November 9, 2000

Federal Communications Commission
Equipment Approval Services
7435 Oakland Mills Road
Columbia, MD 21046
Attn: Errol Chang

SUBJECT: VACOM WIRELESS INC.
FCC ID: PAPVC-1
731 Confirmation No.: EA99003
Correspondence Ref. No.: 16986

Dear Errol:

On behalf of Vacom Wireless Inc. is an amendment in response to your e-mail dated November 07, 2000 requesting additional information for the above-referenced application.

1. Attached is the re-measured head SAR test data, test plots, and setup photographs for AMPS mode Antenna In mode using 0.9S/m conductivity and expanded field scanning region. The worst-case SAR levels were found on the left side of the phantom and we have also submitted the worst-case channel SAR data for the right side of phantom. The conducted power was reduced by 0.4 dB for Channel 991, and 0.3 dB for Channels 383 and 799 in order to pass SAR with sufficient degree of margin. Considering the minimal change in conducted power we are requesting the previously submitted Part 22 test data remain valid.
2. Please see attached a letter from the applicant regarding optional accessories for this device.
3. For future filings we will ensure that the SAR exhibits are reduced to 1-2 MB file size.

If you have any further questions regarding the above, please do not hesitate to contact me.

Sincerely,

Shawn McMillen
General Manager
Celltech Research Inc.
Testing & Engineering Lab

cc: Vacom Wireless Inc.

VACOM Wireless. Inc

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Kwangmyung-Si, Kyounggi-Do, Korea

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November 8, 2000

Federal Communications Commission
Equipment Authorization Branch
7435 Oakland Mills Road
Columbia, MD 21046
Attn: Errol Chang

Re: VACOM WIRELESS INC.
FCC ID: PAPVC-1
731 Confirmation No.: EA99003
Correspondence Reference No.: 16986

Dear Errol,

We hereby confirm that the only accessory available at this time for our handset model VC-1 is AC Charger. If additional accessories become available in the future which require further FCC testing and approval then we will proceed accordingly.

If you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,

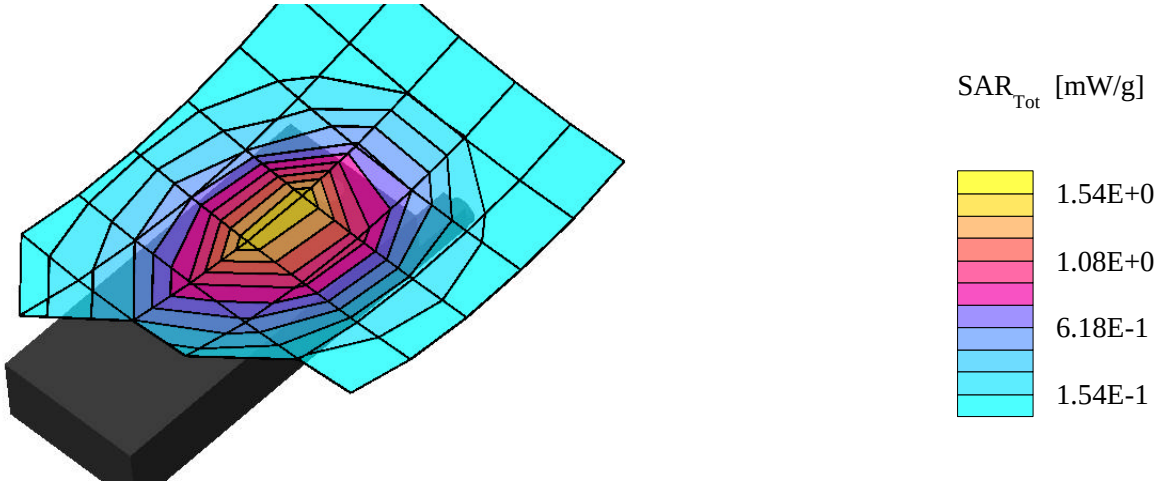
Peter Na.
Nov. 8, 2000

Peter Na
Principal Engineer
H/W Team
Vacom Wireless, Inc.

