1) FYI….A Permit but ask inquiry has been submitted to the FCC and awaiting a response.

1) The power requirements require peak power, but plots appear to suggest an average was used. Please explain.

   a) Please note the following discussion previously made with the FCC:
      i) Text of Inquiry: Testing Peak power in the 4.9 GHz public safety band. Part 90.1215(c) states: (c) The peak transmit power is measured as a conducted emission over any interval of continuous transmission calibrated in terms of an RMS-equivalent voltage. Please give a more thorough explanation to what calibrated in terms of an RMS-equivalent voltage means and give an example or two of valid measurement procedures.
      ii) ----------
      iii) Response to Inquiry:
      iv) For reference, here is text of 90.1215(c):
      v) "The peak transmit power is measured as a conducted emission over any interval of continuous transmission calibrated in terms of an RMS-equivalent voltage. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. The measurement results shall be properly adjusted for any instrument instrument limitati! ons, such as detector response times, limited resolution bandw! idth cap ability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement conforming to the definitions in this paragraph for the emission in question."
      vi) Note this appears to have omitted words, compared to similar text at 24.232 and 27.50, and should read: "The peak transmit power is measured as a conducted emission over any interval of continuous transmission using instrumentation calibrated in terms of an RMS-equivalent voltage. ..."
      vii) The power output should be measured with the actual modulation to be used with the device and as shown in the emission designator requested.
      viii) For example, using a spectrum analyzer with settings:
      ix) • RBW > signal BW
      x) • VBW > RBW (prefer VBW > at least 3x RBW)
      xi) • no averaging
      xii) • "trace max hold"
      xiii) Most spectrum analyzers use a detector that is calibrated in terms of RMS voltage. Some instrument manufacturers may use the term "detector type," which could be better termed "detector display setting," i.e., sample, average, peak, and sweep time. 90.1215 requires maximum peak, so the measurement settings should be adjusted to get the highest value, which for some analyzers means detector type should be selected as "peak." Sweep time may also need to be varied to maximize the peak value. It is suggested that the VBW be set to at least three times the RBW. When using a peak power detector, the maximum-hold feature should be employed. With regard to the associated analyzer settings, for peak-power measurements, the default sweep-time for the selected span and RBW could be used, which when combined with max-hold should ensure detection of the maximum peak power level.

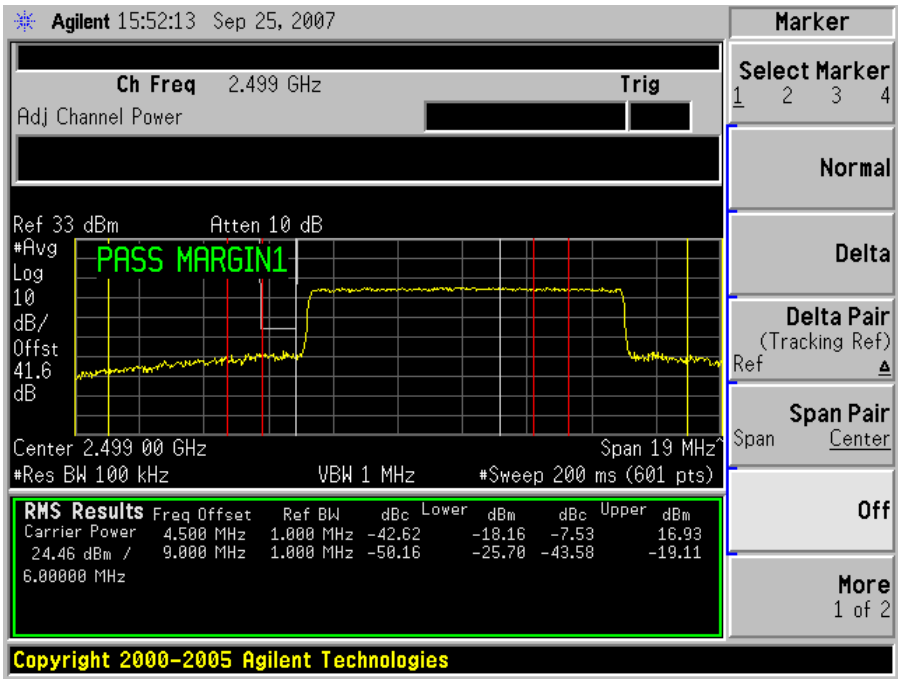
   b) Motorola reply: Test Report updated.

