

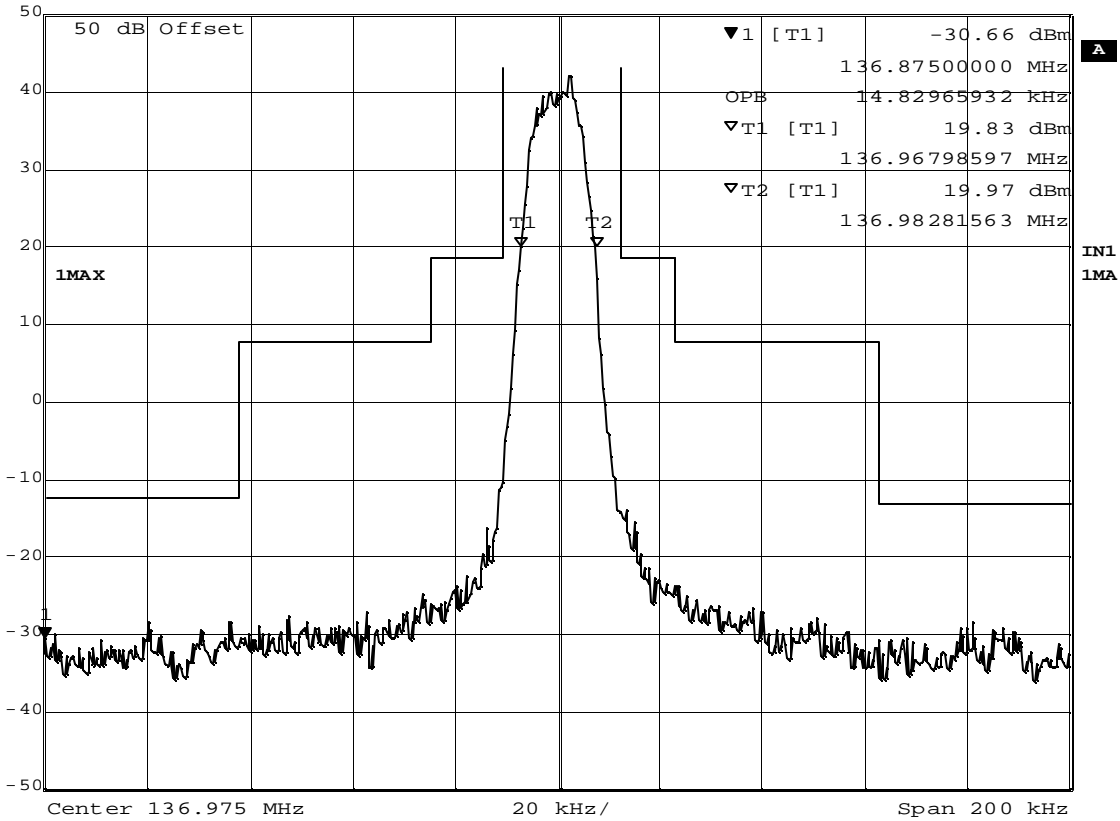
Date: 17.JAN.2006 15:42:45

MANUFACTURER : Rockwell Collins  
 MODEL NUMBER : VHF-4100/VHF-4100E  
 SERIAL NUMBER : 21H9X  
 TEST MODE : Occupied Bandwidth  
 TEST PARAMETERS : Channel 128  
 NOTES : Data Link  
 EQUIPMENT USED : RBA0, GWF2, T2D9

NOTES



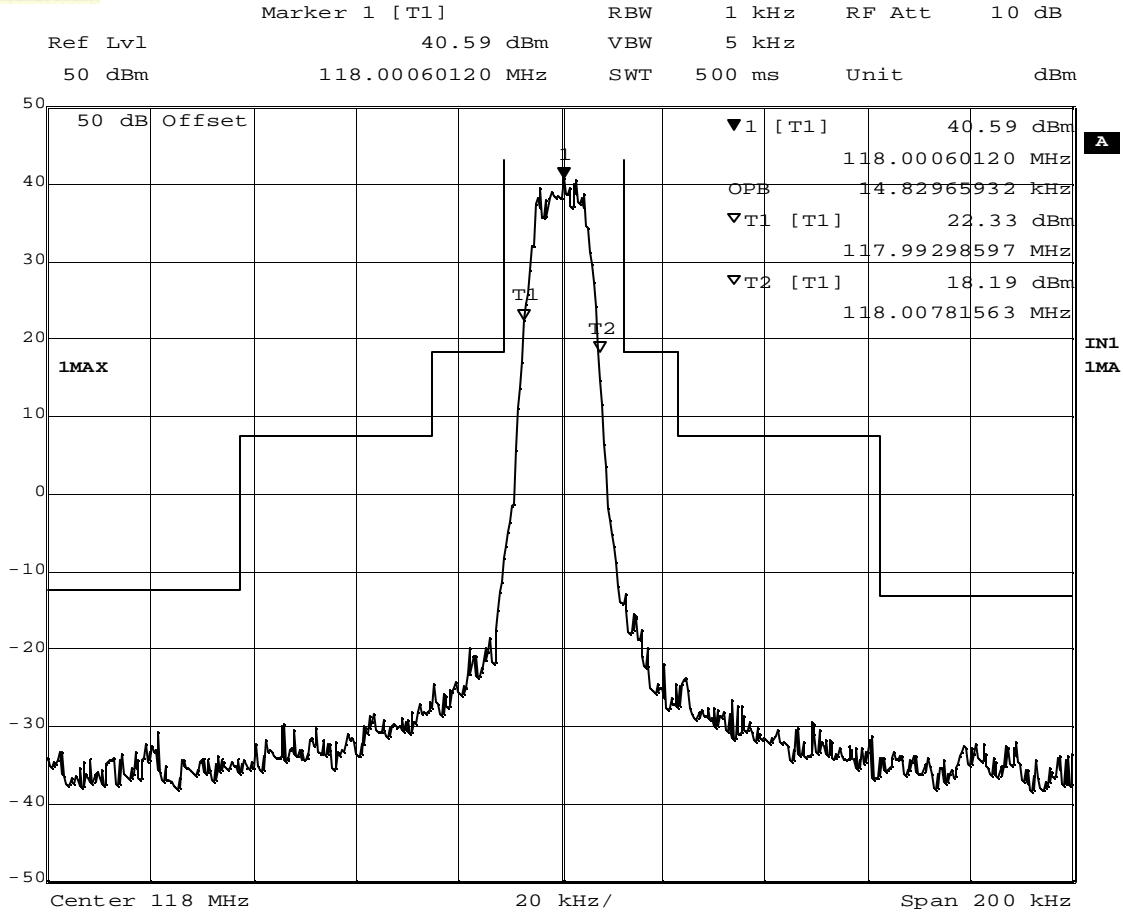
Marker 1 [T1] RBW 1 kHz RF Att 10 dB  
 Ref Lvl -30.66 dBm VBW 3 MHz  
 50 dBm 136.8750000 MHz SWT 500 ms Unit dBm



Date: 17.JAN.2006 15:45:32

MANUFACTURER : Rockwell Collins  
 MODEL NUMBER : VHF-4100/VHF-4100E  
 SERIAL NUMBER : 21H9X  
 TEST MODE : Occupied Bandwidth  
 TEST PARAMETERS : Channel 136.975  
 NOTES : Data Link  
 EQUIPMENT USED : RBA0, GWF2, T2D9

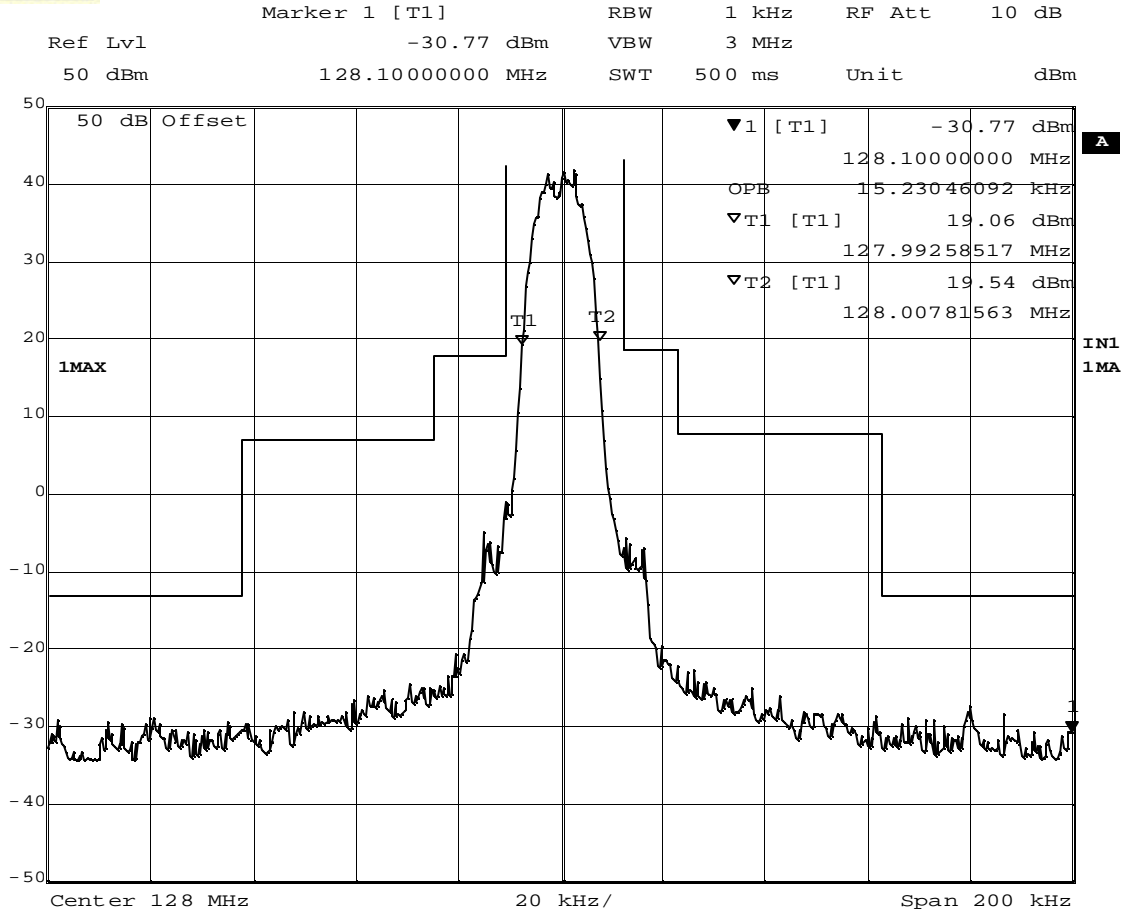
NOTES



Date: 17.JAN.2006 16:17:11

MANUFACTURER : Rockwell Collins  
 MODEL NUMBER : VHF-4100/VHF-4100E  
 SERIAL NUMBER : 21H9X  
 TEST MODE : Conducted Emissions  
 TEST PARAMETERS : Channel 118  
 NOTES : Digital Audio Link  
 EQUIPMENT USED : RBA0, GWF2, T2D9

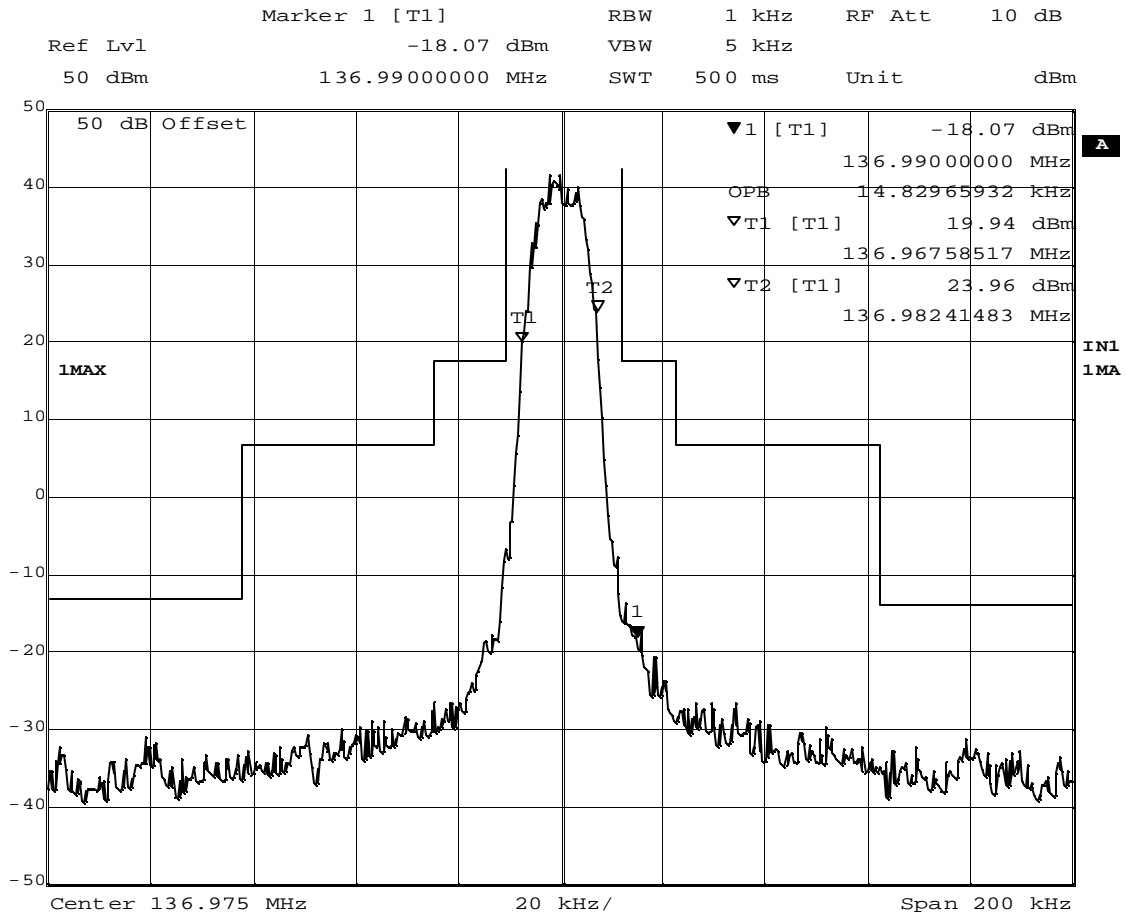
NOTES



Date: 17.JAN.2006 16:08:46

MANUFACTURER : Rockwell Collins  
 MODEL NUMBER : VHF-4100/VHF-4100E  
 SERIAL NUMBER : 21H9X  
 TEST MODE : Occupied Bandwidth  
 TEST PARAMETERS : Channel 128  
 NOTES : Digital Audio Link  
 EQUIPMENT USED : RBA0, GWF2, T2D9