Vacom Wireless Inc FCC ID: PAPVC-1

Generic Twin Phantom; Left Hand Section; Position: (80°,65°);
Probe: ET3DV6 - SN1387; ConvF(6.43,6.43,6.43); Crest factor: 1.0;
835MHz Brain: σ = 0.90 mho/m ε_r = 41.5 ρ = 1.00 g/cm^3
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Cube 5x5x7
SAR (1g): 1.50 mW/g, SAR (10g): 1.01 mW/g

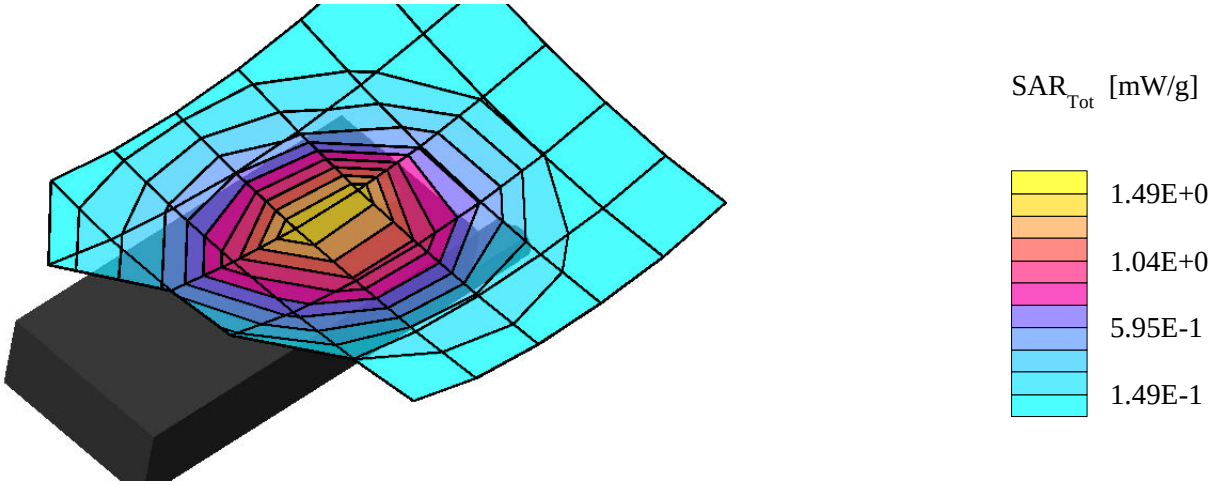
Head SAR
Vacom Dual Mode Model VC-1
Unmodulated Carrier
Channel 991 [824.04MHz]
Conducted Power 26.1dBm
Test Date: Nov 8, 2000



Vacom Wireless Inc FCC ID: PAPVC-1

Generic Twin Phantom; Left Hand Section; Position: (80°,65°);
Probe: ET3DV6 - SN1387; ConvF(6.43,6.43,6.43); Crest factor: 1.0;
835MHz Brain: σ = 0.90 mho/m ε_r = 41.5 ρ = 1.00 g/cm^3
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Cube 5x5x7
SAR (1g): 1.52 mW/g, SAR (10g): 1.02 mW/g