3) Shouldn't the emission designator follow the 26 dB bandwidth on the 731 form as specified by 27.53(l)(6)? This may affect test report and operational description.

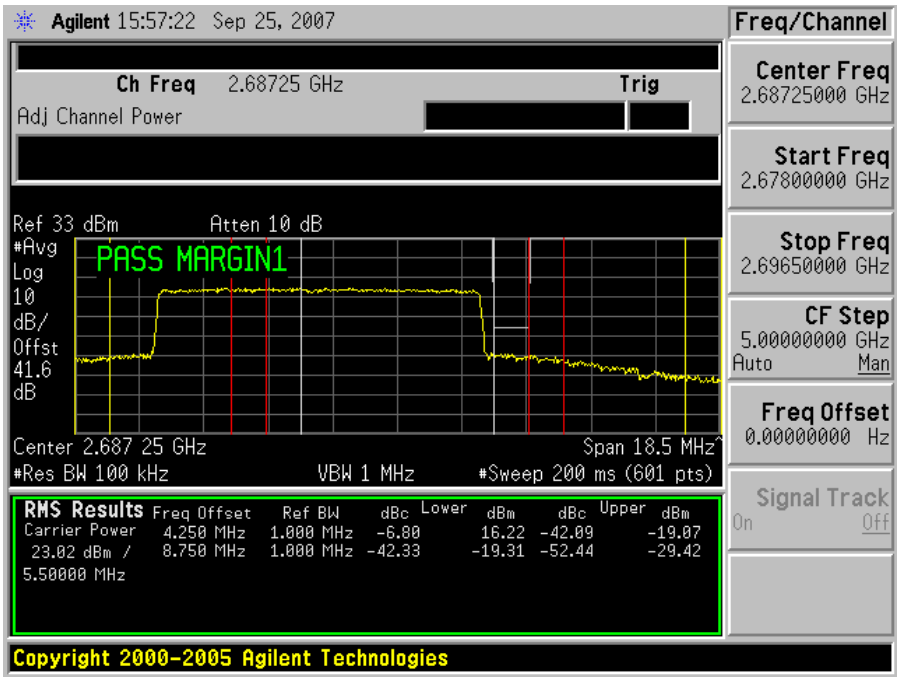
    a. Agreed, Form 731 updated for emission designator and frequency range.

4) Please explain the actual lowest/highest channels for each bandwidth. It appears that this would be 2499 – 2687 for the 5 MHz bandwidth. How about the 10 MHz bandwidth? It would seem that the 10 MHz bandwidth fundamental would fall outside of 2496 – 2690 (allowed band).

    a. All measurements for this FCC certification were performed on center frequencies of 2499, 2593 and 2687 MHz regardless of emission bandwidth and FCC channel bandwidth. A WiMax transmission using a 5 MHz emission can fit within either a 5.5 MHz or 6 MHz channel as designated by the FCC frequencies listed in Part 27.5. The 10 MHz WiMax emissions will require channels to be aggregated. The minimum channel bandwidth that would result from adjacent channels would result in 11, 11.5 or 12 MHz channel bandwidths. If BRS Channel 1 and EBS Channel A1 are aggregated, the resulting useable spectrum would be 2496 – 2507.5 MHz or 11.5 MHz bandwidth. For this particular case, the lowest center frequency that the 10 MHz WiMax emission could utilize would be 2501 MHz. On the high end of the BRS/EBS band, there are two BRS channels at the end of 5.5 MHz each. The highest center frequency that could be utilized for a 10 MHz transmission would be 2685 MHz. The plots shown below contain the mask information at the 2496 MHz edge and the 2690 MHz band edge. The transmitter power and opposing mask edge are not valid in these plots.



