



HERMON LABORATORIES

November 20, 2005

American TCB
6731 Whittier Ave
Suite C110
McLean, VA 22101
Attn: Mr. Timothy Johnson, Examining Engineer

RE: your e-mail dated October 28, 2005; Vyvo Ltd.
FCC ID: PBJV284-A, ATCB002898

Dear Mr. Johnson,
Please find below the answers to your questions.

- 1) The revised file "Internal_photographs_16544_rev1" with additional photograph #4 of Tuner without shields was uploaded on November 20, 2005 via Internal Photographs folder.
- 2) The 1.9 dB voltage division correction factor generally represents the worst case for ideal source, internal impedance 75 Ohm and load. In this configuration the difference between measurements at 50 Ohm and 75 Ohm loads will be expressed by the following equation:
$$V@50 \text{ Ohm} / V@75 \text{ Ohm} = V_{\text{emf}}(50/(75+50)) / V_{\text{emf}}(75/(75+75)) = 0.8$$
 or in logarithmic units
$$20 \log 0.8 = -1.9 \text{ dB}.$$

For power correction the situation is even better:
$$P@75 \text{ Ohm (dBm)} = V@75 \text{ Ohm (dBuV)} - 108.7 \text{ dB}$$
$$P@50 \text{ Ohm (dBm)} = V@50 \text{ Ohm (dBuV)} - 107 \text{ dB}$$

Assuming the correction factor will be added, we obtain
$$P@50 \text{ Ohm (dBm)} = V@50 \text{ Ohm (dBuV)} - 107 \text{ dB} - 1.9 \text{ dB} = V@50 \text{ Ohm (dBuV)} - 108.9 \text{ dB}$$
 or 0.2 dB correction.

The similar corrections used in ESA series of spectrum analyzers from Agilent for 50 and 75 Ohm inputs. The 75 Ohm to 50 Ohm direct transaction corresponds to VSWR=1.5 or 0.2 reflection coefficient. The most of spectrum analyzers yields the same VSWR, so generally saying this is still uncertain will it give the result closer to the "true" one or not. Moreover, the VSWR of the EUT output port is not considered at all, which may be much higher than at the spectrum analyzer input. That is why, we used VSWR=1.5 0.2 reflection coefficient for spectrum analyzer and VSWR=2 0.33 reflection coefficient for EUT antenna port in the measurement uncertainty calculations. These parameters fully cover the range of measurements.

- 3) The device is classified as a mobile one.
- 4) There is no true RMS detector in the spectrum analyzer we used for the test as well as in the most spectrum analyzers of Agilent. Peak detector was used for testing. The peak detector is calibrated in terms of equivalent RMS voltage/power of the envelope detector.
- 5) The revised "User_Guide_16544_rev1" with corrected Section 3 "Using the Modem" was uploaded on November 20, 2005 via "Users Manual" folder.
- 6) The revised ATCB_Form_731_16544_rev1 was uploaded on November 20, 2005 via Application Forms folder. We used the Emission Designator 110KD1W for 16QAM and 112KD1W for QPSK.



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- 7) Please refer to the document "RF_specifications_16544", page 2, Table "General", Power Amplifier: 6 V, 650 mA.
- 8) The field strength at any location depends on the installation conditions:
 - a) Antenna
 - b) Height above sea level
 - c) Feeder loss.

These conditions will be defined by a licensee holder and depend on a licensee bureau.
- 9) The revised test report VYYRAD_FCC.16544_rev1 with additional section 7.8 and Attachment to setup photos, file "Setup_photos_16544_attachment" were uploaded on November 20, 2005.
- 10) Thank you for the help.

Sincerely,

Marina Cherniavsky,
certification engineer
Hermon Laboratories