probe was available at time of the System Validation targets were set for the dipole D300V3 S/N 1003. Therefore, no averaging was applied.

Please note that the target set for the tested dipole, when used the simulated head tissue, meets the requirement for the system validation per IEEE 1528-2003 the latest draft of IEC62209-2 (10/3/08) standards, and the difference between this result and the result from the manufacture's dipole calibration certificate is 2% which is well within the measurement uncertainty of the measurement system at k=2.

7) Other items to address in SAR report

a) Tissue dielectric measurement and system check results need to be identified and listed by specific test dates, instead of generic measured range. (See sections 6.1 & 6.2 of part 1 of 2 of SAR report)

R7a) The SAR Report has been revised to include the requested information for the Tissue dielectric measurement and system check results by specific tested dates.

b) Considering item 6 above, please revise the target SAR values accordingly for the Table in section 6.2. The two lines of notes below the Table also need revision, because averaging is not the normal practice for treatment of SAR target values.

R7b) Please see the response in R6.

c) The page numbers (blue texts) indicated for the test configurations are incorrect - please correct.

R7c) This section of the report has been revised to correct the page # indicated for the test configurations.

d) Please clearly identify the specific value for Pmax in Section 9.1 (6.0 W, or ...?)

R7d) The maximum power of this device remains to be 6.0 Watts. Please see the response in R2.

e) Uncertainty budgets for Tables 1 & 2 are only applicable to the device and dipole test frequencies, not 30 MHz to 3 GHz.

R7e) The SAR Report has been revised to add additional description for the Appendix A and to correct the test frequency ranges for tables 1 and 2 of the uncertainty budget for the DUT and System Validation.

f) Table 2 has incorrect probe calibration uncertainty, i.e. need 9 % at 300 MHz not 10 % - please re-calculate table

R7f) The SAR Report has been revised to correct the probe calibration for table 2.

g) Note that the dipole was calibrated with +/- 6 % tissue dielectric parameter tolerances, however protocols require +/- 5 % (page 5 of 39 in part 2 of 2). This should be verified at minimum for future dipole calibrations.

R7g) The measured tissue indicated in the dipole calibration certificate is within the 5% of the target. The 6% indicated on the SPEAG's dipole calibration certificate is not the deviation tolerance to the target values, but the measurement uncertainty (k =2) of the used dielectric parameters - actual parameters of the used lossy liquid. The difference between the target values and used measured values is always guaranteed to be within ± 5% as required by the SAR standards.

h) Appendix D - please see comments in the SAR probe and dipole calibrations by other than SAR system vendor in item 6 above. The system requires a dipole with body SAR target for validation; however, the system may not be suitable for making dipole measurements until it is validated. This needs to be addressed and revised accordingly with respect to item 6 above.

R7h) Please see the response indicated in R6.

i) A number of the z-axis plots have measurement artifacts at the tail ends of the curves. It appears the probe tip might have been too close to the upper liquid surface or the liquid depth might be insufficient. At minimum this must be avoided in the future.

R7i) The same phantom and liquid depth that contain the tissue used for the system performance check were used for testing of this product. The Z-axis results indicated for the system performance check have no measurement effect at the tail end of the curve.

j) A tabulated summary should be included in the SAR report to identify and unambiguously cross-reference the SAR plots with respect to the antennas, batteries and accessories tested. Explanations relating to how the plots can be used to support the test results and address the measurement variations among the audio accessories and test channels are also necessary.

R7j) Appendix J has been added to include additional SAR plots for the Motorola Fast SAR scans that were used for the search of the highest test configuration at the Body and Face.

k) Appendix I - please include explanation on why the numbers in column 3 are identified as a range; for example, whether it is due to device placement, antenna location, accessory requirements or other reasons.

R7k) Appendix I of the SAR report has been revised to clarify the range of the separation distance indicated.

l) Exhibit 7B - section 6.1: inconsistency where heading indicates dBd and numbers indicate dBi - please revise

R7l) The Exhibit 7B -section 6.1 has been revised to remove the "dBd" in the heading for the antenna gain due to the gain in this column indicated the unit for the antenna gain. The table in section 6.2 has also been revised to include the battery's thickness for each of the offered batteries.

m) SAR report must address other issues if any not identified herein but as considered in pre-filing corresp. between applicant and FCC

R7m) The SAR Report has been reviewed and revised accordingly for this product.

The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information within 30 days of the original e-mail date may result in application dismissal pursuant to Section 2.917(c).
DO NOT Reply to this email by using the reply button. In order for your response to be processed expeditiously, you must upload your response via the Internet at www.fcc.gov, E-Filing, OET TCB/Accreditor Electronic Filing, TCB Login, Submit Correspondence. Also, please note that partial responses increase processing time and should not be submitted.

If you have any questions, please call me at 954-723-5793.

Sincerely,
/s/ Mike Ramnath (signed)
Manager, Regulatory Compliance
Email: Mike.Ramnath@motorola.com