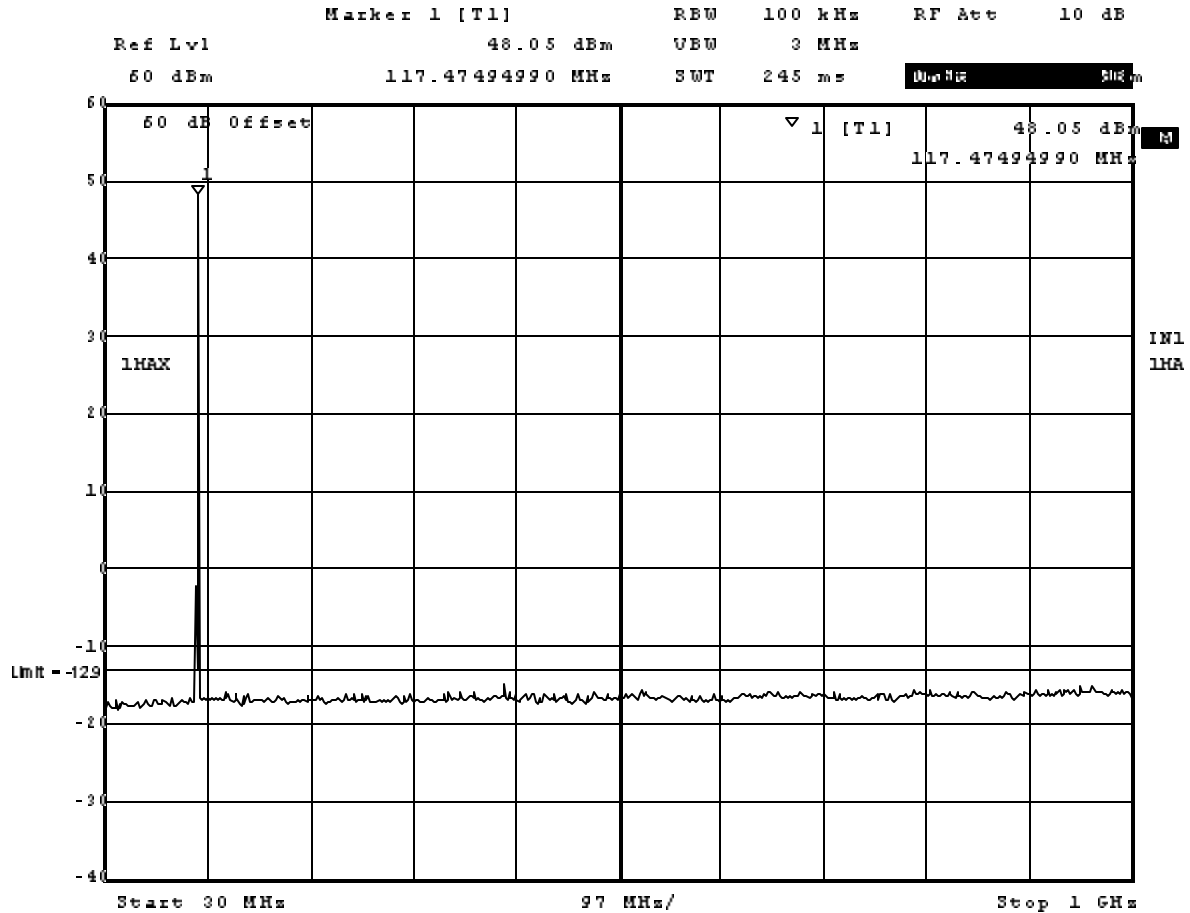
NOTES



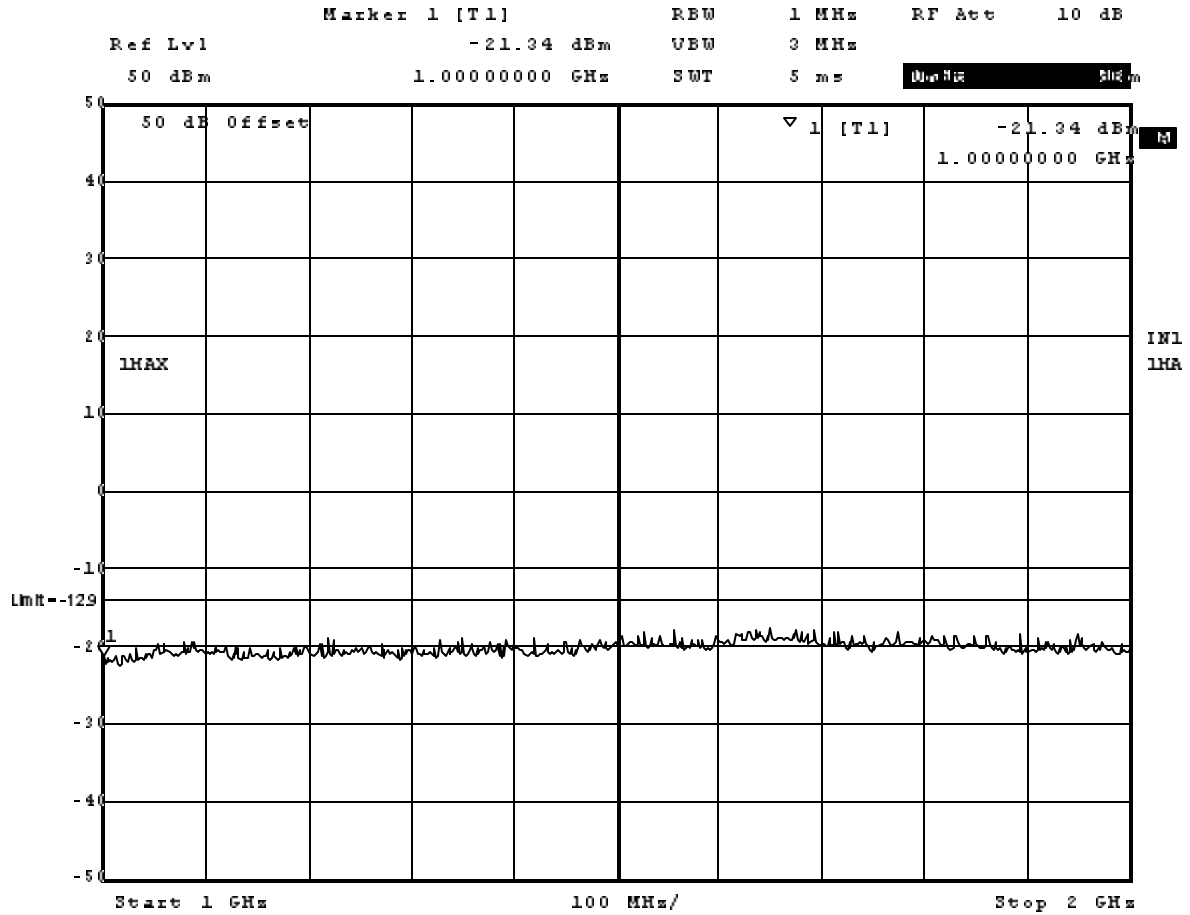
Date: 17.JAN.2006 15:59:44

MANUFACTURER : Rockwell Collins  
 MODEL NUMBER : VHF-4100/VHF-4100E  
 SERIAL NUMBER : 21H9X  
 TEST MODE : Occupied Bandwidth  
 TEST PARAMETERS : Channel 136.975  
 NOTES : Digital Audio Link  
 EQUIPMENT USED : RBA0, GWF2, T2D9