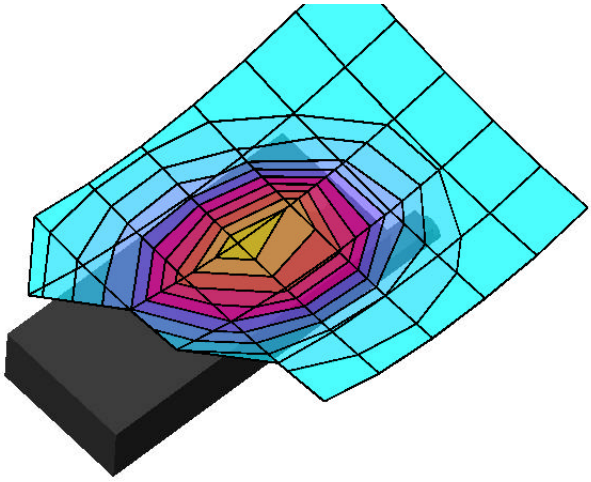
Head SAR
Vacom Dual Mode Model VC-1
Unmodulated Carrier
Channel 383 [836.49MHz]
Conducted Power 25.2dBm
Test Date: Nov 8, 2000

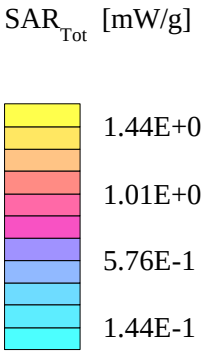


Vacom Wireless Inc FCC ID: PAPVC-1

Generic Twin Phantom; Left Hand Section; Position: (80°,65°);
Probe: ET3DV6 - SN1387; ConvF(6.43,6.43,6.43); Crest factor: 1.0;
835MHz Brain: σ = 0.90 mho/m ε_r = 41.5 ρ = 1.00 g/cm^3
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Cube 5x5x7
SAR (1g): 1.48 mW/g, SAR (10g): 1.02 mW/g

Head SAR
Vacom Dual Mode Model VC-1
Unmodulated Carrier
Channel 799 [848.97MHz]
Conducted Power 25.2dBm
Test Date: Nov 8, 2000

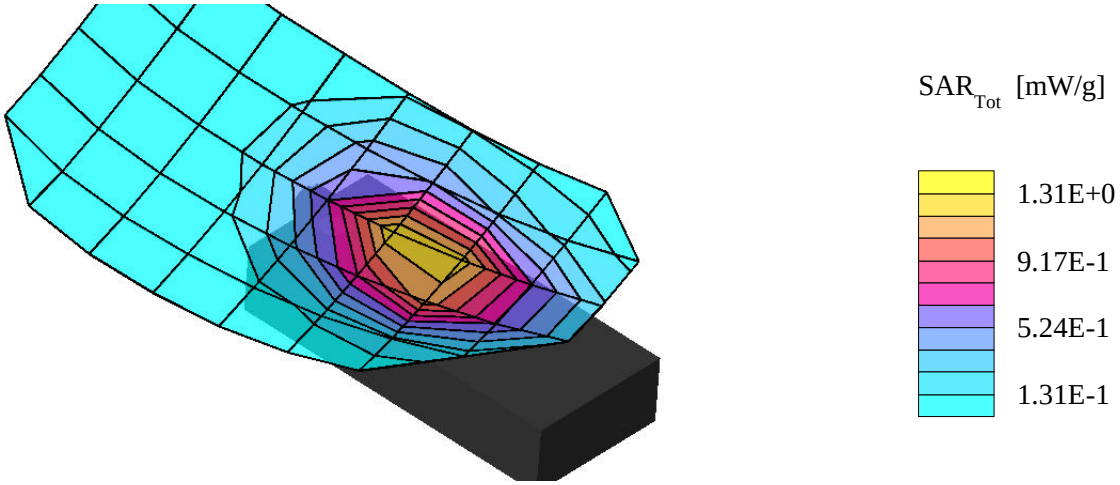




Vacom Wireless Inc FCC ID: PAPVC-1

Generic Twin Phantom; Right Hand Section; Position: (75°,65°);
Probe: ET3DV6 - SN1387; ConvF(6.43,6.43,6.43); Crest factor: 1.0;
835MHz Brain: σ = 0.90 mho/m ε_r = 41.5 ρ = 1.00 g/cm^3
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Cube 5x5x7
SAR (1g): 1.34 mW/g, SAR (10g): 0.891 mW/g