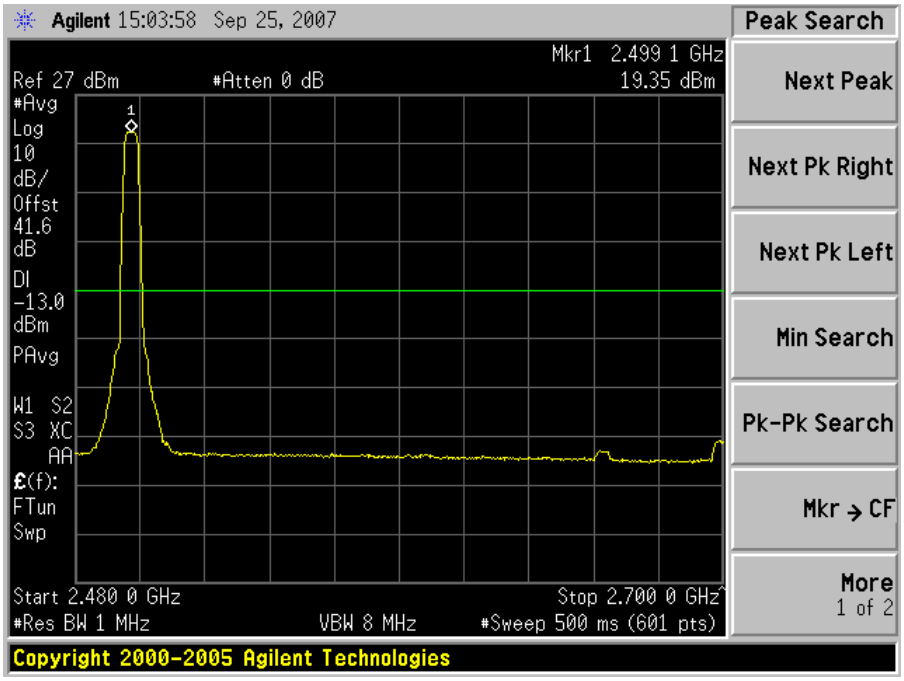
Fo=2501 MHz, 10 MHz emission



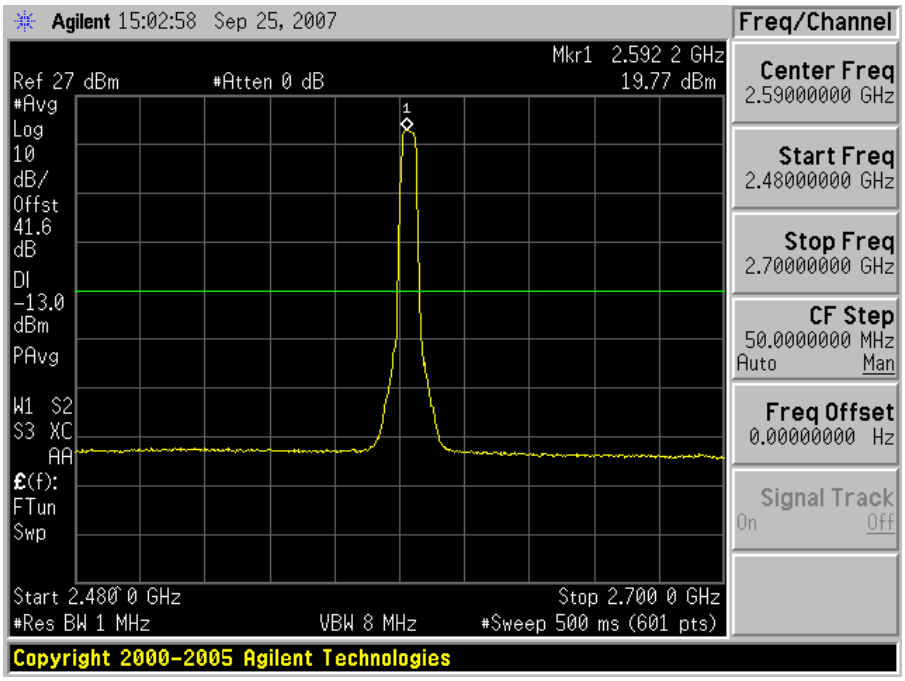
Fo=2685 MHz, 10 MHz emission

5) For spurious emissions, where is the data for 2480 – 2496 and 2687 – 2700 MHz. This appears missing.