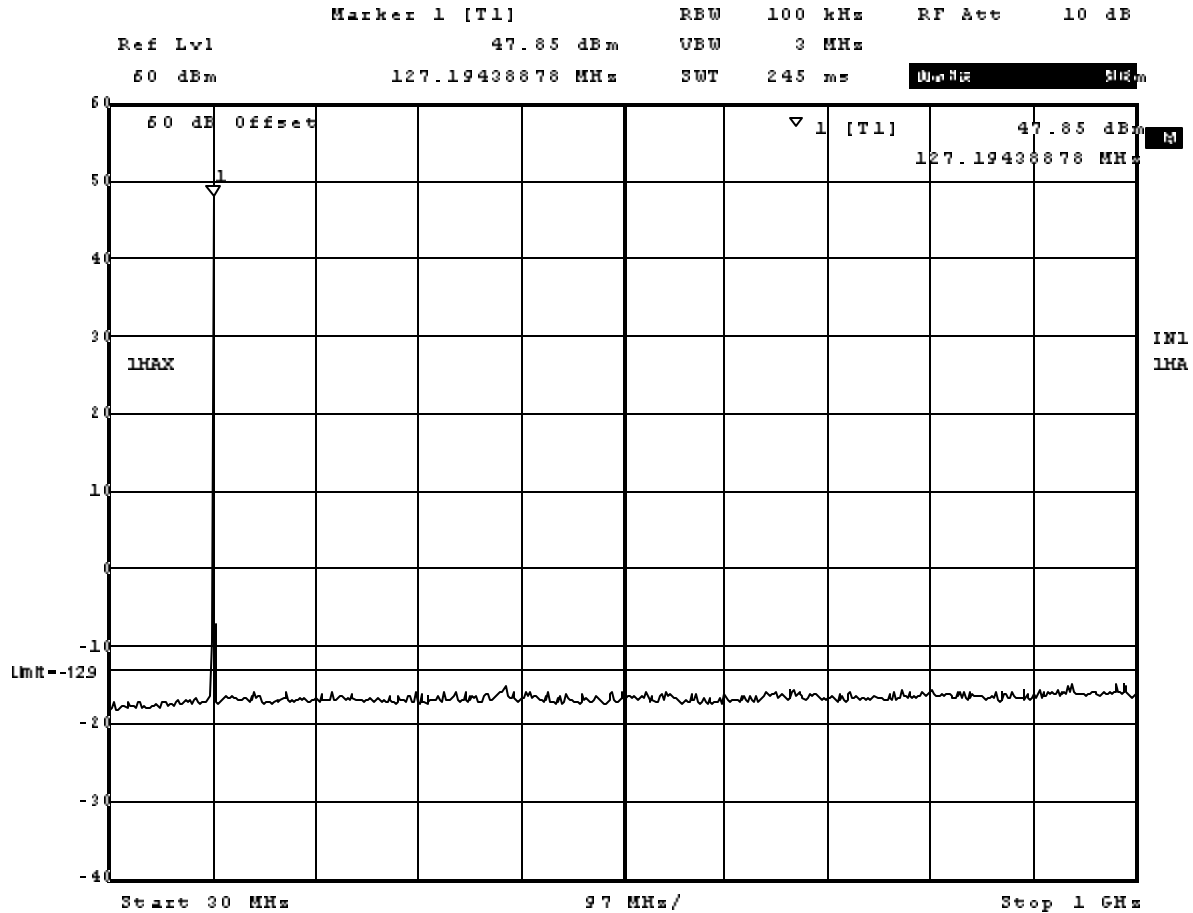
NOTES



Date: 19.JAN.2006 12:46:04

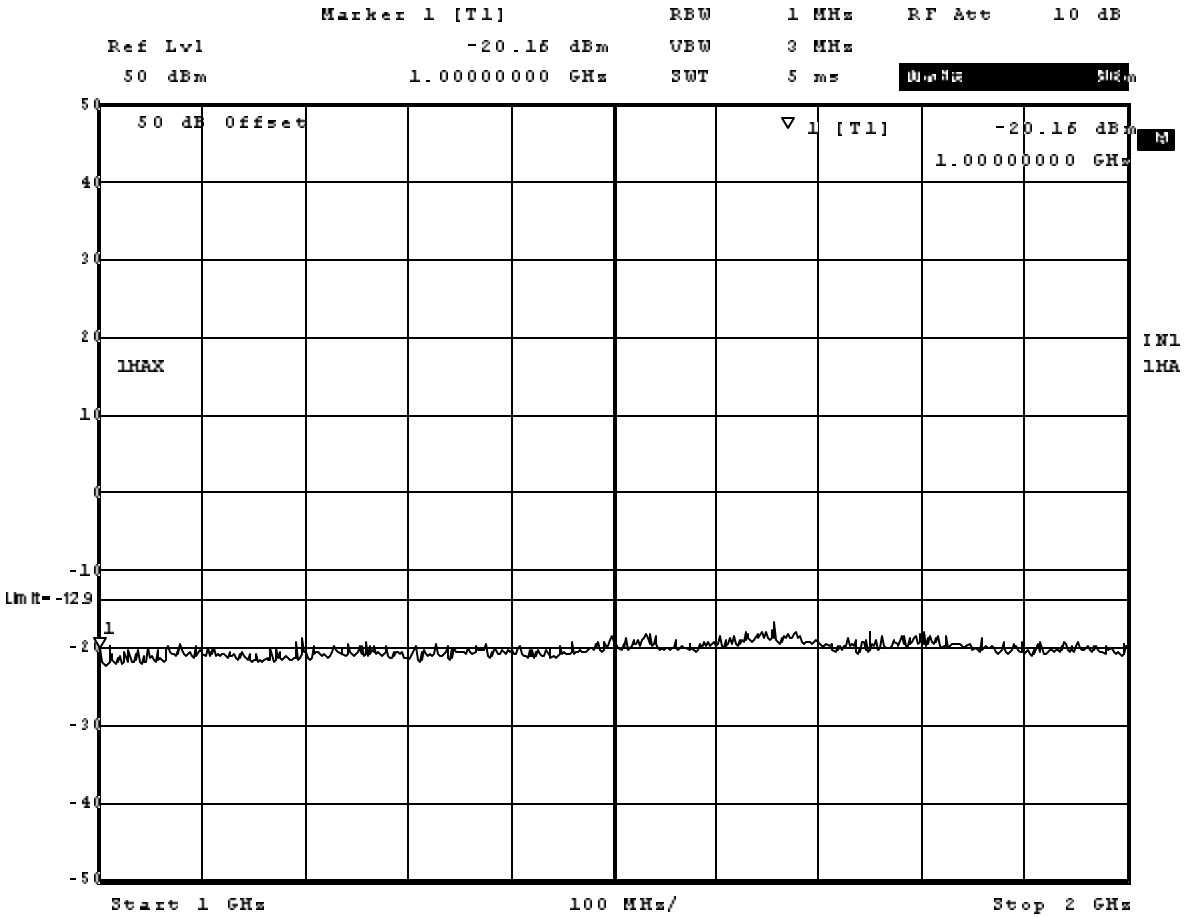


Date: 17.JAN.2006 14:50:43

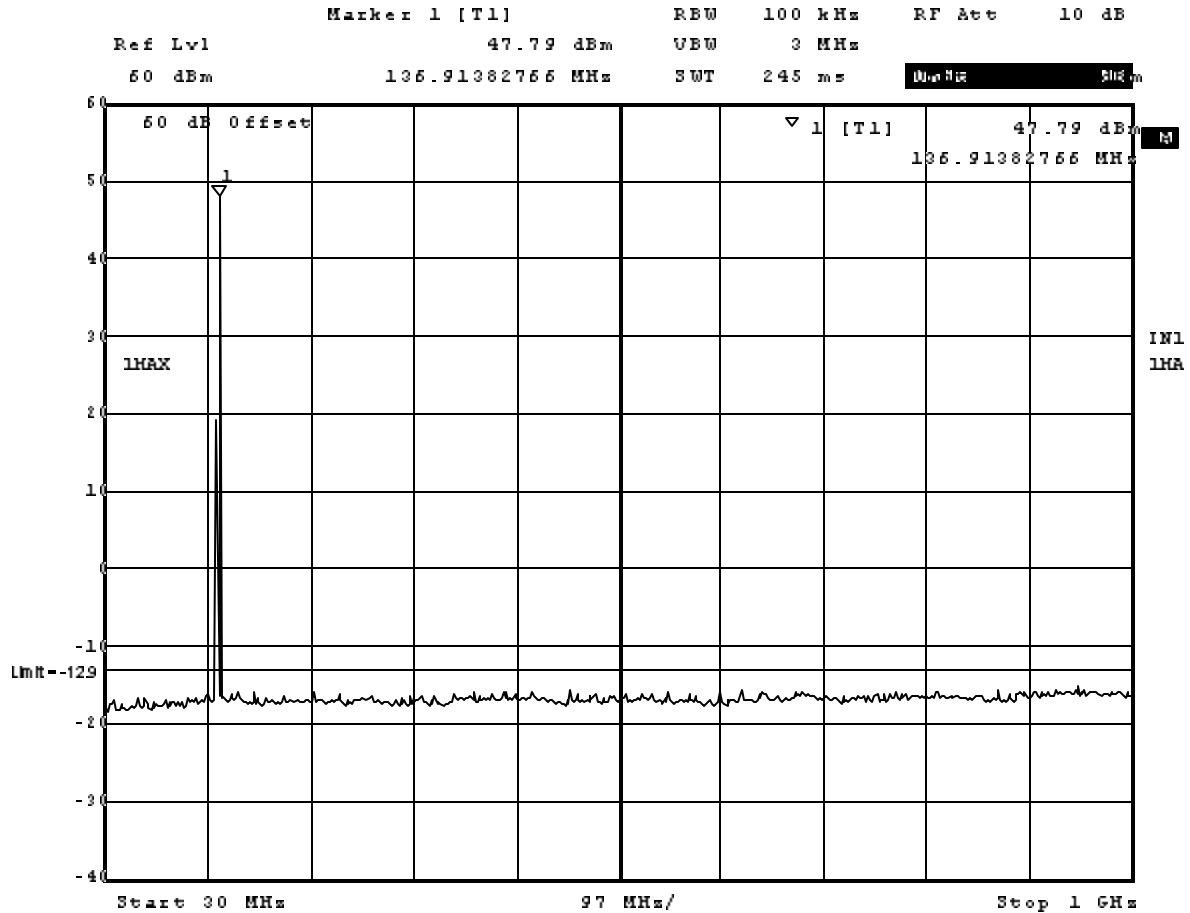


Date: 19 JAN 2006 12:49:28

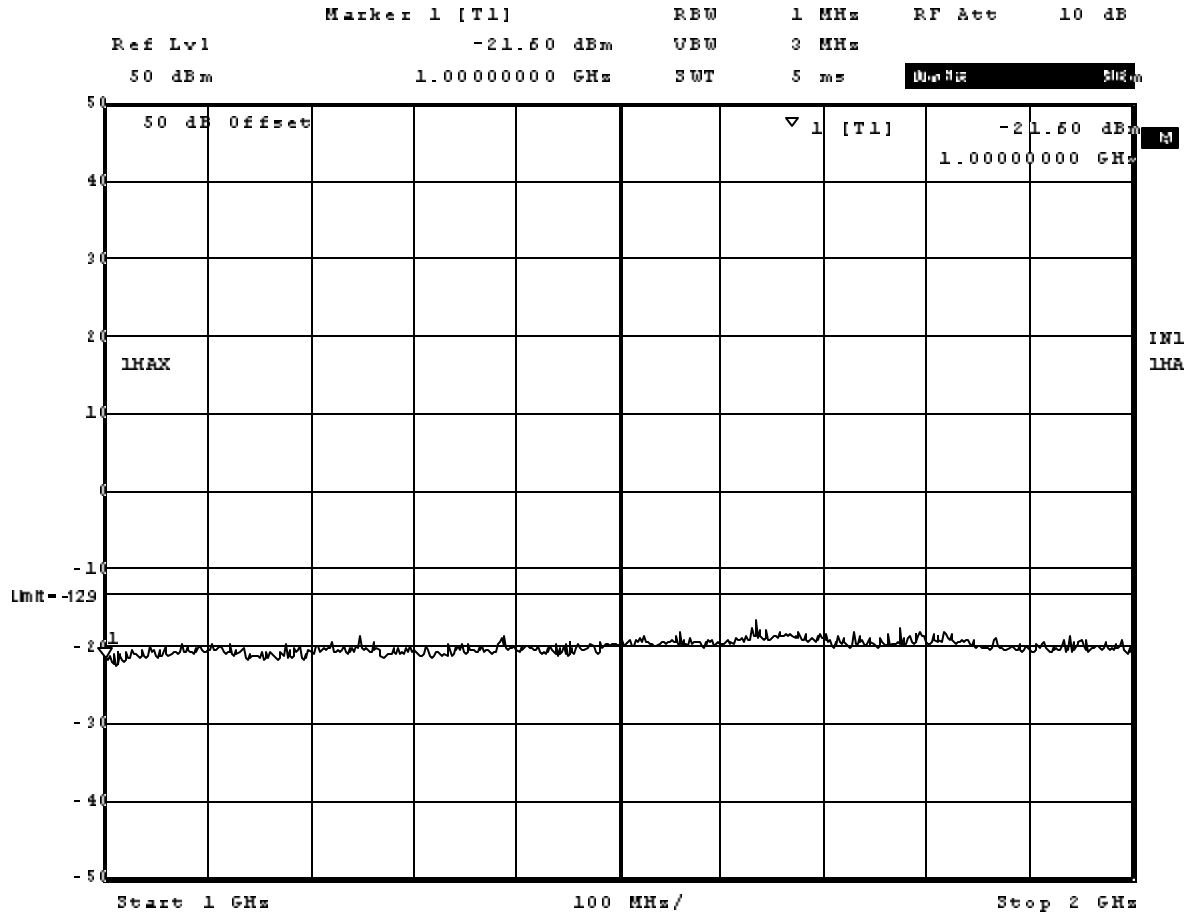




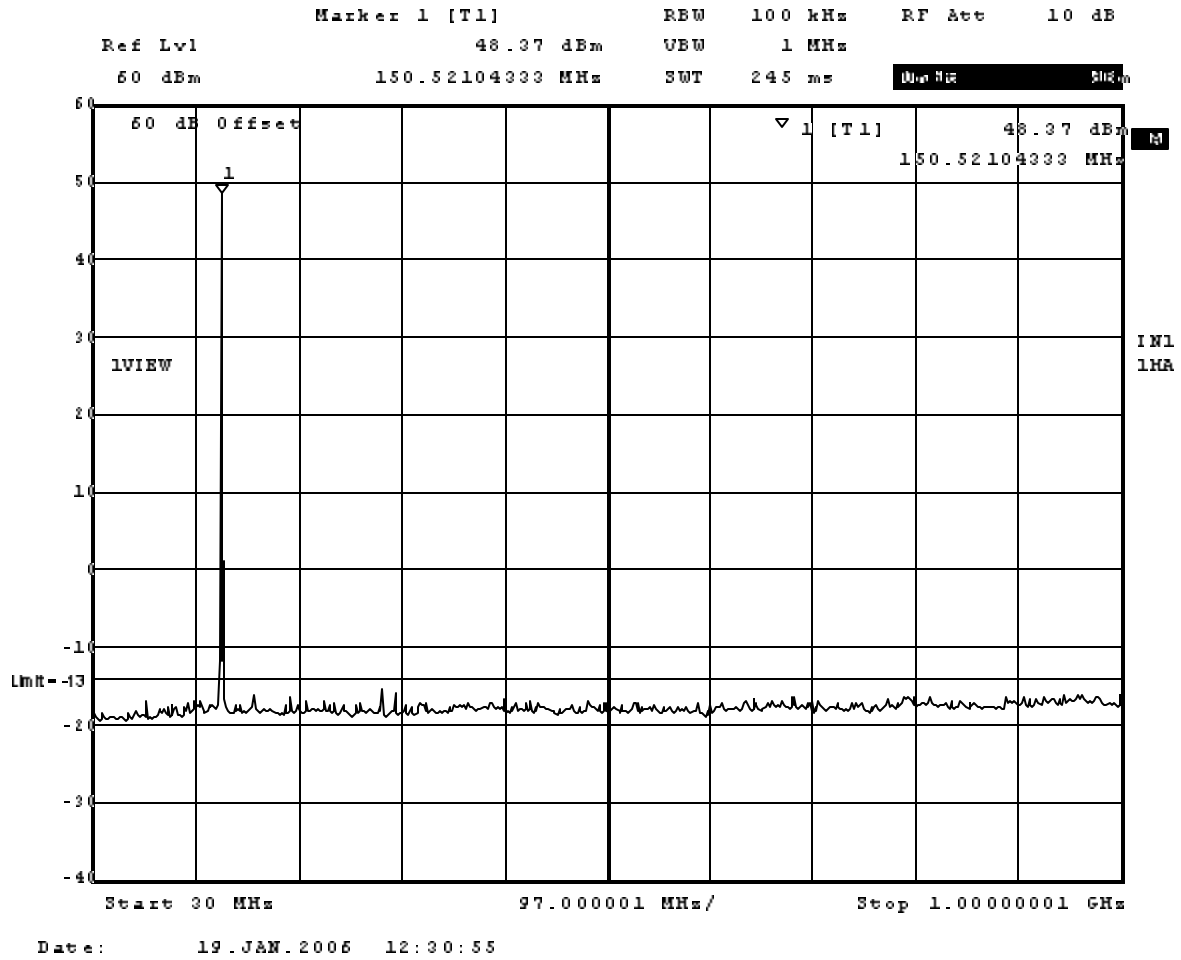
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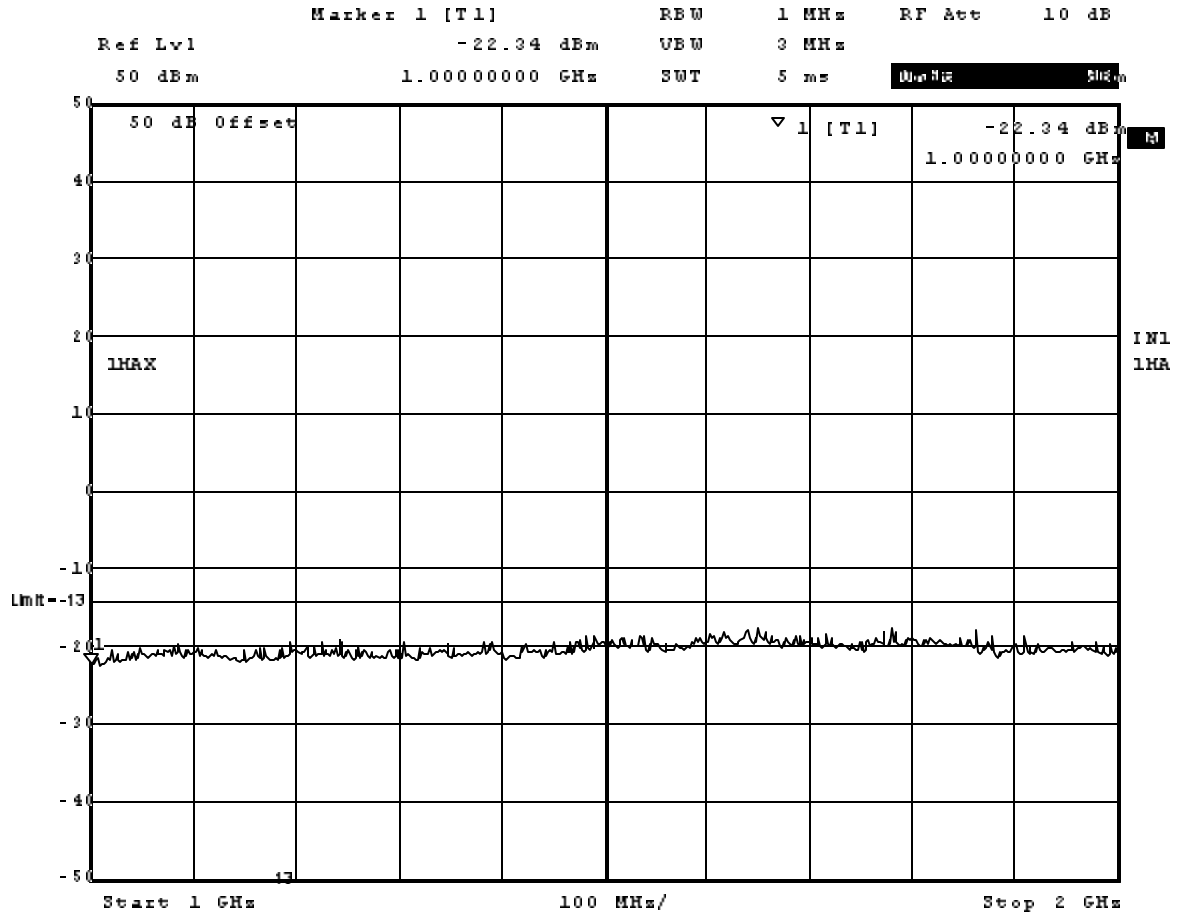


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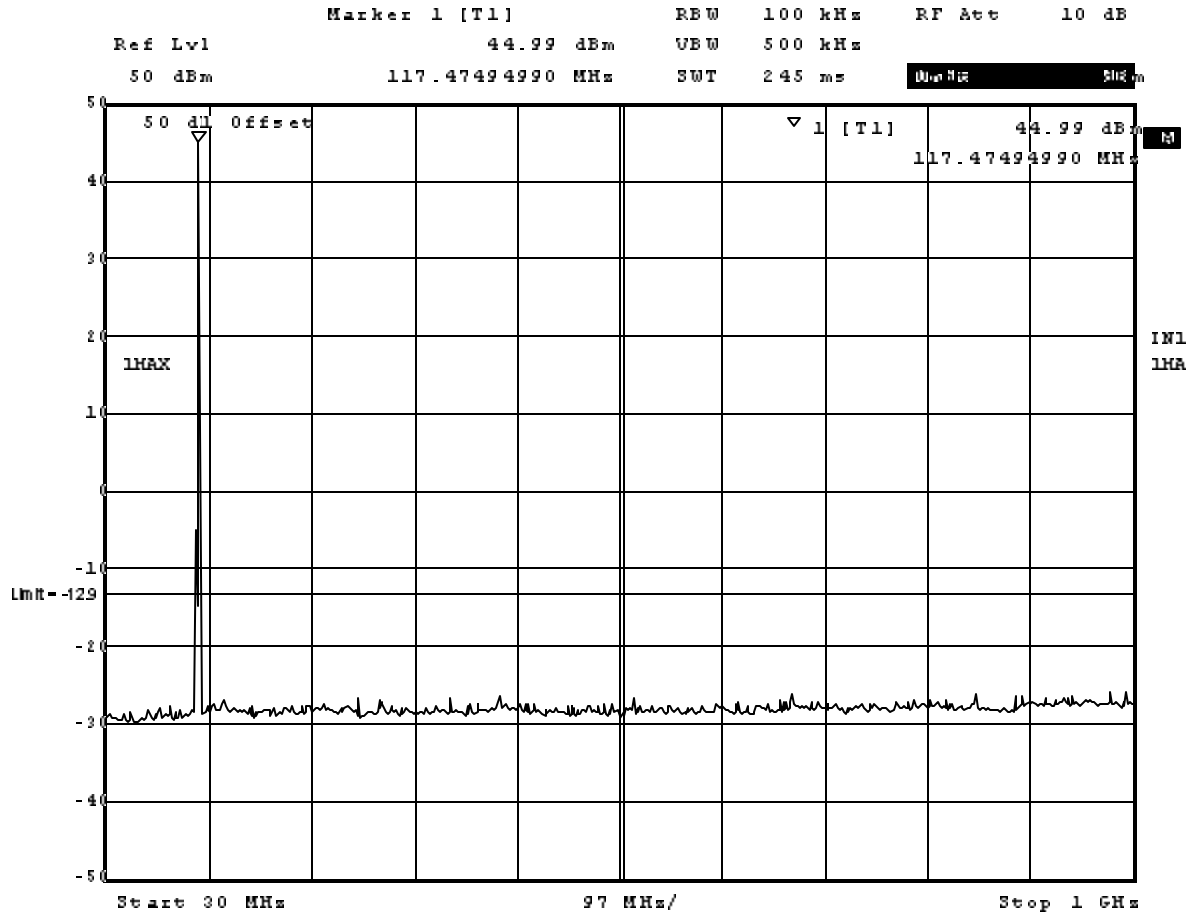