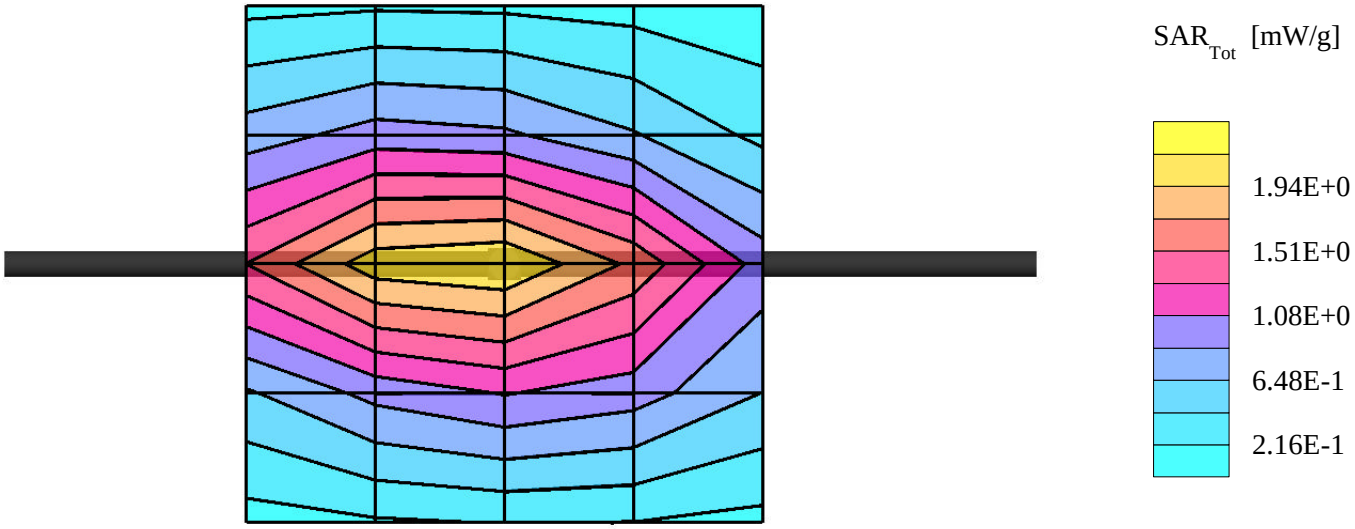
Head SAR
Vacom Dual Mode Model VC-1
Unmodulated Carrier
Channel 383 [836.49MHz]
Conducted Power 25.2dBm
Test Date: Nov 8, 2000



Dipole 835 MHz

Generic Twin Phantom; Flat Section; Position: (90°,90°);
Probe: ET3DV6 - SN1387; ConvF(6.43,6.43,6.43); Crest factor: 1.0;
Brain 835 MHz: σ = 0.80 mho/m ε_r = 44.2 ρ = 1.00 g/cm^3
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Cube 5x5x7
SAR (1g): 2.04 mW/g, SAR (10g): 1.34 mW/g

Validation Date: Nov. 08, 2000



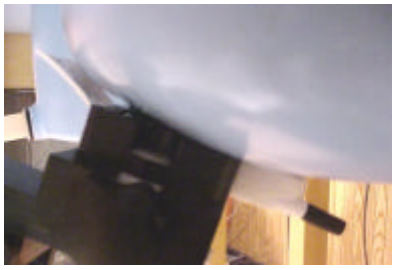
MEASUREMENT SUMMARY

The measurement results were obtained with the EUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum SAR location of the EUT are reported.