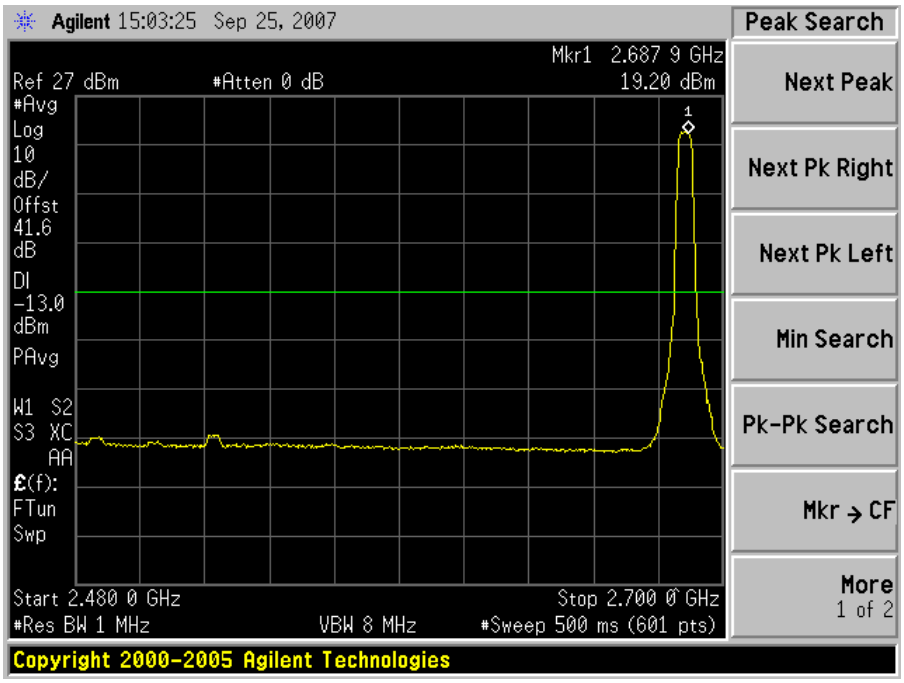
   a. Plots of the spurious emissions from 1 to 5 GHz are located in the 5A Test Report document on page 41. Additional plots are provided below:



