June 12,2002

Andy Leimer
FCC Equipment Authorization Branch
Federal Communications Commission
7435 Oakland Mills Road
Columbia, Maryland 21046

Re.: FCC ID EW780-5198-00
Applicant: VTech Telecommunication Ltd.
Correspondence Reference Number: 23088
731 Confirmation Number: EA528508

Subject: SAR

Dear Mr. Leimer,

Pursuant to your e-mail with the above reference, we are forwarding to you our responses to your questions as quoted below.

1) SAR report pg 12 lists target body rel. permitt. = 35.3 conductivity = 5.27. These are Suppl C head values; body is 48.2 and 6 respectively. Please provide estimate of change in SAR for correct body parameters using Kuster/Balzano theory, FDTD modeling, re-test, or similar.

Response: The tissue used by APREL laboratories was developed internally so as to fulfill the obligation of SAR testing at 5.8 GHz. Two tissues have been developed, one for body and one for head. The tissue used was that developed for body and the appropriate values have been inserted into the table below. The engineer mistakenly inserted the wrong data for the tissue.

Body Tissue	**APREL**	**Target Value**	**D (%)**
Dielectric Constant er	46.1	48.2	4
Conductivity, s [S/m]	6.90	6.0	15
Tissue Conversion Factor	2.5	-	-

The sigma value measured exceeds the 10% margin by 5%. However the uncertainty associated with the dielectric set-up has in some cases a 10% uncertainty attributable to the values recorded, (IEEE). APREL laboratories measured the tissue over a period of one day where the values were recorded to assess uncertainty attributable to the value measured using the APREL set-up. Over the period of the measurements being taken the highest recorded sigma 6.90 , was what has been used in respect to the body tissue used for the assessment. The epsilon recorded was generally repeatable to within 2% of the measured value over the period.

In respect to the assessed SAR measured with the tissue parameters as they appear in the above table, APREL can stand behind the statement that the recorded SAR values of 1.22 W/kg for direct contact SAR, and 1.18 W/kg body SAR are conservative, and if scaling was used the recorded Conservative SAR values would be reduced due to the higher value of sigma being used.

An adjustment to the uncertainty table for Appendix D, attributable to the experimental measurements has now been made and the table below represents the adjusted values.

Appendix D: UNCERTAINTY BUDGET

Calculated Uncertainties		
Type of Uncertainty	**Specific to**	**Uncertainty**
Power variation due to battery condition	DUI	0.0%
Extrapolation due to depth measurement	Set-up	3.8%
Conductivity	Set-up	15.0%
Permitivity	Set-up	4.0%
Probe Calibration	Set-up	7.0%
Probe Positioning	Set-up	1.0%
Probe Isotropicity	Set-up	1.5%
Other Setup Uncertainty (Ambient,,,)	Set-up	3.0%
Expanded Uncertainty:	**35.6%**	**Coverage Factor : K=2**

2) Please describe how system validation dipole target value is obtained.

Response:The dipole target values were devised by using the existing target values contained in the IEEE P-1528 Standard and creating a trend for which the SAR would follow. From this an extrapolation formulae was used and the values calculated for Peak, 1 gram, and 10 gram SAR. Once the SAR values were calculated a ¼ wavelength dipole was then theoretically created. This experiment provided the physical dimensions for the length across the whiskers and the balun. The dipole was then manufactured and tuned specifically to the tissue, for return loss, and matched to 50Ω.

The calculated target values were then used to gauge the measured SAR for the dipole while the dipole was being fed with a power of 100 mW, and the final SAR value was scaled accordingly.

We trust that the above will answer questions. Please feel free to contact as appropriate if you have any question.