HEAD SAR TEST RESULTS – AMPS MODE

Frequency (MHz)	Channel	Modulation	Conducted Power (dBm)	Phantom Section	Antenna Position	SAR (w/kg)
824.04	991	Unmodulated Carrier	26.1	Left Side	Retracted	1.50
836.49	383	Unmodulated Carrier	25.2	Left Side	Retracted	1.52
848.97	799	Unmodulated Carrier	25.2	Left Side	Retracted	1.48
836.49	383	Unmodulated Carrier	25.2	Right Side	Retracted	1.34
Mixture Type: BRAIN Dielectric Constant: 41.5 Conductivity: 0.90			**ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population BRAIN: 1.6 W/kg (averaged over 1 gram)**			

Notes:
1. All modes of operation were investigated and the worst-case SAR levels are reported.
2. The SAR values found are below the maximum limit of 1.6 w/kg.
3. The worst-case head SAR value found was 1.52 w/kg.
4. The EUT was tested using the standard battery, which is the only battery option for this handset.



Head SAR Test Setup - Left Side

Head SAR Test Setup - Right Side

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SAR SAFETY LIMITS

EXPOSURE LIMITS (General populations/Uncontrolled Exposure Environment)	**SAR** (W/Kg)
Spatial Average (averaged over the whole body)	0.08
Spatial Peak (averaged over any 1g of tissue)	1.60
Spatial Peak (hands/wrists/feet/ankles averaged over 10g)	4.00

Notes: 1. The FCC SAR safety limits specified in the table above apply to devices operated in the General Population / Uncontrolled Exposure environment.
2. Uncontrolled environments are defined as locations where there is exposure of individuals who have no knowledge or control of their exposure.

DETAILS OF SAR EVALUATION

The VACOM WIRELESS INC. Model: VC-1 Dual-Mode AMPS/CDMA Cellular Phone FCC ID: PAPVC-1 was found to be compliant for localized specific absorption rate (SAR) based on the following test provisions and conditions:

1) Both left and right ear positions were evaluated.
2) The handset was placed in a normal operating position with the center of the ear-piece aligned with the ear canal on the phantom.
3) With the ear-piece touching the phantom the center line of the handset was aligned with an imaginary plane (X and Y axis) consisting of three lines connecting both ears and the mouth.
4) The handset was gradually moved towards the cheek until any point of the mouth-piece or keypad touched the cheek.
5) SAR measurements were evaluated at maximum power and the unit was operated for an appropriate period prior to the evaluation in order to minimize drift.
6) The device was keyed to operate continuously in the transmit mode for the duration of the test.
7) The location of the maximum spatial SAR distribution (Hot Spot) was determined relative to the handset and its antenna.
8) The EUT was tested with a fully charged battery.

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EVALUATION PROCEDURES

The Specific Absorption Rate (SAR) evaluation was performed in the following manner:

a. (i) The evaluation was performed in an applicable area of the phantom depending on the type of device being tested. For devices worn about the ear during normal operation, both the left and right ear positions were evaluated at the center frequency of the band at maximum power. The side, which produced the greatest SAR, determined which side of the phantom would be used for the entire evaluation. The positioning of the head worn device relative to the phantom was dictated by FCC OET bulletin 65 Supp., C.

(ii) For body-worn devices or devices which can be operated within 20cm of the body, the planar section of the phantom was used. The type of device being evaluated dictated the distance of the EUT to the outer surface of the planar phantom.

b. The SAR was determined by a pre-defined procedure within the DASY3 software. Upon completion of a reference and optical surface check, the exposed region of the phantom was scanned near the inner surface with a grid spacing of 20mm x 20mm.

c. A 5x5x7 matrix was performed around the greatest spatial SAR distribution found during the area scan of the applicable exposed region. SAR values were then calculated using a 3-D spline interpolation algorithm and averaged over spatial volumes of 1 and 10 grams.

d. If the EUT had any appreciable drift over the course of the evaluation, then the EUT was re-evaluated. Any unusual anomalies over the course of the test also warranted a re-evaluation.