Date: 17.JAN.2006 14:40:48

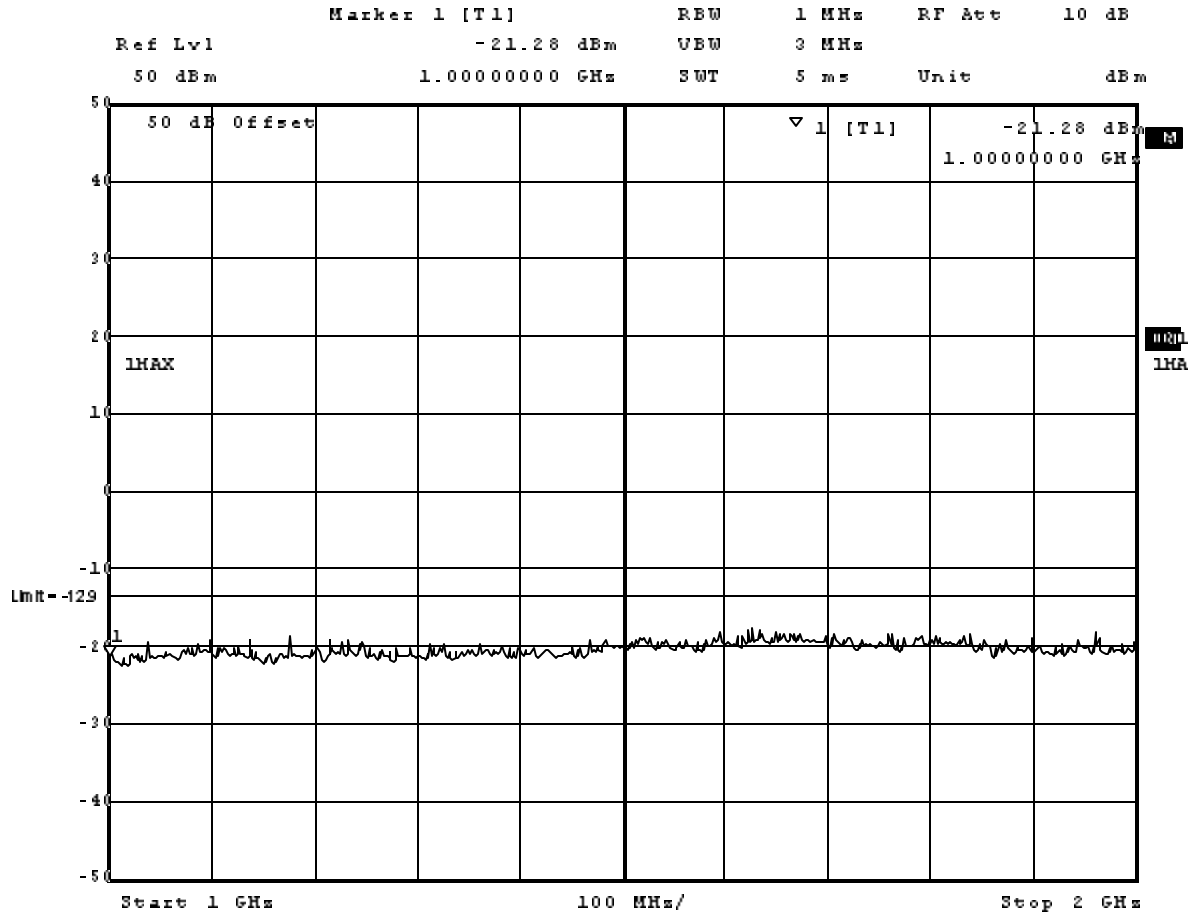




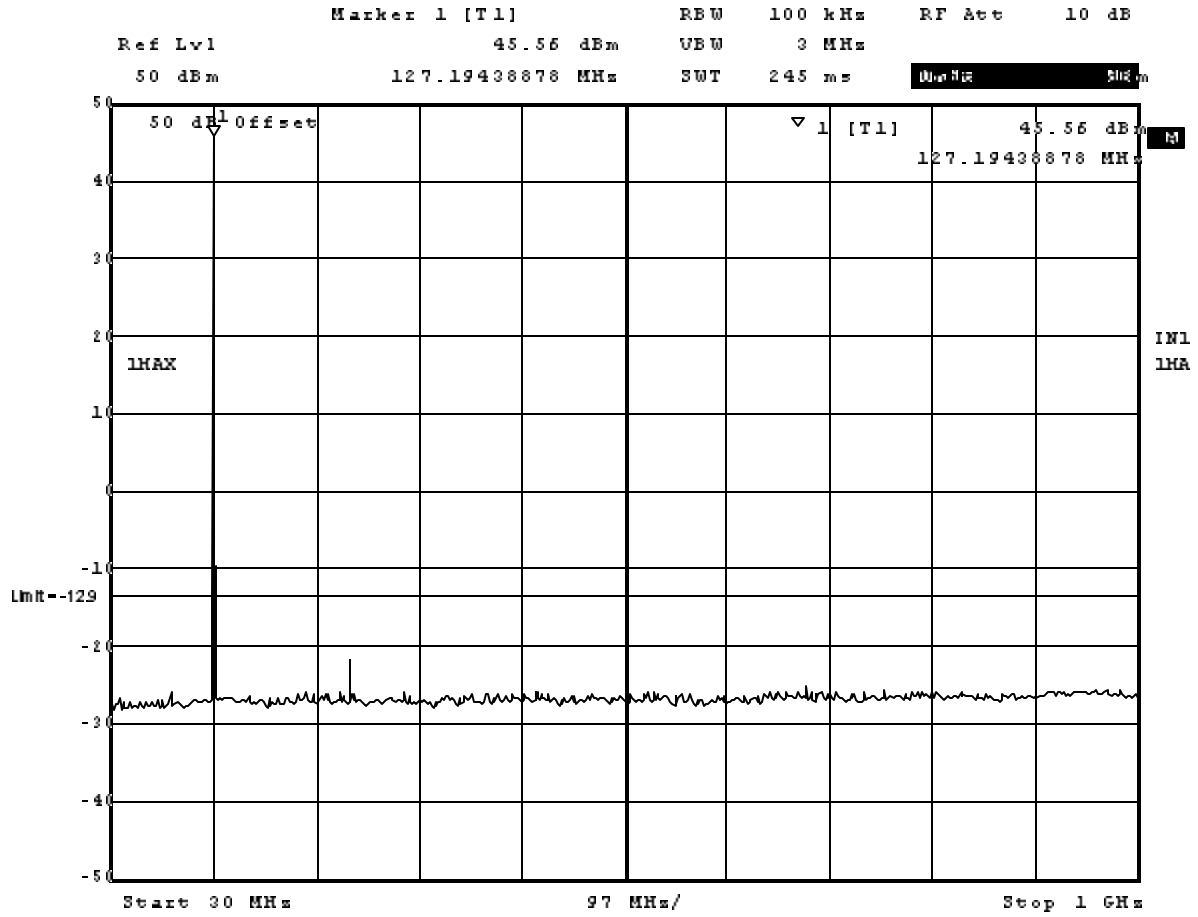
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Date: 17.JAN.2006 15:32:37

