ANNEX A
TEST DATA Section Rule Part Number: 2.1033 (c)(14), 15.209

All applicable test data according to:
-Part 2: 2.1046, 2.1047, 2.1049, 2.1051, 2.1053 and 2.1057
-Part 90, Subpart I: 90.209, 90.210, and 90.213
-Part 15:15.207, 15.209
are provided in this section of the Engineering Report, as shown detailed below:

part-pages	Data Contents	FCC parts	Laboratory
A0-3	General. Emission Designator	2.1033 (14) 2.201,2.202, 90.209	
A1-1	Transmitter Rated Power Output	2.1046	R&D Dataradio Inc
A2-15	Mask compliance and Occupied Bandwidth measurement	2.1049,90.209,90.210	R&D Dataradio Inc
A3-1	Frequency Stability vs Variation in Supply Voltage	2.1055(d),90.213	R&D Dataradio Inc
A4-2	Frequency Stability vs Variation in Ambient temperature	2.1055(a),90.213	R&D Dataradio Inc
A5-3	Transmitter Harmonic Outputs and Spurious Products	2.1051,2.1057	R&D Dataradio COR
A6-4	Field Strength of Spurious Radiation	2.1053	R&D Dataradio COR
A7-3	Receiver Radiation Limits	15.209	R&D Dataradio COR
A8-2	Modulation Source Description	2.1033(13),2.1047	
29	**Total number of report pages**		

The following reports have been generated for FCC Certification of the Dataradio 896-902 MHz Transceiver/Modem/GPS, part number GPDD-6095-112 11. Unless otherwise noted, all of the measurements were conducted following the procedures set forth in the TIA/EIA-603 standards.

Set-up and equipment identification

Dataradio Inc	Dataradio COR
Units under test Prototype #1, Serial: 00006 Prototype #2, Serial: 00005 Prototype #3, Serial: 00004	Units under test Prototype, Serial: 00007

Open Area Test Site (OATS): FCC certified Open Area Test Site at the Transcrypt International / E.F. Johnson Radio Products located at 299 Johnson Avenue in Waseca, Minnesota

Transmitter Occupied Bandwidth and Emission Designator Determination

RULE PART NUMBER: 2.201, 2.202, 2.1033 c (14), 2.1049 (h), 2.1041

Necessary Bandwidth Measurement (90.209.(b))

This radiomodem uses digital modulation signals, passing through a pulse shaping DSP implemented low-pass filter to an FM transceiver. The equations for the filter are Nyquist-based being driven by the data symbol rates, they are detailed in modulation source description paragraph, in next page. The necessary bandwidth calculation for this type of modulation is not covered by paragraphs (1), (2) or (3) from 2.202(c), the result exceeding by far the real necessary bandwidth obtained through simulations or measurement.

Therefore, the approach outlined in (2.202(c)(4)) is applicable in this case.

The results of 99% Occupied Bandwidth measurement are:

Bit rate	Symbol rate	Filter equation	Deviation	Occupied Bandwidth 10W	27W	Emission designator
8000 bps	8000 bauds	DGMSK BT 0.5	± 3.2 KHz	8750 Hz	8750 Hz	8K75F1D
9600bps	9600 bauds	DGMSK BT 0.3	± 3.8 KHz	10170Hz	10170Hz	10K2F1D
14400 bps	7200 bauds	SRRC4FSK =0.4	± 3.2 KHz	11750Hz	11420Hz	11K8F1D
16000 bps	8000 bauds	SRRC4FSK =0.4	± 2.8 KHz	10670Hz	10250Hz	10K7F1D
19200 bps	9600 bauds	RC4FSK =0.4	± 2.2 KHz	9917Hz	9750Hz	9K92F1D

The measurement theory and set-up explanations follow.

Occupied Bandwidth Measurement

The Occupied Bandwidth measurement option of the instrument (8563EC spectrum analyzer from Agilent) calculates and provides the values used above for the emission designator.

The percentage setting of the measurement has been set to 99% following the definition of the ***Occupied Bandwidth*** "the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission" (FCC 2.202)

The measurement has been performed during the tests for compliance with mask J, the resulting value was recorded as Occupied Bandwidth. When the values at minimum power level (10W) were different from those at maximum power level (27W), the largest one yielded the emission designator value.

The measurement set-up is: