



Dec 19, 2005

Supplement to HAC Test Report for Motorola portable cellular phone (FCC ID IHDT56FX1)

Prepared by:

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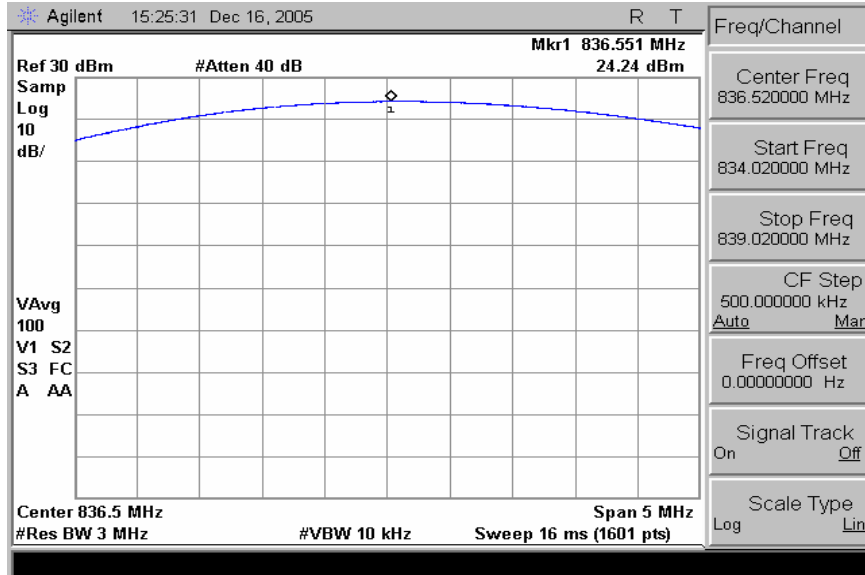
Libertyville, Illinois

## Summary of FCC request for additional information

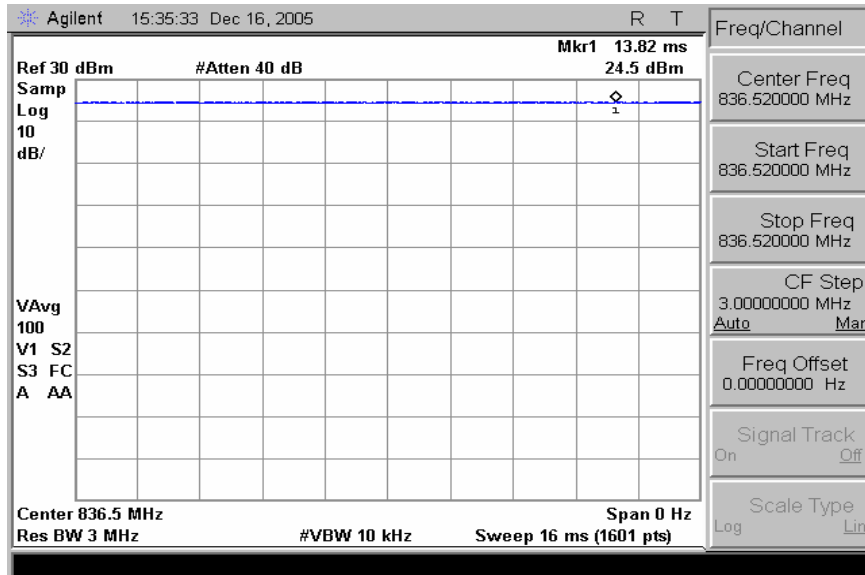
There was a request for additional information regarding Motorola's HAC Test Report for Motorola portable cellular phone (FCC ID IHDT56FX1). The requested information is addressed below in the same numbering sequence received.

1). Regarding the HAC test report, please provide details of the WD's signal. Include wideband and 0 span spectrum analyzer plots. How was the signal set up and controlled? What settings were used i.e. power control modes, and radio service mode. Also, please include details of what exact standard the CDMA radio is capable of using i.e. IS-95.

