

ER450 Remote Radio Test Report (Class II Changes)

Trio Document Number (180-47-0003A)

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1. Company Details.

Trio Datacom Pty. Ltd.
41 Aster Avenue
Carrum Downs
Victoria 3201
Australia

2. Test Sample Details.

Product: Trio Datacom E Series Remote Data Radio.
Model : ER450-51F01
Serial Number: 51887
FCC ID: NI8ER450-XXF01

The unit tested is a representative example of Hardware that has already been approved.

No Hardware changes have been made.

The unit was fitted with firmware that allows Bell202 modulation (emission designator F2D) to be selected in addition to existing modulation types.

The unit was loaded with test firmware that generates test data internally. The following internal test data is available:

- Random Data generated with a 7 stage shift register.
- All data ones (corresponds to a continuous 1200 Hz tone).

- All data zeros (corresponds to a continuous 2200 Hz tone).

3. Test Conditions

All tests were performed at room temperature (Approx 23 degC).
All test were performed with a nominal test voltage of 13.8 Volts.

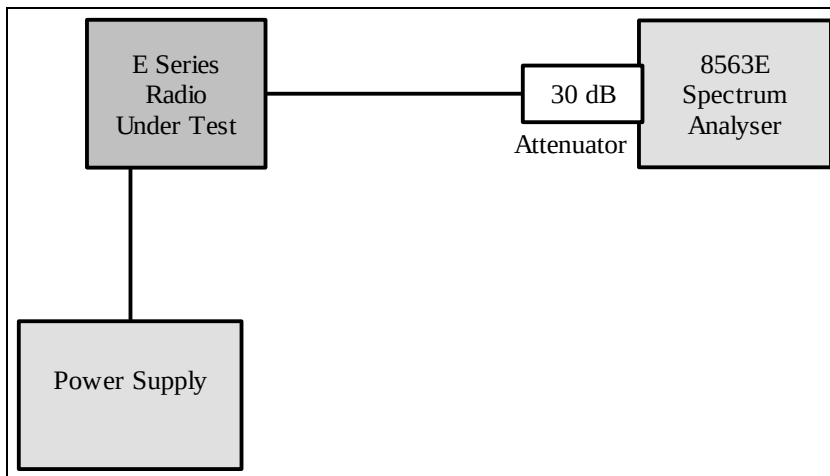
4. Tests Performed and Setup.

The only test required is to establish that the occupied bandwidth continues to meet emission mask D as specified in FCC Clause 90.210. This is the only test done with modulation therefore it is the only one affected by the addition of a new modulation type in firmware.

Testing was performed in accordance with the following documents:

CFR47 90.210
TIA-603-B
C63.4-2003

The Test Setup for Occupied Bandwidth Testing is shown below.



Test Data was generated using test firmware within the radio. Because the spectrum is data dependent for this modulation tests were performed for the three data patterns listed in section 2 of this report. Only 1200 bps was tested, 300 and 600 bps can be considered as a special case of 1200 bps (eg 1010 at 600 bps generates the same modulated waveform as 11001100 at 1200 bps).