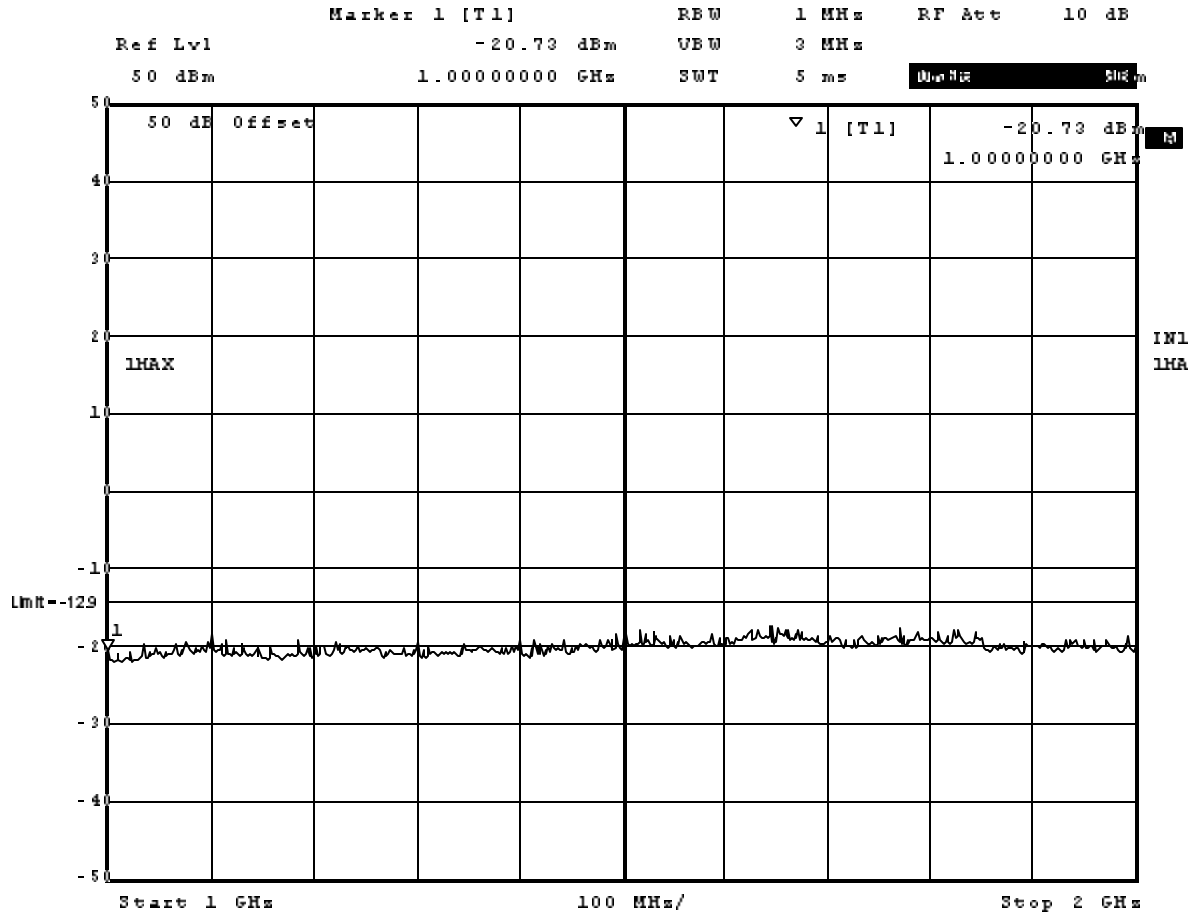


Date: 17.JAN.2006 15:34:01

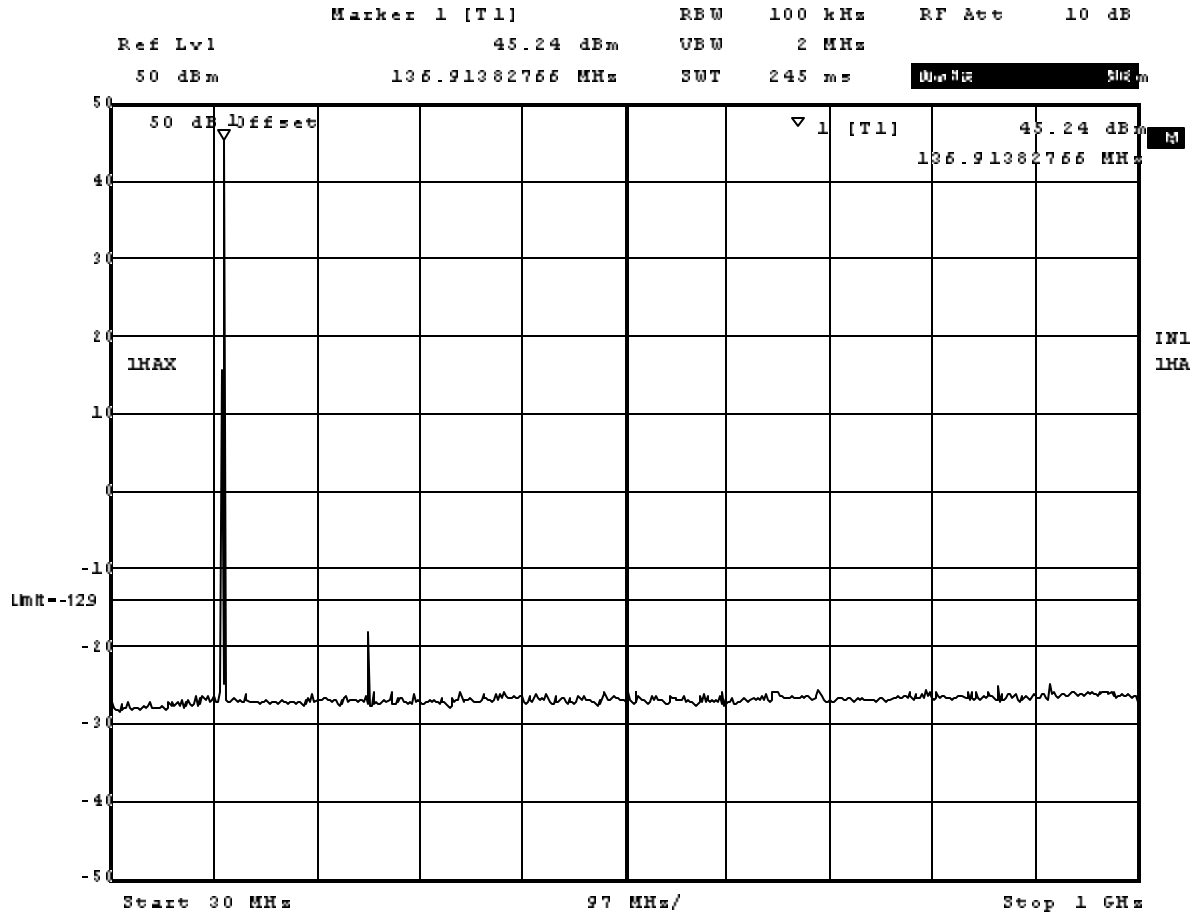


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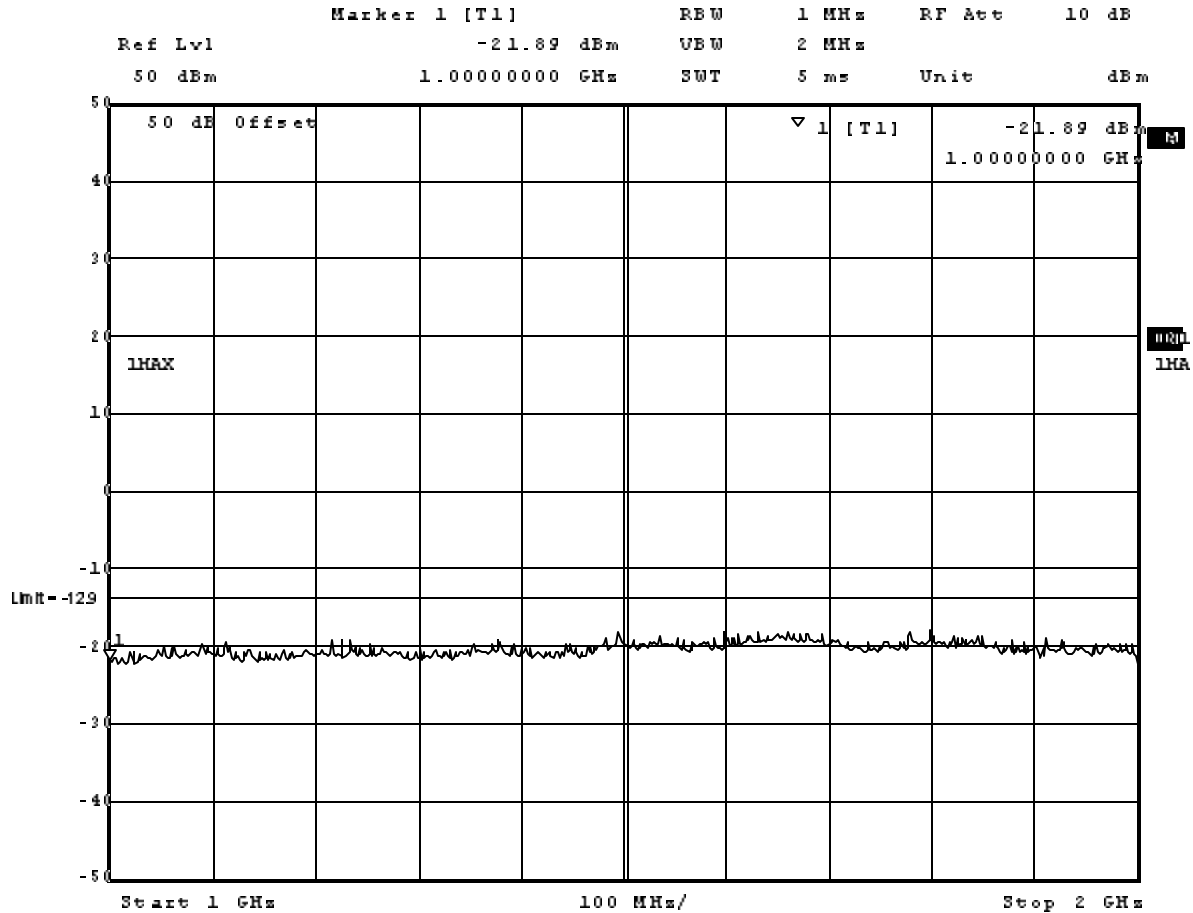




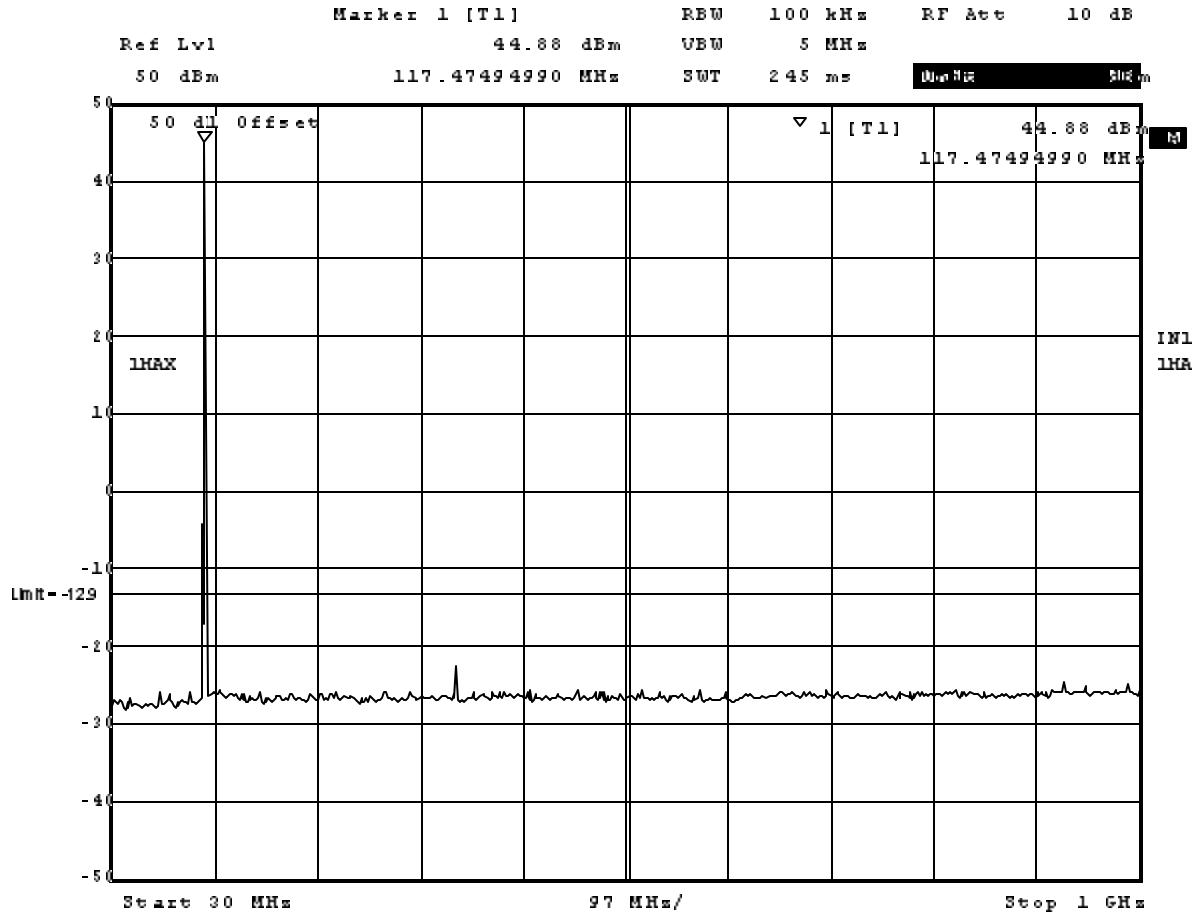
Date: 17.JAN.2006 15:39:47



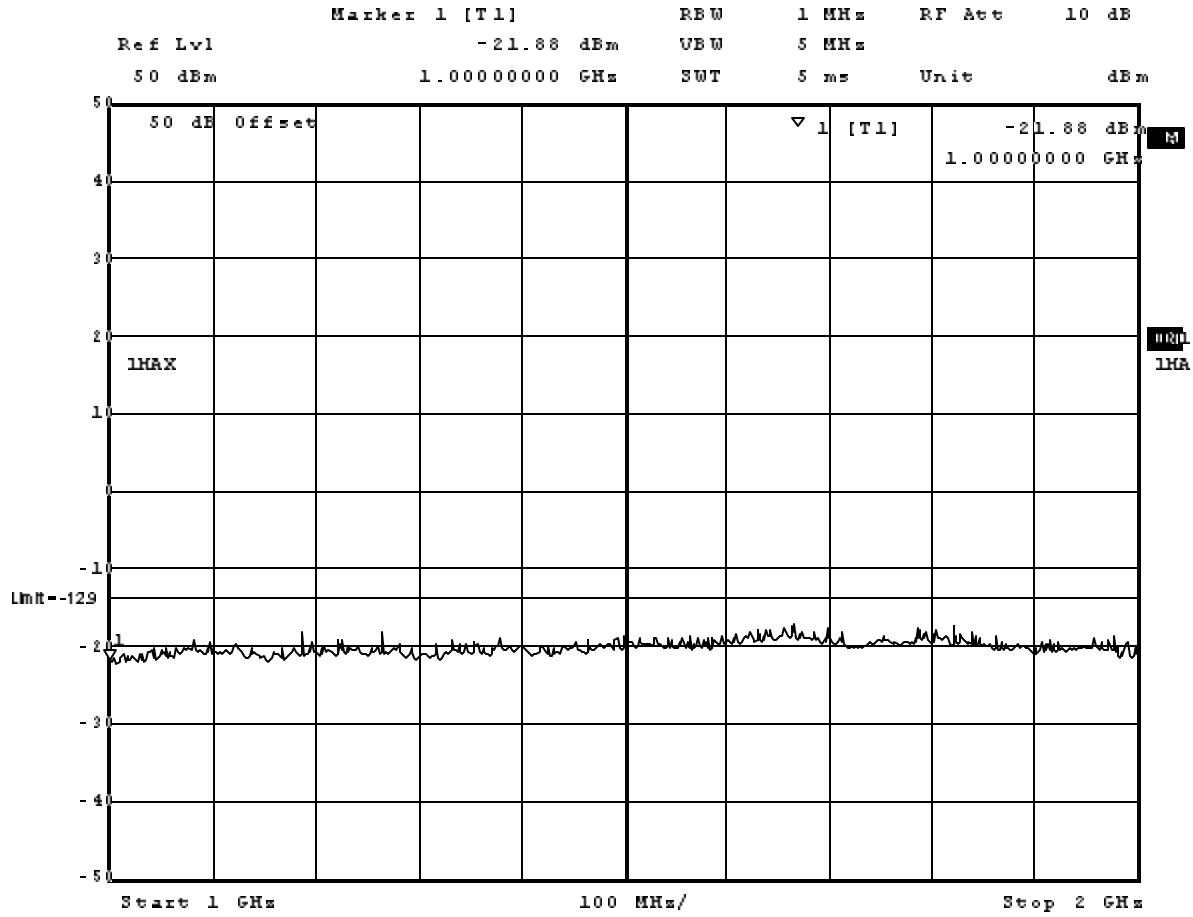
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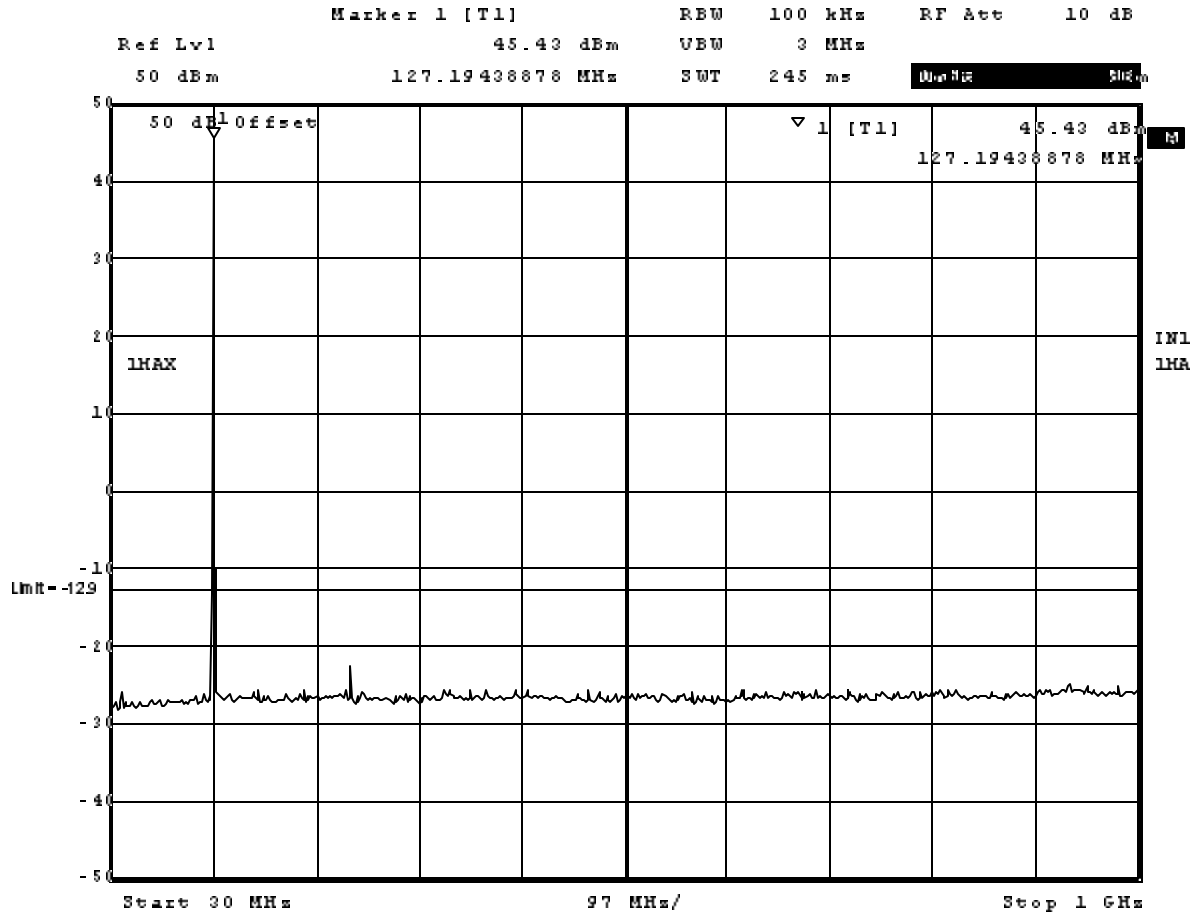
Date: 17.JAN.2006 15:51:13



