

**FCC ID: O2SNURIT3010RT**

**Exhibit 2**

**Engineering Report**

**c)Bandwidth (2.1049) Bandwidth Limitations (2.1047)**



|                                |                       |   |
|--------------------------------|-----------------------|---|
| Author Data<br>Masud S. Attayi | Date<br>April 8, 1999 | Document No.<br>01947-CERT-FCC-TEST-BW_MASK |
| Approved                       | Rev                   | File / Reference<br>BW_MASK                 |

### OCCUPIED BANDWIDTH/BANDWIDTH LIMITATIONS

#### TEST PROCEDURE:

The Research In Motion Limited R902M-2-O radio modem device was connected together with a radio monitor board 02120-001, host computer, external power supply, a 20 dB external attenuator, and a coaxial cable. The R902M-2-O antenna output terminal was connected to the input of a 50  $\Omega$  spectrum analyzer through a matched 20 dB attenuator and a coaxial cable. The R902M-2-O transmitter was operating at full and low output power with and without internal data modulation.

#### TEST RESULTS:

UNMODULATED CARRIER, High Power: **11.97 dBm** with a 20 dB external attenuator and a 1 m coaxial cable.

- a) Internal Modulation: Please refer to the attached spectrum analyzer plots. 100% of the in-band modulation is below the specified mask per 90.210(j)

UNMODULATED CARRIER, Low Power: **-2.53 dBm** with a 20 dB external attenuator and 1 m coaxial cable.

- b) Internal Modulation: Please refer to the attached spectrum analyzer plots. 100% of the in-band modulation is below the specified mask per 90.210(j)

Below is the **description of the mask** for band 896-901/935-940 MHz (Mobitex) : 2 Watts transmitter

| <u>Frequency (MHz)</u> | <u>Formula</u>                               | <u>Upper Limit (dB)</u> | <u>Lower Limit (dB)</u> |
|------------------------|--|-------------------------|-------------------------|
| -26500                 | $50+10 \log (P)$                             | -53                     | -175                    |
| -0.0115                | $157 \log (f_d/5.3)$                         | -53                     | -175                    |
| -0.0095                | $157 \log (f_d/5.3)$ or $103 \log (f_d/3.9)$ | -39.8                   | -175                    |
| -0.0062                | $103 \log (f_d/3.9)$ or $53 \log (f_d/2.5)$  | -21.1                   | -175                    |
| -0.0025                | $53 \log (f_d/2.5)$                          | 0.0                     | -175                    |
| 0.0025                 | $53 \log (f_d/2.5)$                          | 0.0                     | -175                    |
| 0.0062                 | $103 \log (f_d/3.9)$ or $53 \log (f_d/2.5)$  | -21.1                   | -175                    |

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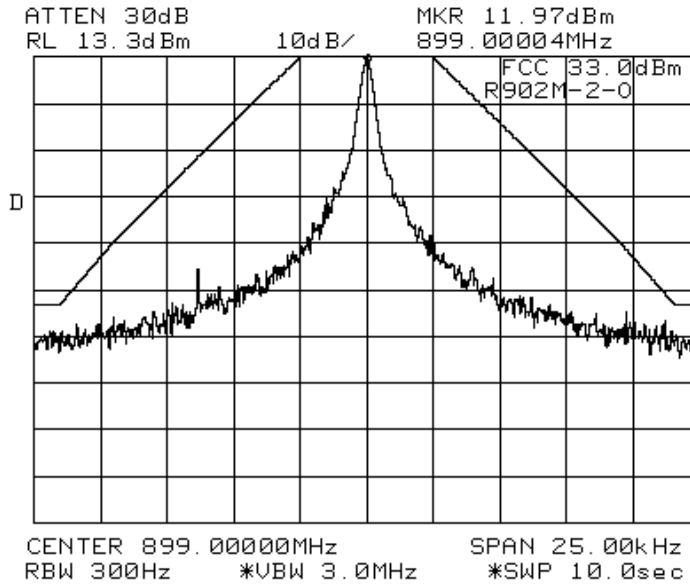
|        |  |       |      |
|--------|--|-------|------|
| 0.0095 | 157 log (f <sub>d</sub> /5.3) or 103 log (f <sub>d</sub> /3.9) | -39.8 | -175 |
| 0.0115 | 157 log (f <sub>d</sub> /5.3)                                  | -53   | -175 |
| 26500  | 50+10 log (P)  | -53   | -175 |