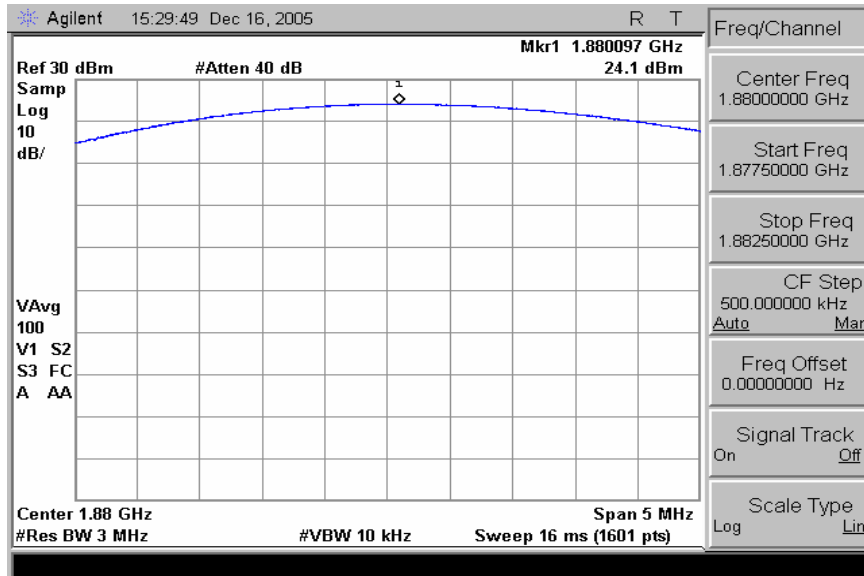
**Response:** The signal was setup by creating and maintaining an over the air connection between the DUT and an Agilent 8960 Wireless Communications Test Set. The test equipment was configured to use "all up bits" for RC1 / SO2 on J-STD-008 for CDMA 1900 and TSB-84 for CDMA 800 MHz. Below are the wideband and 0 span spectrum analyzer plots. The CDMA radio is available on CDMA 2000(1X) and IS-95.



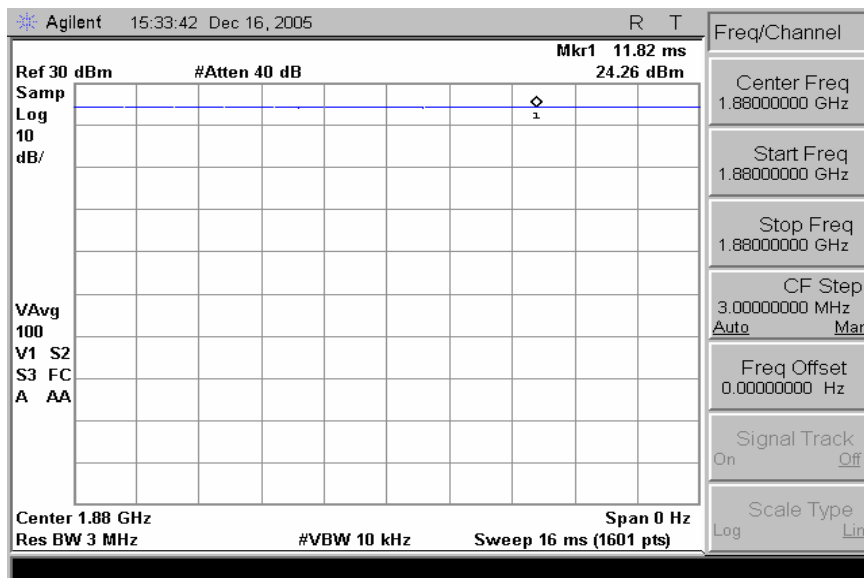
836.52 MHz (wideband)



836.52 MHz (0 span)



1882.5 MHz (wideband)



1882.5 MHz (0 span)

2). Regarding the HAC test report, please provide additional details justifying the conversion to peak; particularly the procedure used to measure power. Provide 0 span spectrum plots.