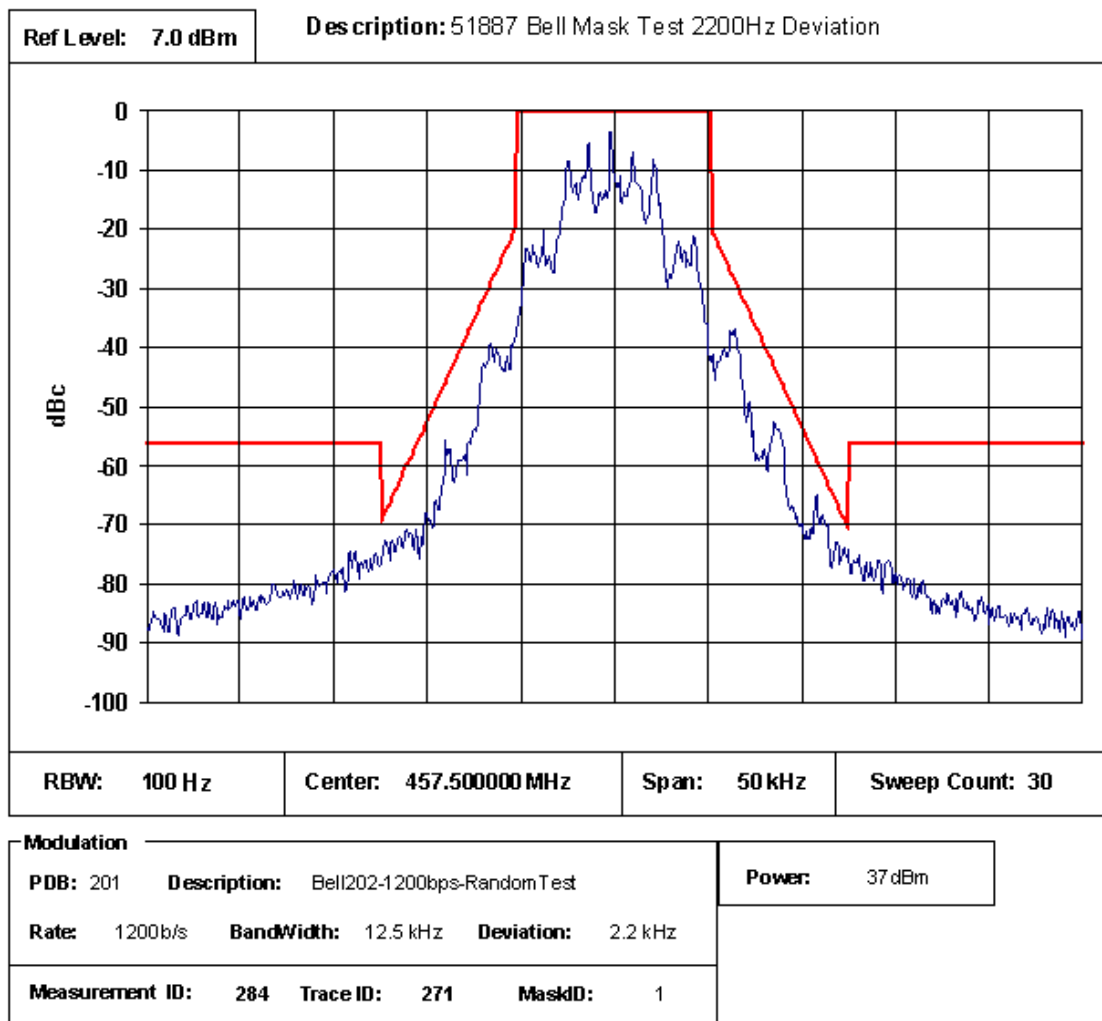
The reference levels for the emission masks where established by using a resolution bandwidth on the spectrum analyzer many times greater than the bandwidth of the modulated signal.

Test Equipment Used.

- Hewlett Packard HP8563E Spectrum Analyzer
- Weinschel Engineering 30dB , 10W Power Attenuator Model 23-30-34
- Hewlett Packard 6632A Power Supply

5. Tests Results.

Test ID: 1027 Authority: FCC Date: 13/01/2006 11:54:58 AM
Pass: YES Radio ID#: 1E Serial#: 51887 Radio Model: ER450