**EQUIPMENT:**

- H.P. 8563E Spectrum Analyzer 9.0 KHz - 26.5 GHz
- HP6632A DC POWER SUPPLY
- Mini Circuits 20 dB att. # NAT-20 0 Hz - 1.5 GHz

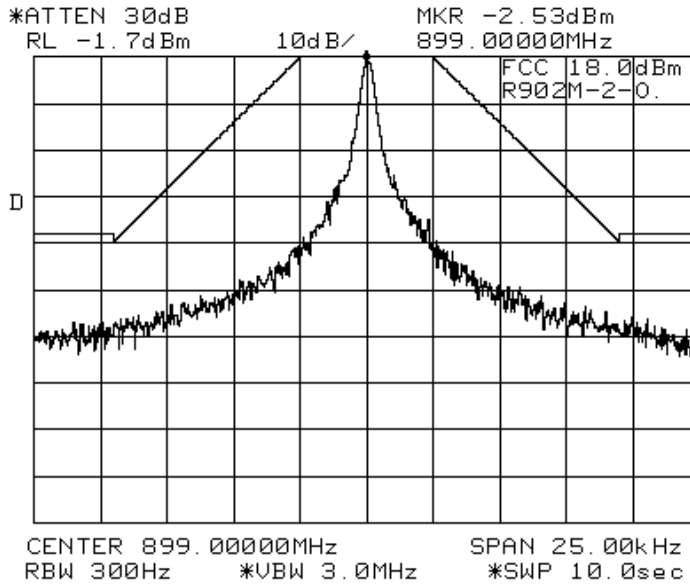
SETTING: RBW: 300 Hz; VBW: 3 MHz; SPAN: 25 KHz; SWP: 10 Sec

**OCCUPIED BANDWIDTH/BANDWIDTH LIMITATIONS  
 UNMODULATED CARRIER – HIGH POWER**

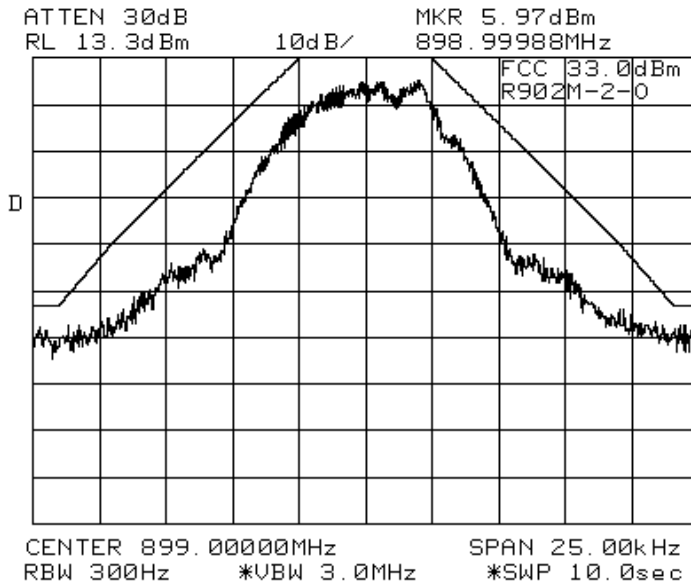


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**OCCUPIED BANDWIDTH/BANDWIDTH LIMITATIONS  
 UNMODULATED CARRIER – LOW POWER**



**OCCUPIED BANDWIDTH/BANDWIDTH LIMITATIONS  
 MODULATED CARRIER – HIGH POWER**





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**OCCUPIED BANDWIDTH/BANDWIDTH LIMITATIONS  
MODULATED CARRIER – LOW POWER**

