

Test Report Prepared By:

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MPBT Report No.: M34R2460

Customer No.: PO# 208

Report for

**FCC Part 1 .1310 MPE
FCC Part 15 Subpart B
FCC Part 90 Subpart I**

**For Private Mobile Transmitter Amplifiers for
T.D.M.A. Cellular Radio-Telephone Service**

**Testing of the
BST301 *iDEN* Motorola Truncking Booster**

Test Personnel: D.Beck

Prepared for:

Mobile Communications Technologies INC.
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February 23, 2001
M34R2197

Client Acceptance
Authorized Signatory

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MPB Technologies Inc.
M34R2460

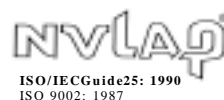


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1.0 INTRODUCTION

1.1 SCOPE

The purpose of this report is to present the findings and results of compliance testing performed in accordance with FCC Part(s) 1, 15, 90 (1996).

1.2 APPLICANT

This test report has been prepared for MCT Inc.

1.3 APPLICABILITY

All test procedures, limits, and results defined in this document apply to the, which shall be referred to herein as the Equipment Under Test (**EUT**).

The results contained in this report relate only to the item(s) tested.

This report does not imply product endorsement by NVLAP or the Canadian or US governments.

If multiple units, the test samples provided for testing were intended for use together.

1.4 TEST SAMPLE DESCRIPTION

The following testing is for a Mobile Motorola *iDEN* Truncking Booster

Product	Part Number	Serial Number	Power Requirements	Peripheral Equipment
BST301 <i>iDEN</i> Motorola Truncking Booster	BST 301 (Sample# 1758)		12 VDC	Signal Generator/ Cellular Phone

Tx Gain (dB): 22.0

Measured at: 813.5 MHz

Tx Maximum Power Output (dBm): 34.77 = 3 Watts

Band of operation Tx: 806-821 MHz

Measured at: 813.5 MHz

Rx Gain (dB): 19.0

Measured at: 858.5MHz

Band of operation Rx: 851 – 866 MHz

1.5 GENERAL TEST CONDITIONS AND ASSUMPTIONS

The EUT was setup and exercised using the configurations, modes of operation and arrangements defined in this report only. All inputs and outputs to and from other equipment associated with the EUT were adequately simulated.

Where relevant, the EUT was only tested using the monitoring methods and test criteria defined in this report.

All testing, unless otherwise noted, was performed under the following environmental conditions:

Temperature: 17 to 23 °C

Humidity: 45 to 75 %

Barometric Pressure: 68 to 106 kPa

1.6 SCOPE OF TESTING

Tests were performed in accordance with FCC Parts 1,15,90 (1996).

1.6.1 VARIATIONS IN TEST METHODS

There were no variations from the test procedures outlined above.

1.6.2 TEST SAMPLE MODIFICATIONS

No test sample modifications were made

2.0 TEST CONCLUSION

The EUT was subjected to the following tests. Compliance status is assessed as **PASS**, **FAIL**, or **MARGINAL PASS**

The following table summarizes the test results and details the tests performed in terms of the specification and class or level applied, the unique test sample identification, and the EUT modification state, the mode of operation, and configuration.

Test Case	Test Type	Specification	Class/Level	Criteria	Test Sample	Config	Engineering / Qualification	Result
2.1	DC Port Conducted Emissions	FCC Part 15, (Subpart B)	B	NA	Sample #1758	Test	Qualification	PASS
2.2	Radiated Emissions (Field Strength Spurious)	FCC Part 15, (Subpart B)	B	NA	Sample #1758	Test	Qualification	PASS
2.3	ERP	FCC Part 22 (Subpart H)	NA	NA	Sample #1758	Test	Qualification	PASS
2.4	Emission Mask (OCC BW)	FCC Part 90	65.4 dB	NA	Sample #1758	Test	Qualification	PASS
2.5	Emission Mask (Out of band/Spurious)	FCC Part 90.210 (Subpart I)	58.4 dB	NA	Sample #1758	Test	Qualification	PASS
2.6	MPE	FCC Part 1.1310	B	NA	Sample #1758	Test	Qualification	PASS

STATEMENT OF COMPLIANCE
The client equipment referred to in this report was found to comply with the requirements of FCC regulations as summarized above.