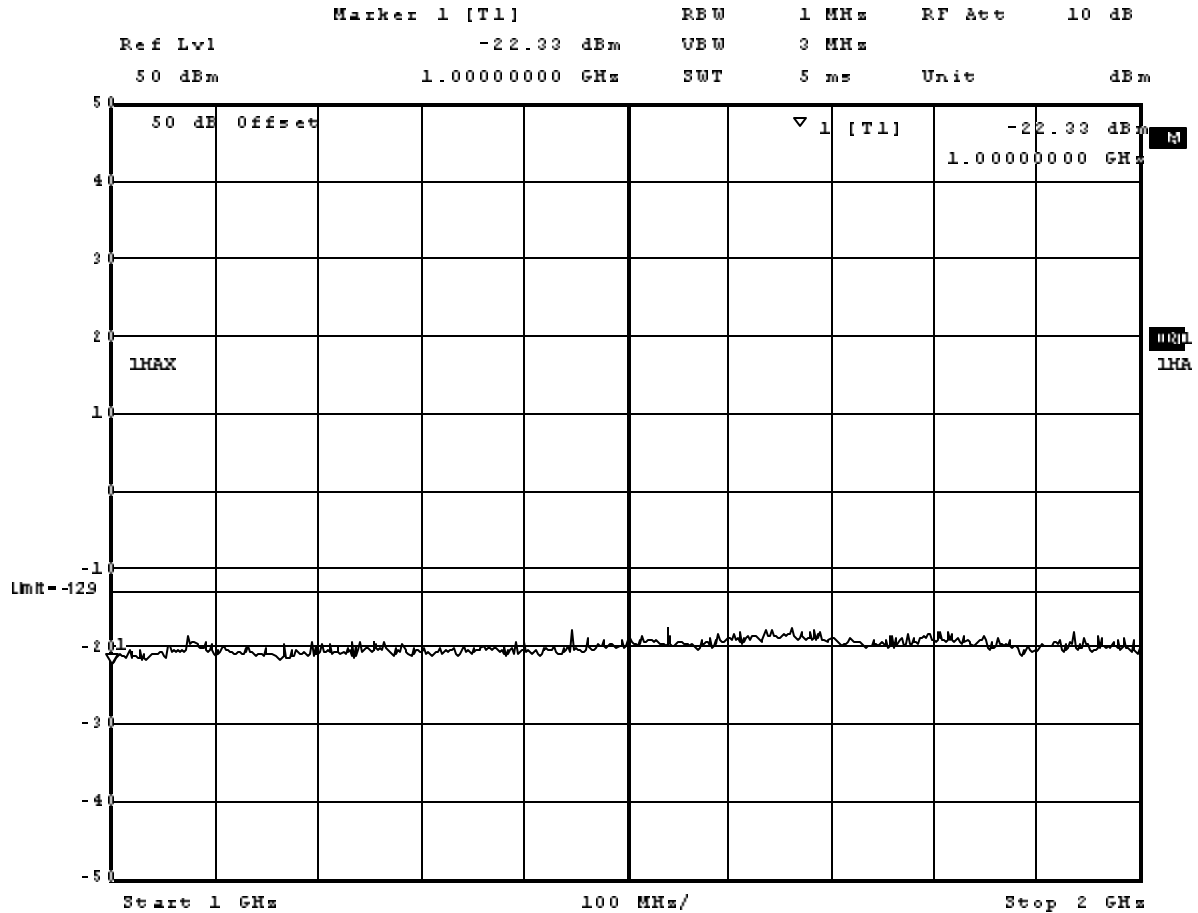
Date: 17.JAN.2006 16:19:24



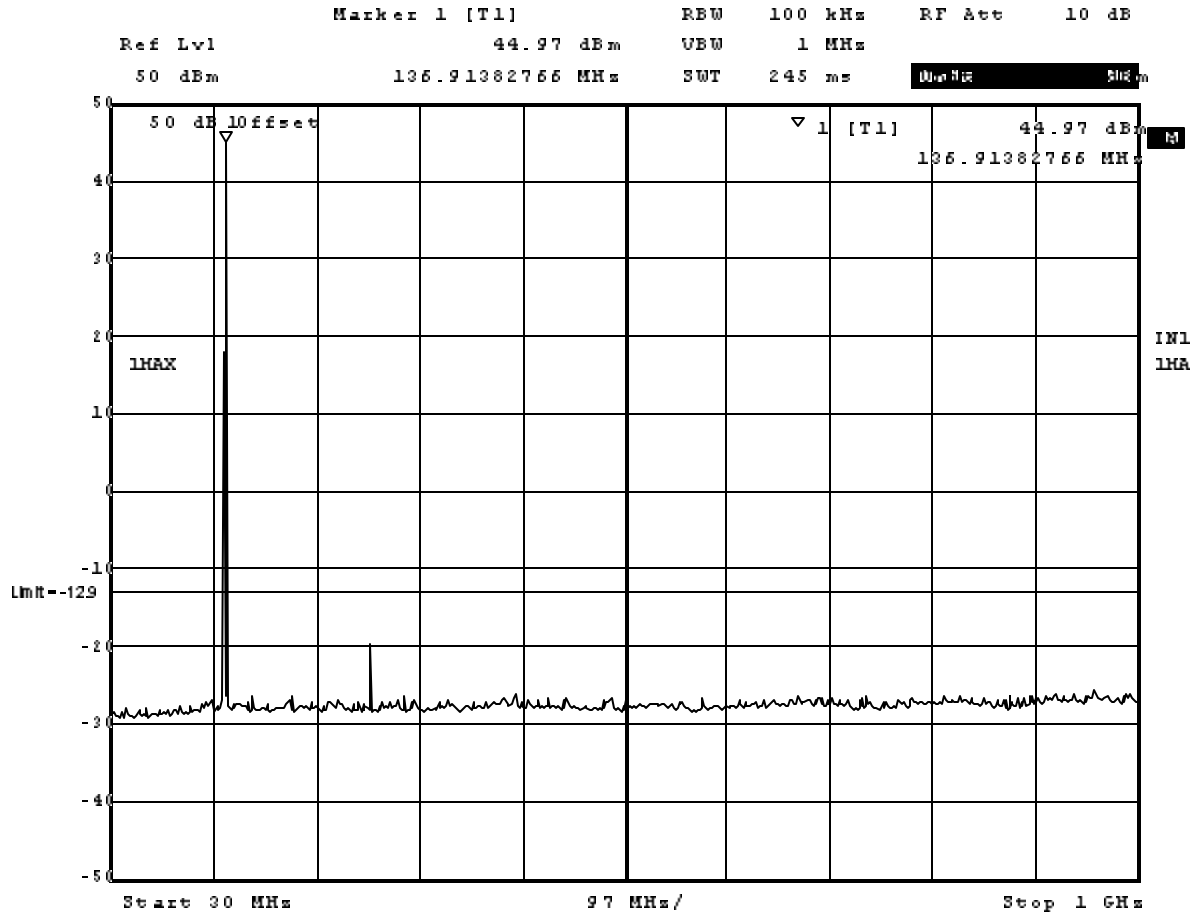
Date: 17.JAN.2006 16:21:02



Date: 17.JAN.2006 16:12:47

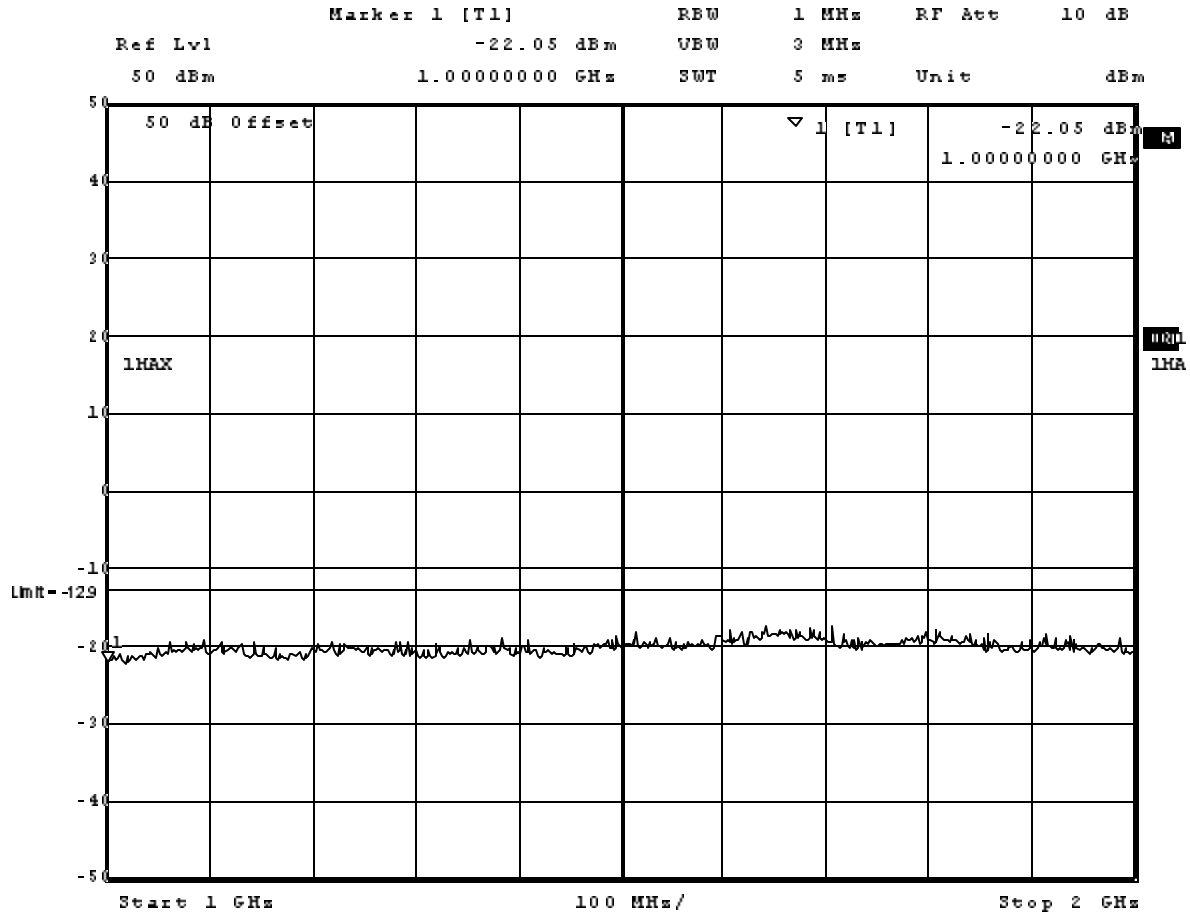


Date: 17.JAN.2006 16:14:47

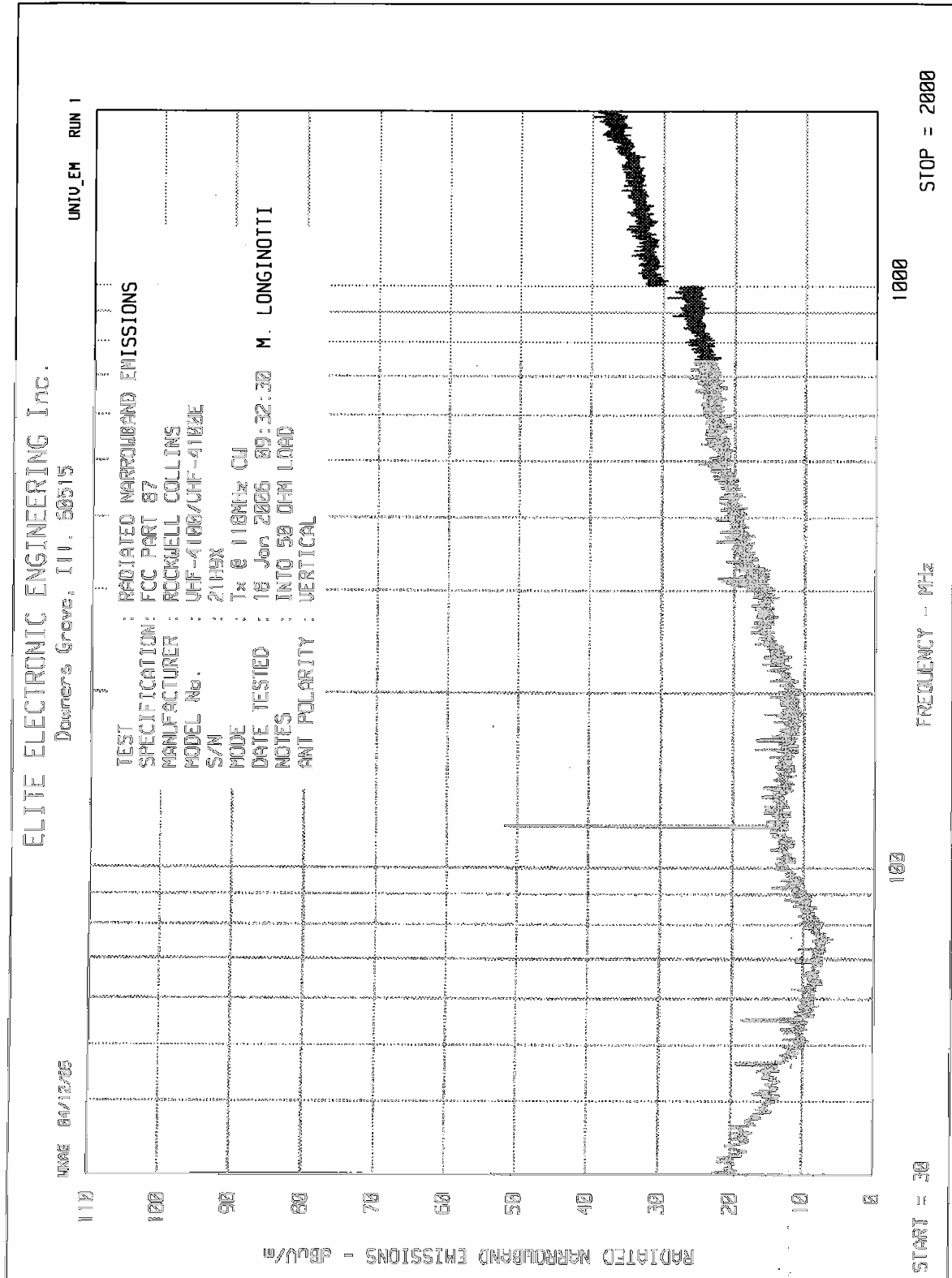


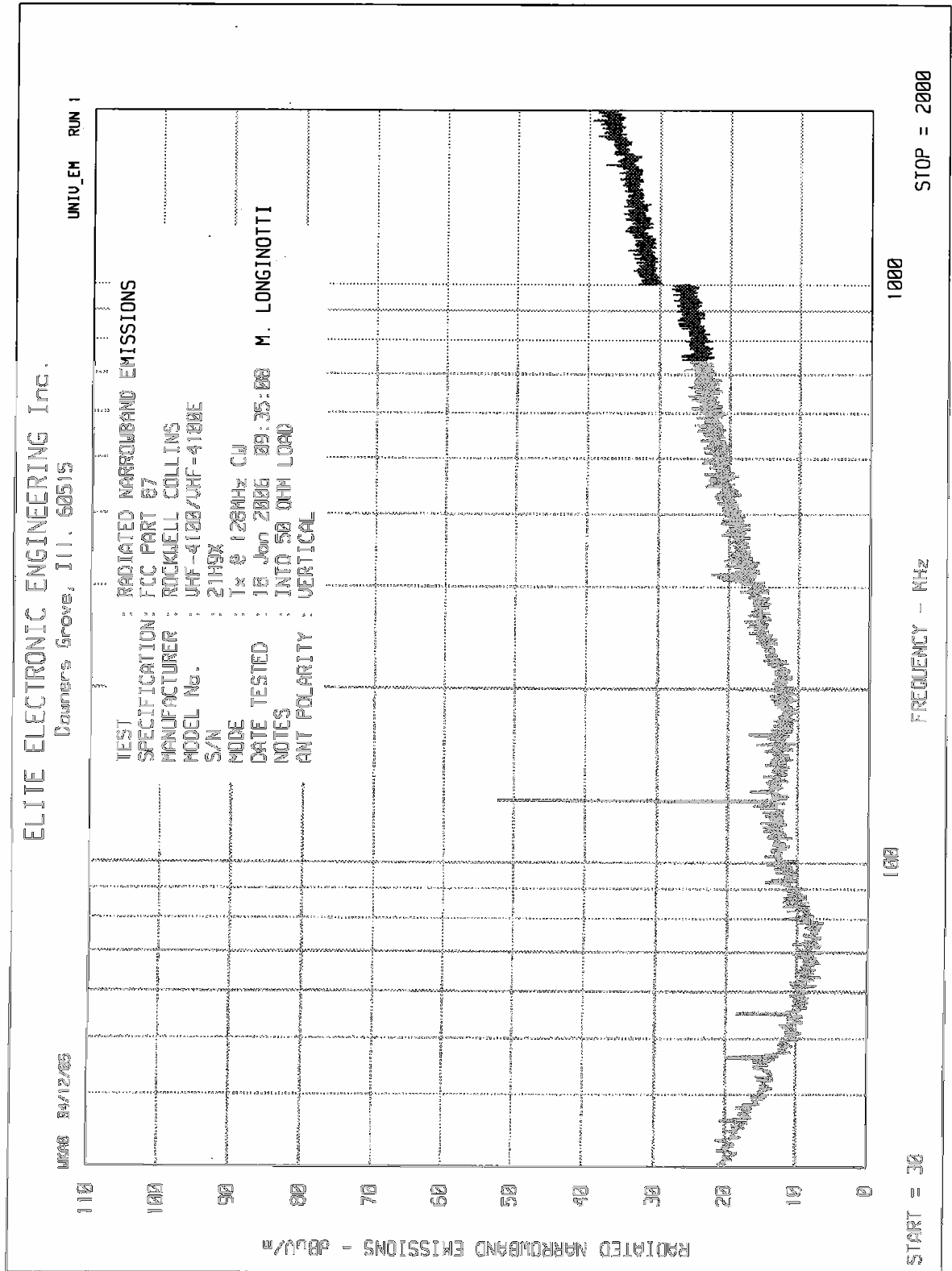
Date: 17.JAN.2006 16:02:35

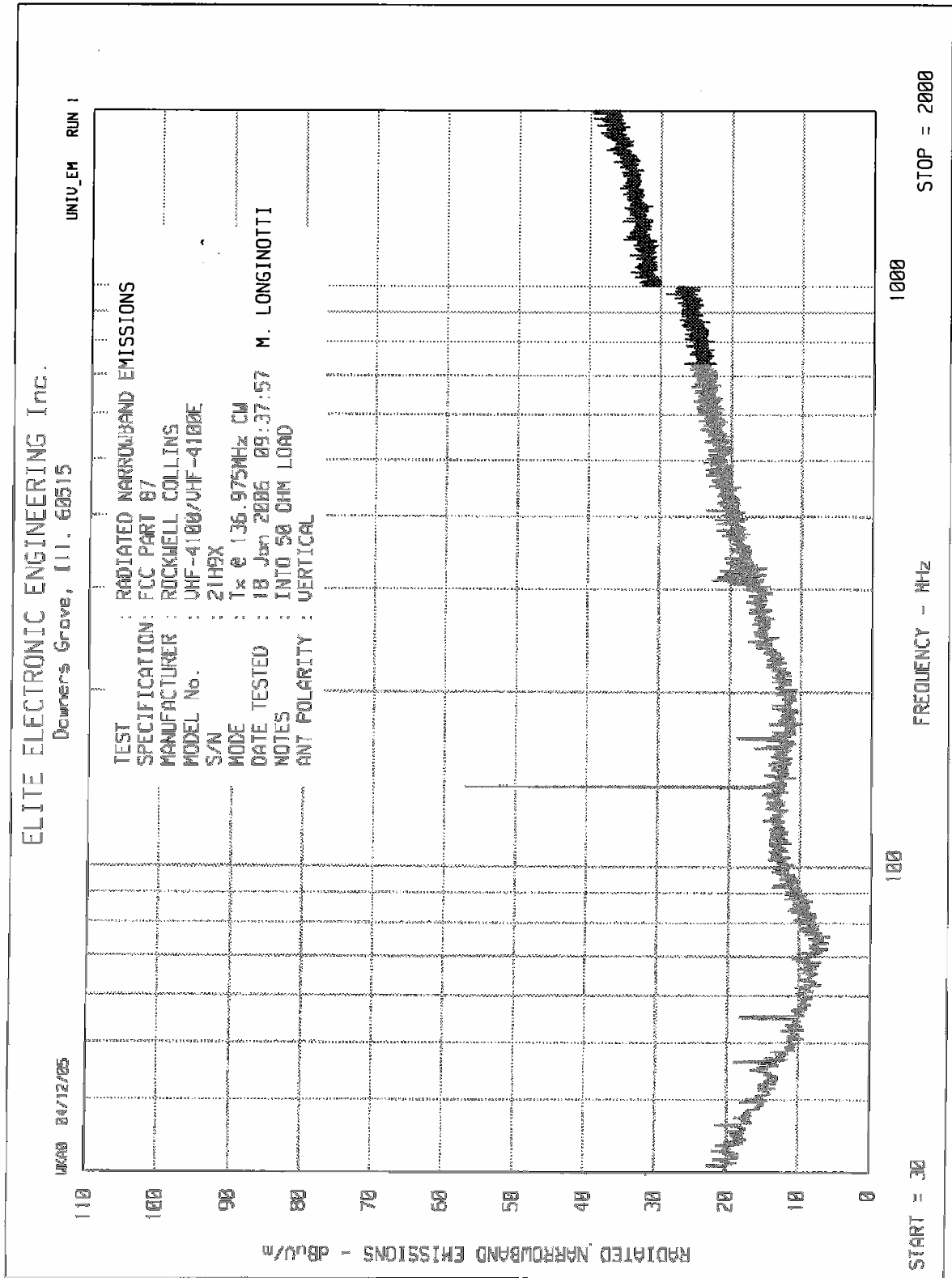


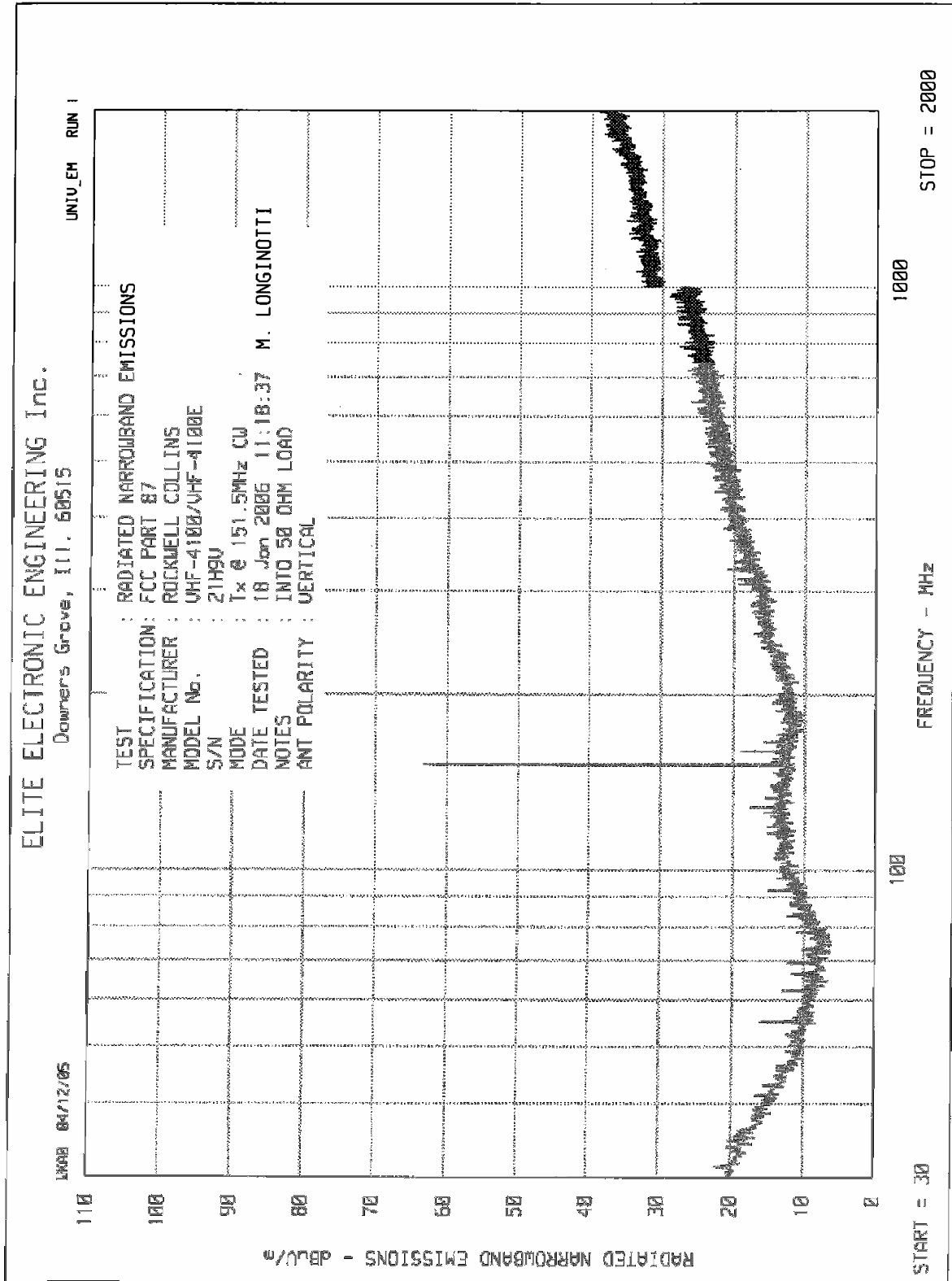


Date: 17.JAN.2006 16:04:24











MANUFACTURER : Rockwell Collins  
MODEL : VHF-4100/VHF-4100E  
SERIAL NO. : 21H9X  
SPECIFICATION : FCC Part 87 Spurious Radiated Emissions  
DATE : January 18 and 19, 2006  
NOTES : Transmit at 118MHz  
: Test Distance is 3 meters

| Frequency MHz | Antenna Polarity | Meter Reading dBuV | Ambient | Matched Signal dBm | Antenna Gain dB | Cable Loss dB | ERP dBm | Limit dBm |
|---------------|------------------|--------------------|---------|--------------------|-----------------|---------------|---------|-----------|
| 236           | H                | 4.5                | Ambient | -83.3              | 0.0             | 1.5           | -84.8   | -13.0     |
|               | V                | 3.3                | Ambient | -76                | 0.0             | 1.5           | -77.5   | -13.0     |
| 354           | H                | 4.9                | Ambient | -78.1              | 0.0             | 1.6           | -79.7   | -13.0     |
|               | V                | 5.3                | Ambient | -77.2              | 0.0             | 1.6           | -78.8   | -13.0     |
| 472           | H                | 5.3                | Ambient | -73.8              | 0.0             | 2             | -75.8   | -13.0     |
|               | V                | 5.9                | Ambient | -73.5              | 0.0             | 2             | -75.5   | -13.0     |
| 590           | H                | 4.8                | Ambient | -72.8              | 0.0             | 2.3           | -75.1   | -13.0     |
|               | V                | 5.6                | Ambient | -70.8              | 0.0             | 2.3           | -73.1   | -13.0     |
| 708           | H                | 5                  | Ambient | -72.4              | 0.0             | 2.6           | -75.0   | -13.0     |
|               | V                | 4.7                | Ambient | -71.6              | 0.0             | 2.6           | -74.2   | -13.0     |
| 826           | H                | 4.7                | Ambient | -71                | 0.0             | 2.8           | -73.8   | -13.0     |
|               | V                | 4.6                | Ambient | -69.3              | 0.0             | 2.8           | -72.1   | -13.0     |
| 944           | H                | 4.6                | Ambient | -69                | 0.0             | 3             | -72.0   | -13.0     |
|               | V                | 4.4                | Ambient | -65.4              | 0.0             | 3             | -68.4   | -13.0     |
| 1062          | H                | 45.1               | Ambient | -63.5              | 2.5             | 3.3           | -64.3   | -13.0     |
|               | V                | 46.1               | Ambient | -62.5              | 2.5             | 3.3           | -63.3   | -13.0     |
| 1180          | H                | 44.5               | Ambient | -63.1              | 3.3             | 3.5           | -63.3   | -13.0     |