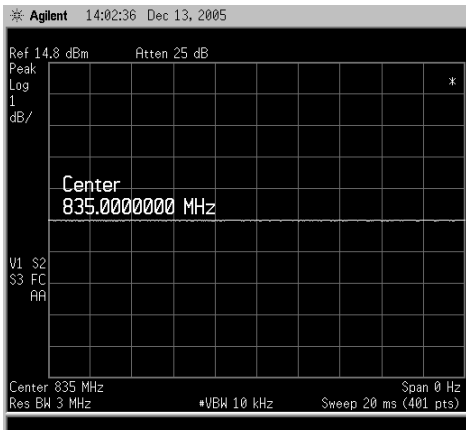
## **Response:**

### **Procedure:**

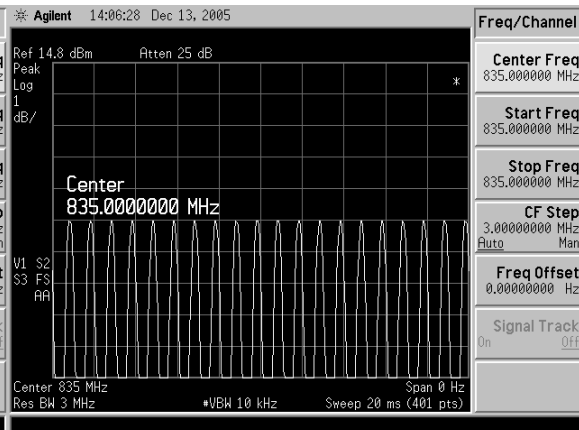
1. Setup the HAC validation rack as you would for a normal CW HAC validation with forward power = 100mW
2. Setup the dipole and phantom as you would for a normal CW HAC validation.
3. Open the "HAC Probe Mod Factor" template and verify the following parameters:  
Medium = "Air";  
Communication System = "HAC – Dipole";  
Ensure the proper probe & DAE are installed and laser aligned
4. **MEASURE CW:** Using the original CW signal, run the jobs in the "CW Measurement" procedure.
5. Do **not** turn off the signal generator power
6. **Setting the CW Reference Level on the Spectrum Analyzer:** To set the Reference level on the Spectrum Analyzer, remove the Validation Rack's Main Cable from the dipole and connect to the Spectrum Analyzer INPUT using a 10 dB attenuator and an adapter.
7. Set-Up the Spectrum Analyzer for the following Settings:  
Frequency: Freq. being tested (EX: 835/1880)  
Span: Zero Span  
Res BW: 3 MHz  
Video BW: 10 KHz  
Sweep Time: same as the table in step 5  
Scale: 1dB  
Detector: PEAK / Manual
8. Adjust REF level until the CW signal is aligned with the Center Line (approx. 15dB). NOTE: After this point, the Reference Line must remain fixed. Do not change it.
9. **MEASURE THE MODULATED SIGNAL(S):**
  - 9.1. Change the signal generator to the desired modulation.
  - 9.2. Set the Spectrum Analyzer Sweep Time to the appropriate setting.

Modulation	Sweep Time
CW	20 msec
GSM	5 msec
CDMA	5 msec
TDMA	20 msec
80%AM	20 msec
  - 9.3. With the Main cable still connected to the Spectrum Analyzer, adjust the amplitude of the power on the signal generator so that the PEAK of the modulated signal is at the CW Reference Line:
    - 9.3.1 On the Spectrum Analyzer, press the [View Trace] button and then select (Max Hold), this will show only the Peak output.
    - 9.3.2 Press (Clear Write) and then (Max Hold) each time an amplitude adjustment is made.
  - 9.4. Allow the Max Hold line to stabilize. Then check that the highest peak of the Max Hold line corresponds with the CW Reference Line (without going over). If not correct, repeat section 6.
  - 9.5. Remove the validation main cable from the spectrum analyzer and re-connect it to the Dipole.
10. Repeat 9 until all remaining modulation(S) have been completed.