Bell 202 Modulation, 1200 bps with Random Data Pattern

Test ID: 1027

Authority: FCC

Date: 13/01/2006 11:58:10 AM

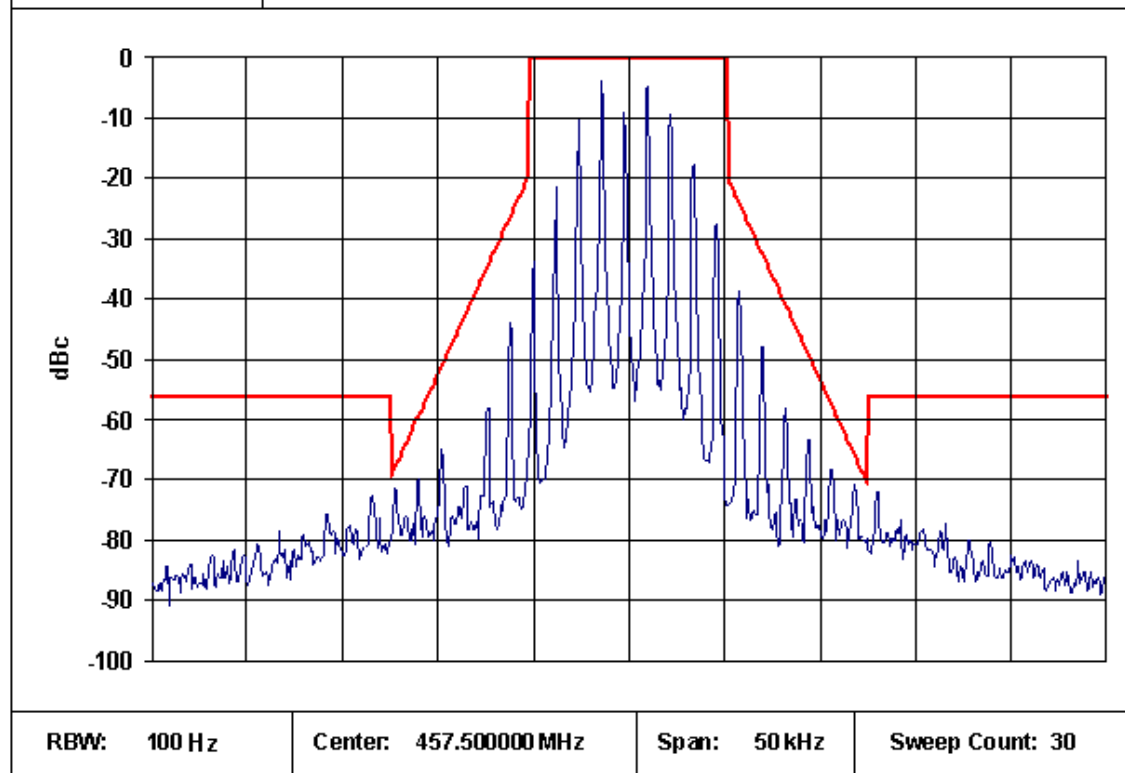
Pass: YES

Radio ID#: 1E Serial#: 51887

Radio Model: ER450

Ref Level: 7.0 dBm

Description: 51887 Bell Mask Test 2200Hz Deviation



Modulation

PDB: 202 Description: Bell202-1200bps-AllOnesData

Power: 37 dBm

Rate: 1200b/s BandWidth: 12.5 kHz Deviation: 2.2 kHz

Measurement ID: 285 Trace ID: 272 MaskID: 1

Bell 202 Modulation, 1200 bps with All Ones Data Pattern

Test ID: 1027

Authority: FCC

Date: 13/01/2006 12:01:21 PM

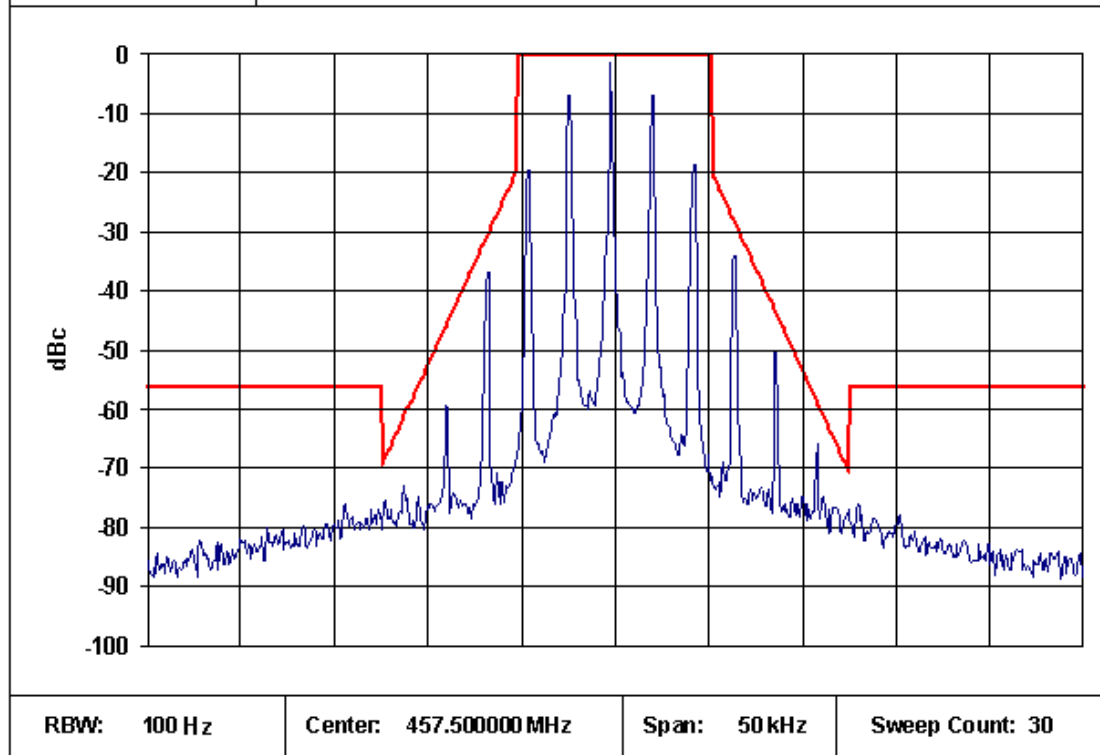
Pass: YES

Radio ID#: 1E Serial#: 51887

Radio Model: ER450

Ref Level: 7.0 dBm

Description: 51887 Bell Mask Test 2200Hz Deviation



Modulation

PDB: 203 Description: Bell202-1200bps-All ZerosData

Power: 37 dBm

Rate: 1200 b/s BandWidth: 12.5 kHz Deviation: 2.2 kHz

Measurement ID: 286 Trace ID: 273 MaskID: 1

Bell 202 Modulation, 1200 bps with all Zeros Data Pattern