SYSTEM VALIDATION

Prior to the assessment, the system was verified in the planar region of the phantom. For devices operating below 1GHz, an 835MHz dipole or 900MHz was used, depending on the operating frequency of the EUT. For devices operating above 1GHz, an 1800MHz dipole was used. A forward power of 250mW was applied to the dipole and system was verified to a tolerance of ±5%. The applicable verification(s) is/are as follows (see attached validation test plot):

Dipole Validation Kit	Target SAR 1g (w/kg)	Measured SAR 1g (w/kg)
D835V2	2.06	2.04

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SIMULATED TISSUES

The brain and muscle mixtures consist of a viscous gel using hydroxethylcellullose (HEC) gelling agent and saline solution. Preservation with a bacteriacide is added and visual inspection is made to ensure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the tissue.

INGREDIENT	**MIXTURE PERCENTAGES (%)**	
	835MHz Brain 0.9 S/m Conductivity	**835MHz Brain 0.8 S/m Conductivity (Validation)**
Water	41.45	40.1
Sugar	56.0	58.1
Salt	1.45	0.7
HEC	1.0	1.0
Bactericide	0.1	0.1

TISSUE PARAMETERS

The dielectric parameters of the fluids were verified prior to the SAR evaluation using an 85070C Dielectric Probe Kit and an 8753E Network Analyzer. The dielectric parameters of the fluid are as follows:

Equivalent Tissue (800-850MHz)	**Dielectric Constant å$_r$**	**Conductivity ó (mho/m)**	**ñ (Kg/m^3)**
Brain	41.5 ± 5%	0.90 ± 5%	1000
Brain (Validation)	44.2 ± 5%	0.80 ± 5%	1000

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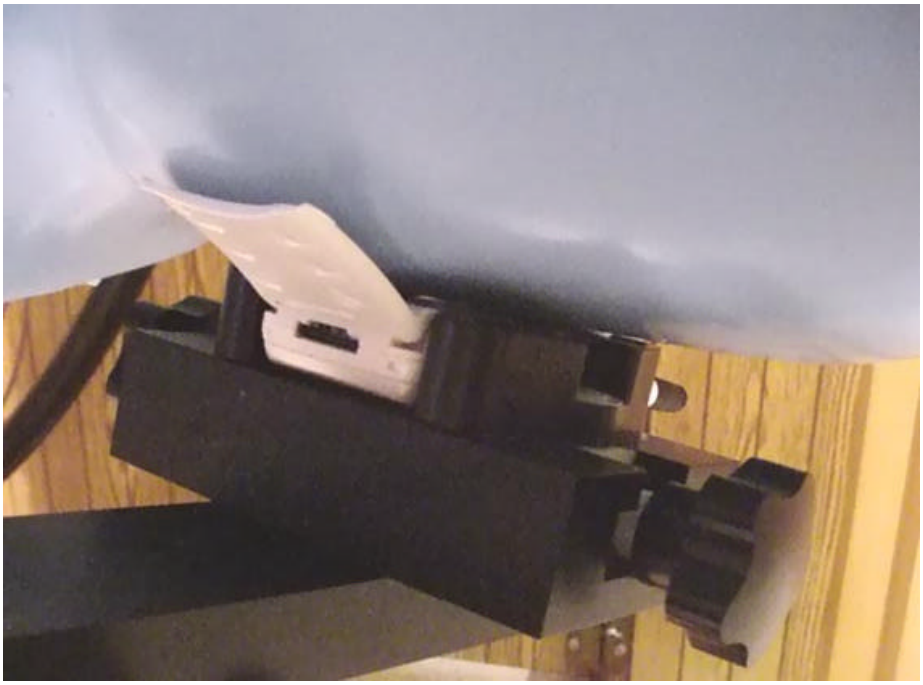
HEAD SAR TEST SETUP PHOTOGRAPHS
LEFT SIDE OF PHANTOM



HEAD SAR TEST SETUP PHOTOGRAPHS
RIGHT SIDE OF PHANTOM