|               | V                | 45.2               | Ambient | -62.8              | 3.3             | 3.5           | -63.0   | -13.0     |

ERP = matched signal + antenna gain - cable loss  
limit = power (dBm) - (43+ 10\*log(Power in watts))

Checked By: MARK E. LONGINOTTI



MANUFACTURER : Rockwell Collins  
 MODEL : VHF-4100/VHF-4100E  
 SERIAL NO. : 21H9X  
 SPECIFICATION : FCC Part 87 Spurious Radiated Emissions  
 DATE : January 18 and 19, 2006  
 NOTES : Transmit at 128MHz  
 : Test Distance is 3 meters

| Frequency MHz | Antenna Polarity | Meter Reading dBuV | Ambient | Matched Signal dBm | Antenna Gain dB | Cable Loss dB | ERP dBm | Limit dBm |
|---------------|------------------|--------------------|---------|--------------------|-----------------|---------------|---------|-----------|
| 256           | H                | 3                  | Ambient | -82.9              | 0.0             | 1.5           | -84.4   | -13.0     |
|               | V                | 4.4                | Ambient | -73.7              | 0.0             | 1.5           | -75.2   | -13.0     |
| 384           | H                | 5.4                | Ambient | -75.7              | 0.0             | 1.7           | -77.4   | -13.0     |
|               | V                | 5                  | Ambient | -74.7              | 0.0             | 1.7           | -76.4   | -13.0     |
| 512           | H                | 4.9                | Ambient | -73.5              | 0.0             | 2.1           | -75.6   | -13.0     |
|               | V                | 4.7                | Ambient | -73.9              | 0.0             | 2.1           | -76.0   | -13.0     |
| 640           | H                | 5.4                | Ambient | -71.8              | 0.0             | 2.4           | -74.2   | -13.0     |
|               | V                | 4.7                | Ambient | -71.7              | 0.0             | 2.4           | -74.1   | -13.0     |
| 768           | H                | 4.6                | Ambient | -72.2              | 0.0             | 2.7           | -74.9   | -13.0     |
|               | V                | 4.6                | Ambient | -70.4              | 0.0             | 2.7           | -73.1   | -13.0     |
| 896           | H                | 4.9                | Ambient | -70                | 0.0             | 3             | -73.0   | -13.0     |
|               | V                | 4.9                | Ambient | -66.7              | 0.0             | 3             | -69.7   | -13.0     |
| 1024          | H                | 44.9               | Ambient | -63.2              | 2.3             | 3.2           | -64.1   | -13.0     |
|               | V                | 44.6               | Ambient | -64.8              | 2.3             | 3.2           | -65.7   | -13.0     |
| 1152          | H                | 45.5               | Ambient | -62.6              | 3.0             | 3.5           | -63.1   | -13.0     |
|               | V                | 46                 | Ambient | -62.6              | 3.0             | 3.5           | -63.1   | -13.0     |
| 1280          | H                | 44.3               | Ambient | -61.4              | 3.8             | 3.7           | -61.3   | -13.0     |
|               | V                | 44.4               | Ambient | -63.5              | 3.8             | 3.7           | -63.4   | -13.0     |