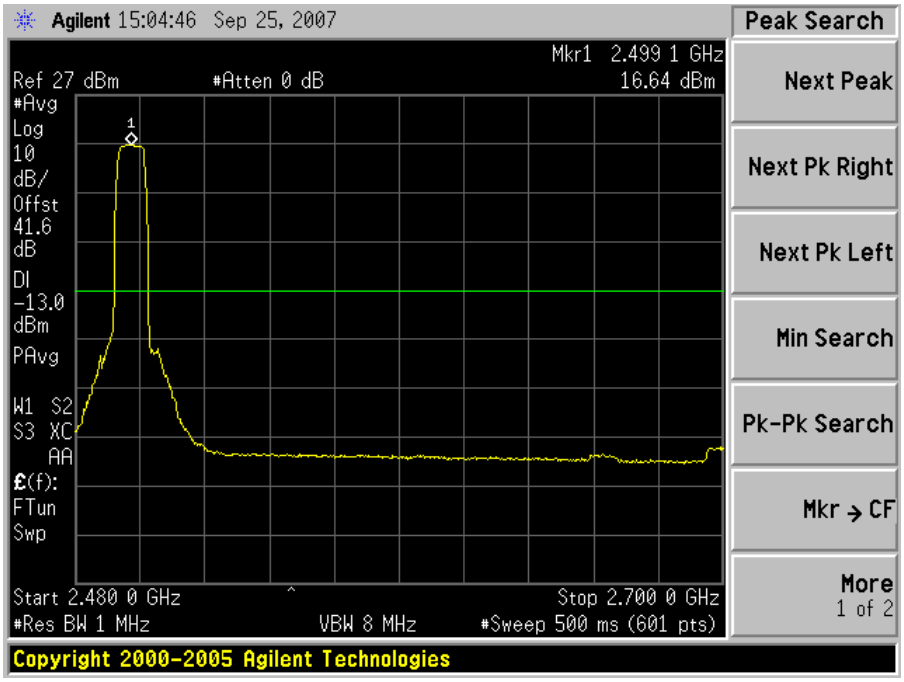
Fo=2499 MHz, 5 MHz emission



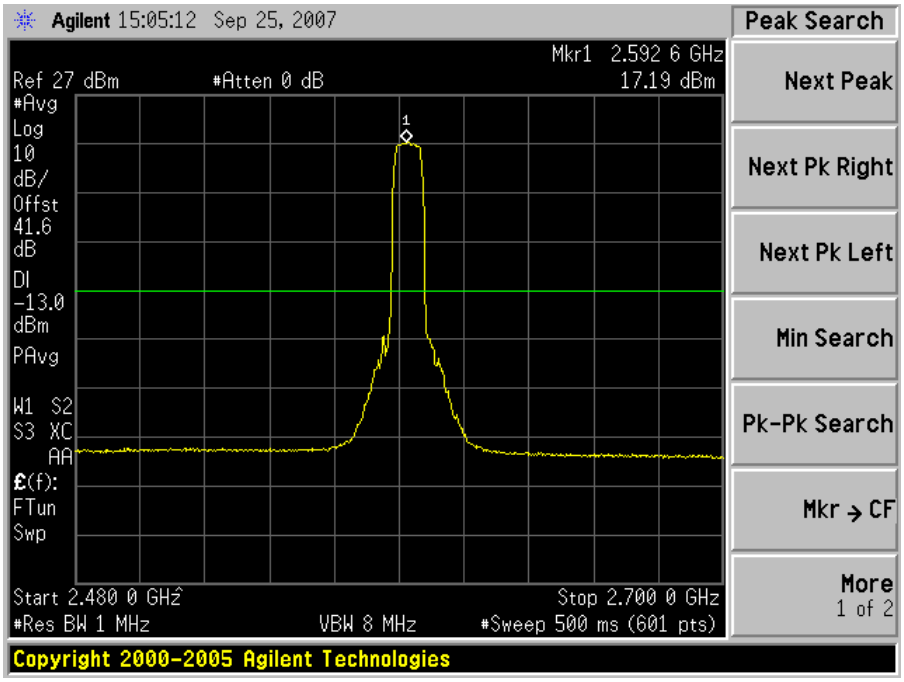
Fo=2593 MHz, 5 MHz emission



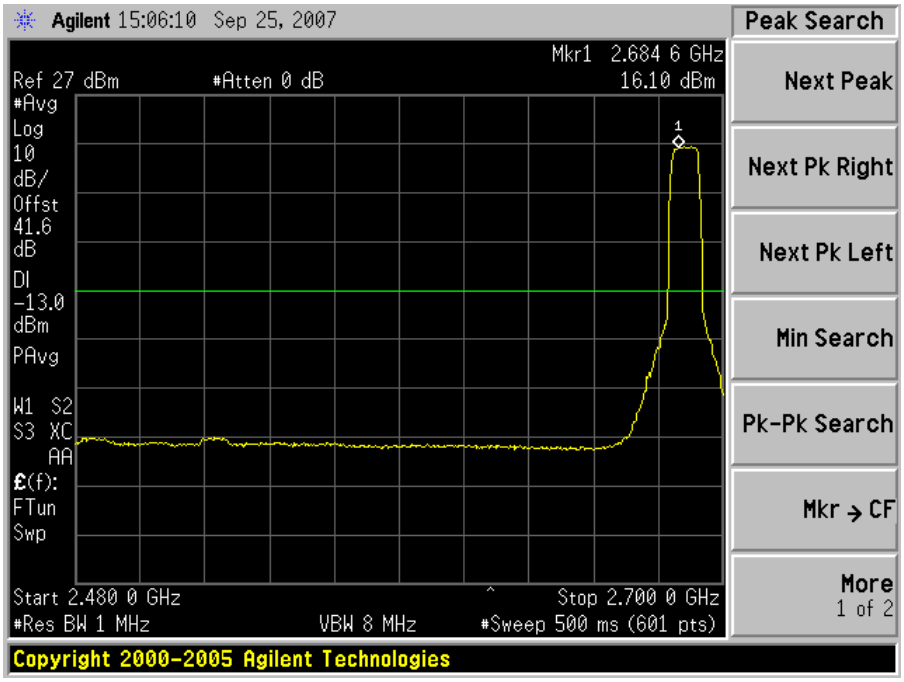
Fo=2687 MHz, 5 MHz emission



Fo=2499 MHz, 10 MHz emission



Fo=2593 MHz, 10 MHz emission



Fo=2687 MHz, 10 MHz emission

6) EMC report appears to use a -13 dBm level. Shouldn't this be -25 dBm limit? Note that 7.497 GHz may be a problem.

   a. The 731 form has been updated to show the correct equipment classification in addition to test report emissions limits.