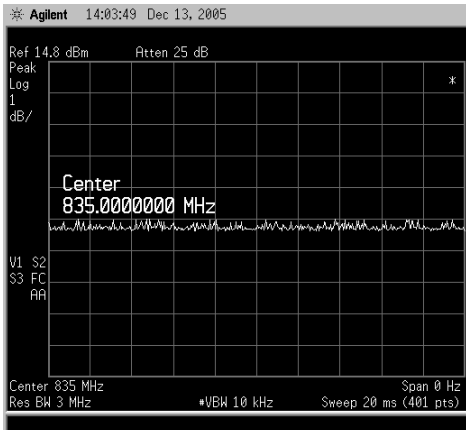
**0 span spectrum plots for 835 MHz:**



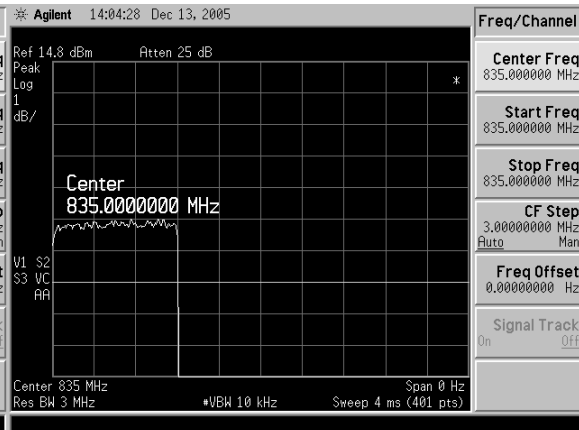
CW 835 MHz



80% AM 835 MHz

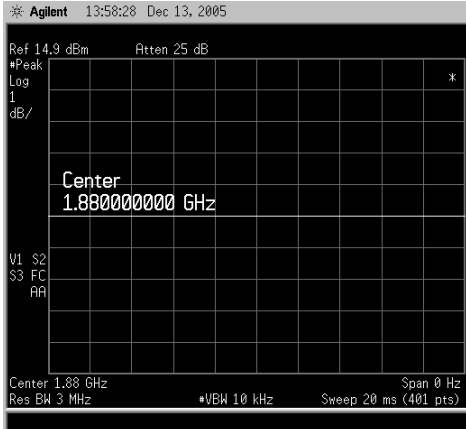


CDMA 835 MHz (full rate)

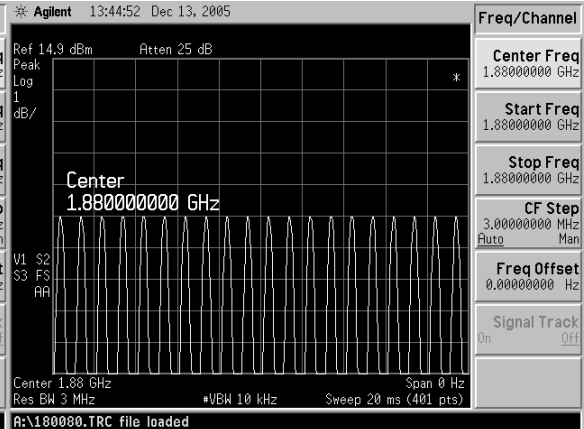


CDMA 835 MHz (1/8 rate)

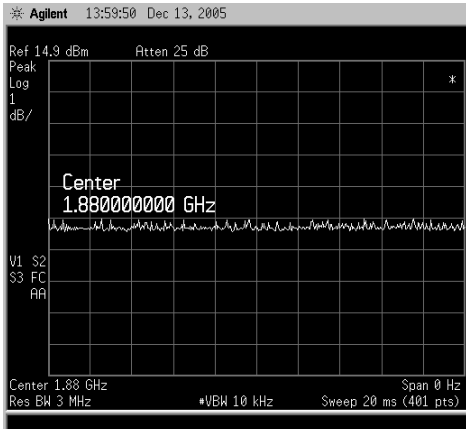
**0 span spectrum plots for 1880 MHz:**



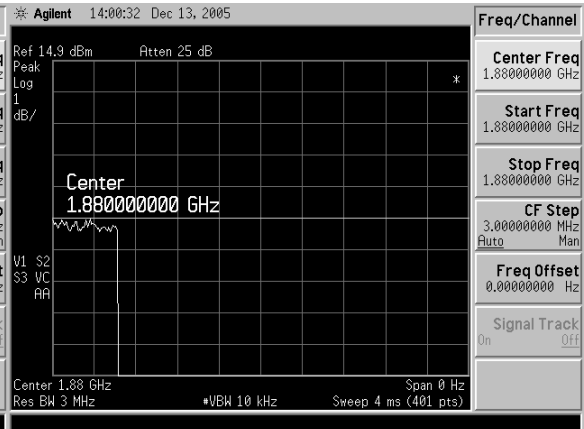
CW 1880 MHz



80% AM 1880 MHz



CDMA 1880 MHz (full rate)



CDMA 1880 MHz (1/8 rate)