ERP = matched signal + antenna gain - cable loss  
 limit = power (dBm) - (43+ 10\*log(Power in watts))

Checked By: MARK E. LONGINOTTI



MANUFACTURER : Rockwell Collins  
MODEL : VHF-4100/VHF-4100E  
SERIAL NO. : 21H9X  
SPECIFICATION : FCC Part 87 Spurious Radiated Emissions  
DATE : January 18 and 19, 2006  
NOTES : Transmit at 136.975MHz  
: Test Distance is 3 meters

| Frequency MHz | Antenna Polarity | Meter Reading dBuV | Ambient | Matched Signal dBm | Antenna Gain dB | Cable Loss dB | ERP dBm | Limit dBm |
|---------------|------------------|--------------------|---------|--------------------|-----------------|---------------|---------|-----------|
| 273.95        | H                | 4.9                | Ambient | -80.4              | 0.0             | 1.5           | -81.9   | -13.0     |
|               | V                | 3.4                | Ambient | -77.6              | 0.0             | 1.5           | -79.1   | -13.0     |
| 410.925       | H                | 6.9                | Ambient | -72.1              | 0.0             | 1.7           | -73.8   | -13.0     |
|               | V                | 6.8                | Ambient | -72.2              | 0.0             | 1.7           | -73.9   | -13.0     |
| 547.9         | H                | 4.4                | Ambient | -73.1              | 0.0             | 2.2           | -75.3   | -13.0     |
|               | V                | 4.7                | Ambient | -74.1              | 0.0             | 2.2           | -76.3   | -13.0     |
| 684.875       | H                | 5.1                | Ambient | -71.5              | 0.0             | 2.5           | -74.0   | -13.0     |
|               | V                | 5                  | Ambient | -69.8              | 0.0             | 2.5           | -72.3   | -13.0     |
| 821.85        | H                | 4.8                | Ambient | -70.4              | 0.0             | 2.8           | -73.2   | -13.0     |
|               | V                | 3.4                | Ambient | -70.9              | 0.0             | 2.8           | -73.7   | -13.0     |
| 958.825       | H                | 5.1                | Ambient | -69.1              | 0.0             | 3.1           | -72.2   | -13.0     |
|               | V                | 4.6                | Ambient | -66.9              | 0.0             | 3.1           | -70.0   | -13.0     |
| 1095.8        | H                | 44.7               | Ambient | -63.9              | 2.7             | 3.3           | -64.5   | -13.0     |
|               | V                | 45                 | Ambient | -63.6              | 2.7             | 3.3           | -64.2   | -13.0     |
| 1232.775      | H                | 45.3               | Ambient | -62.3              | 3.5             | 3.6           | -62.4   | -13.0     |
|               | V                | 45.2               | Ambient | -63.7              | 3.5             | 3.6           | -63.8   | -13.0     |
| 1369.75       | H                | 44.8               | Ambient | -63.3              | 4.3             | 3.9           | -62.9   | -13.0     |
|               | V                | 44.5               | Ambient | -63.7              | 4.3             | 3.9           | -63.3   | -13.0     |

ERP = matched signal + antenna gain - cable loss  
limit = power (dBm) - (43+ 10\*log(Power in watts))

Checked By: MARK E. LONGINOTTI





MANUFACTURER : Rockwell Collins  
MODEL : VHF-4100/VHF-4100E  
SERIAL NO. : 21H9V  
SPECIFICATION : FCC Part 87 Spurious Radiated Emissions  
DATE : January 18 and 19, 2006  
NOTES : Transmit at 151.5MHz  
: Test Distance is 3 meters

| Frequency MHz | Antenna Polarity | Meter Reading dBuV | Ambient | Matched Signal dBm | Antenna Gain dB | Cable Loss dB | ERP dBm | Limit dBm |
|---------------|------------------|--------------------|---------|--------------------|-----------------|---------------|---------|-----------|
| 303           | H                | 4.3                | Ambient | -80.3              | 0.0             | 1.6           | -81.9   | -13.0     |
|               | V                | 4.3                | Ambient | -76.1              | 0.0             | 1.6           | -77.7   | -13.0     |
| 454.5         | H                | 4.9                | Ambient | -69.6              | 0.0             | 1.9           | -71.5   | -13.0     |
|               | V                | 5.3                | Ambient | -73.8              | 0.0             | 1.9           | -75.7   | -13.0     |
| 606           | H                | 5.2                | Ambient | -72.6              | 0.0             | 2.3           | -74.9   | -13.0     |
|               | V                | 5.5                | Ambient | -71.8              | 0.0             | 2.3           | -74.1   | -13.0     |
| 757.5         | H                | 5.2                | Ambient | -71.9              | 0.0             | 2.7           | -74.6   | -13.0     |
|               | V                | 4.9                | Ambient | -66.5              | 0.0             | 2.7           | -69.2   | -13.0     |
| 909           | H                | 5.4                | Ambient | -68.6              | 0.0             | 3             | -71.6   | -13.0     |
|               | V                | 4.4                | Ambient | -67.5              | 0.0             | 3             | -70.5   | -13.0     |
| 1060.5        | H                | 46                 | Ambient | -62.7              | 2.5             | 3.3           | -63.5   | -13.0     |
|               | V                | 45.9               | Ambient | -63.4              | 2.5             | 3.3           | -64.2   | -13.0     |
| 1212          | H                | 44.8               | Ambient | -62.7              | 3.4             | 3.6           | -62.9   | -13.0     |
|               | V                | 46                 | Ambient | -62.2              | 3.4             | 3.6           | -62.4   | -13.0     |
| 1363.5        | H                | 44.5               | Ambient | -63.6              | 4.2             | 3.8           | -63.2   | -13.0     |
|               | V                | 44.9               | Ambient | -63.6              | 4.2             | 3.8           | -63.2   | -13.0     |
| 1515          | H                | 44.3               | Ambient | -63.9              | 4.8             | 4.1           | -63.2   | -13.0     |
|               | V                | 44.5               | Ambient | -62.9              | 4.8             | 4.1           | -62.2   | -13.0     |

ERP = matched signal + antenna gain - cable loss  
limit = power (dBm) - (43+ 10\*log(Power in watts))

Checked By: MARK E. LONGINOTTI



MANUFACTURER : Rockwell Collins  
MODEL : VHF-4100/VHF-4100E  
SERIAL NO. : 21H9X  
SPECIFICATION : FCC Part 87 Frequency Stability vs. Temperature  
DATE : January 19 and 20, 2006  
NOTES : Transmit at 136.975MHz, CW

| Temperature °C | Measured Frequency MHz | Frequency Error Hz | Limit Hz |
|----------------|------------------------|--------------------|----------|
| +27            | 136.975029             | 29                 | 4109     |
| -20            | 136.975025             | 25                 | 4109     |
| -10            | 136.975030             | 30                 | 4109     |
| 0              | 136.975050             | 50                 | 4109     |
| +10            | 136.975054             | 54                 | 4109     |
| +20            | 136.975035             | 35                 | 4109     |
| +30            | 136.974978             | 22                 | 4109     |
| +40            | 136.974979             | 21                 | 4109     |
| +50            | 136.974926             | 74                 | 4109     |

Limit = 30ppm = 136,975,000Hz \* 30ppm = 4109Hz

Checked By: MARK E. LONGINOTTI



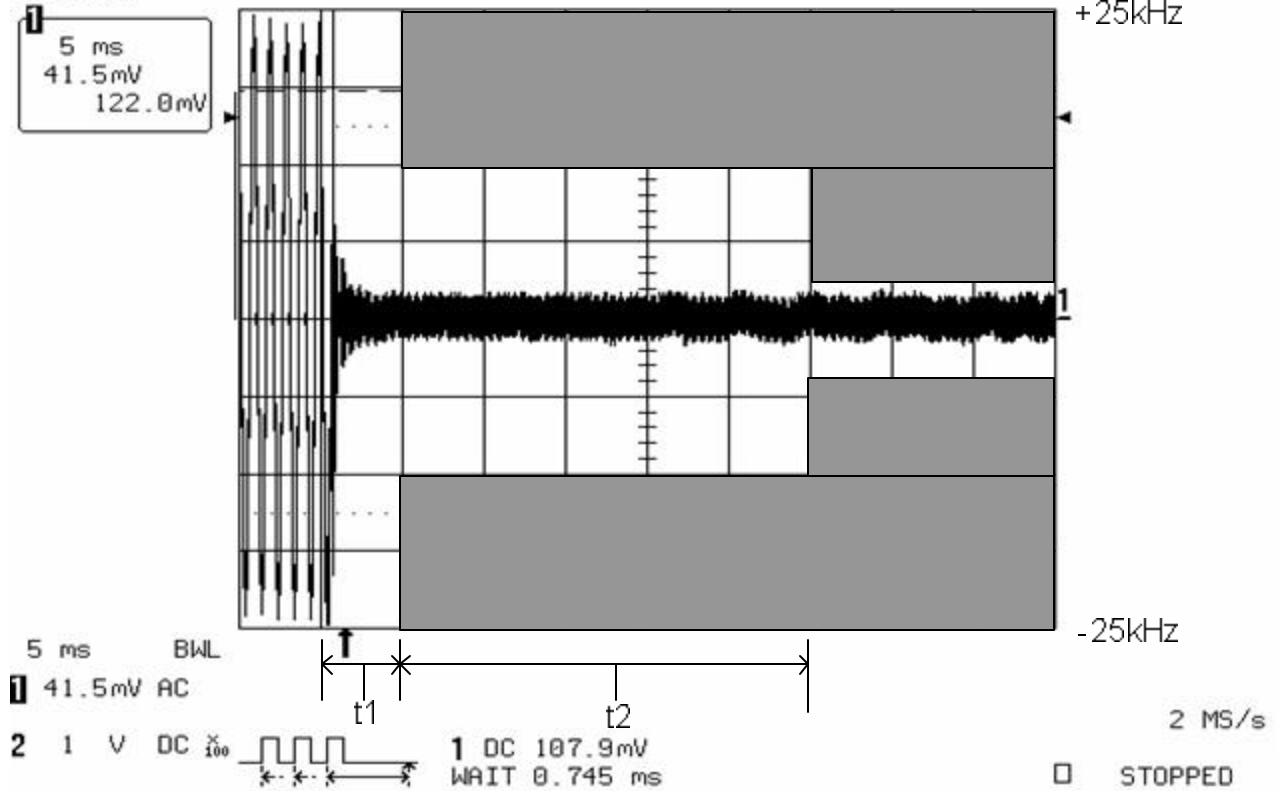
MANUFACTURER : Rockwell Collins  
MODEL : VHF-4100/VHF-4100E  
SERIAL NO. : 21H9X  
SPECIFICATION : FCC Part 87 Frequency Stability vs. Voltage  
DATE : January 20, 2006  
NOTES : Transmit at 136.975MHz, CW

| Supply Voltage<br>VDC | Measured<br>Frequency<br>MHz | Frequency<br>Error<br>Hz | Limit<br>Hz |
|-----------------------|------------------------------|--------------------------|-------------|
| 23.38 (85%)           | 136.975048                   | 48                       | 4109        |
| 27.5                  | 136.975043                   | 43                       | 4109        |
| 31.63 (115%)          | 136.975046                   | 46                       | 4109        |

Limit = 30ppm = 136,975,000Hz \* 30ppm = 4109Hz

Checked By: MARK E. LONGINOTTI

20-Jan-06  
11:00:00

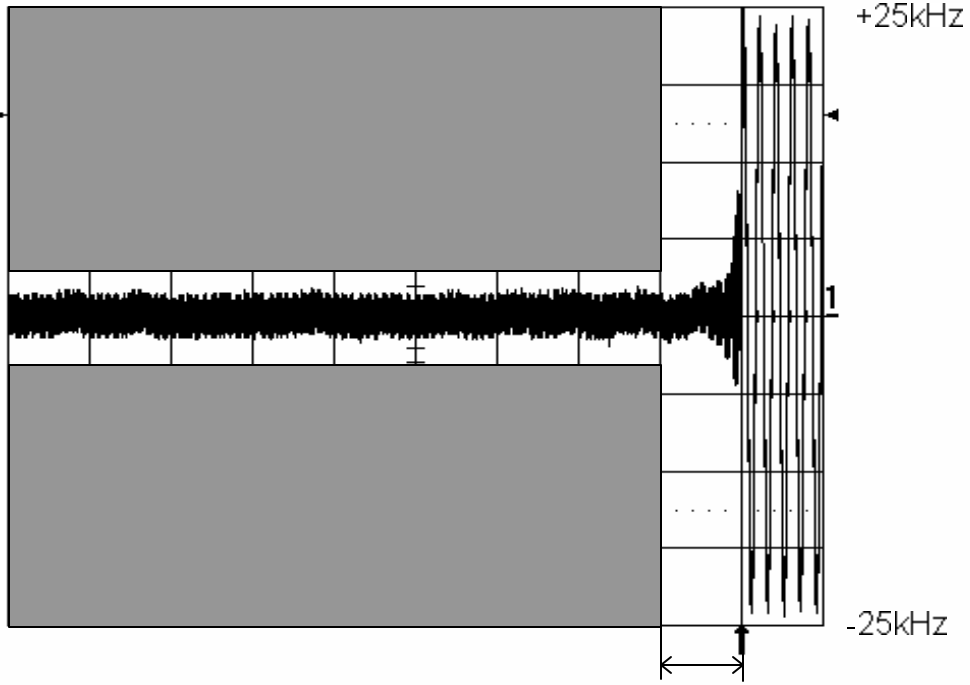


MANUFACTURER : Rockwell Collins  
 MODEL NUMBER : VHF-4100/VHF-4100E  
 SERIAL NO. : 21H9X  
 TEST : Transient Frequency Behavior, On  
 TEST MODE : Tx @ 118MHz, 25kHz channel spacing  
 TEST : Transmit on Time, t1= 5ms, t2=20ms  
 EQUIPMENT USED : MSQ1,GRD0,RYE0,T2DA,T2E0



20-Jan-06  
11:07:19

5 ms  
41.5mV



5 ms BWL  
41.5mV AC

2 1 V DC 100 1 DC 107.9mV

t3 2 MS/s

STOPPED

### Transient Frequency Behavior

MANUFACTURER : Rockwell Collins  
 MODEL NUMBER : VHF-4100/VHF-4100E  
 SERIAL NO. : 21H9X  
 TEST : Transient Frequency Behavior, Off  
 TEST MODE : Tx @ 118MHz, 25kHz channel spacing  
 TEST : Transmit off Time, t3=5ms  
 EQUIPMENT USED : MSQ1,GRD0,RYE0,T2DA,T2E0