ABBREVIATIONS

CE – Conducted Emissions

N/T - Not Tested

E-Field - Electric Field

N/A - Not Applicable

H-Field - Magnetic Field

RE – Radiated Emissions

MEASUREMENT UNCERTAINTY

The following measurement uncertainty with 95% confidence level was calculated using the methods defined in NAMAS document NIS81: May 1994.

For Radiated E-Field Emissions

Frequency = $\pm 1 \times 10^{-3}$ MHz

Amplitude = ± 4.01 dB

For Conducted Emissions

Frequency = $\pm 1 \times 10^{-3}$ MHz

Amplitude = ± 3.25 dB

TEST SET UP

The photographs in Appendix D show the set up with maximized emission levels for each test.

2.1 EMISSIONS – AC PORT CONDUCTED

Test Summary	
Test Lab: MPB Technologies Inc. Ottawa Test Personnel: D. Beck Test Date: February 7, 2000	Product: BST301 <i>iDEN</i> Motorola Truncking Booster

Test Description										
Objectives/Criteria	Specifications									
<p>The Conducted E-Field emissions proliferated by a system or sub-system shall not exceed the limits for the specifications as stated.</p> <p>Emission levels should meet the requirements with a margin of 6 dB.</p> <p>The EUT was tested against Class B limits.</p>	<p>FCC PART 15: 1996</p> <table border="1"> <thead> <tr> <th>Frequency</th> <th>Class A*</th> <th>Class B*</th> </tr> </thead> <tbody> <tr> <td>.45 – 1.705 MHz</td> <td>60</td> <td>48</td> </tr> <tr> <td>1.705 – 30 MHz</td> <td>69.5</td> <td>48</td> </tr> </tbody> </table> <p>*All limits are for Quasi-peak detection in dBµV. The detector bandwidth is 9 kHz.</p>	Frequency	Class A*	Class B*	.45 – 1.705 MHz	60	48	1.705 – 30 MHz	69.5	48
Frequency	Class A*	Class B*								
.45 – 1.705 MHz	60	48								
1.705 – 30 MHz	69.5	48								

Test Result: PASS
Comments: Refer to Test Report Data sheets for more detail.

**2.2 DIGITAL EMISSIONS, RADIATED
FIELD STRENGTH SPURIOUS**

Test Summary	
Test Lab: MPB Technologies Inc. Ottawa Test Personnel: D. BECK Test Date: February 7, 2001	Product: BST301 <i>iDEN</i> Motorola Truncking Booster

Test Description																
Objectives/Criteria	Specifications															
The Radiated E-Field emissions proliferated by a system or sub-system, measured at a distance of 3m from the EUT, shall not exceed the limits for the specifications as stated. Emission levels should meet the requirements with a margin of 6dB. The EUT was tested against Class B requirements	FCC Part 15: 1996															
	<table border="1"> <thead> <tr> <th>Frequency</th> <th>Class A*</th> <th>Class B*</th> </tr> </thead> <tbody> <tr> <td>30 – 88 MHz</td> <td>49.5</td> <td>40.0</td> </tr> <tr> <td>88 – 216 MHz</td> <td>54.0</td> <td>43.5</td> </tr> <tr> <td>216 – 960 MHz</td> <td>56.9</td> <td>46.0</td> </tr> <tr> <td>> 960 MHz</td> <td>60.0</td> <td>54.0</td> </tr> </tbody> </table>	Frequency	Class A*	Class B*	30 – 88 MHz	49.5	40.0	88 – 216 MHz	54.0	43.5	216 – 960 MHz	56.9	46.0	> 960 MHz	60.0	54.0
	Frequency	Class A*	Class B*													
	30 – 88 MHz	49.5	40.0													
	88 – 216 MHz	54.0	43.5													
216 – 960 MHz	56.9	46.0														
> 960 MHz	60.0	54.0														
*All limits are @ 3m and are in dB μ V/m.																

Test Result: PASS
No spurious or digital emissions were detected. Refer to Test Report Data sheets for more detail.

2.3 EFFECTIVE RADIATED POWER (ERP) LIMIT (Supplementary Data)

Test Summary	
Test Lab: MPB Technologies Inc. Ottawa Test Personnel: D. BECK Test Date: February 7, 2001	Product: BST301 <i>iDEN</i> Motorola Truncking Booster

Test Description	
Objectives/Criteria	Specifications
The ERP proliferated by a system or sub-system shall not exceed the limits for the specifications as stated.	FCC PART 90: 1996, Subpart H Section 90.219 Limit = 5 Watts Limit = 36.99 dBm Max Power = 34.77 dBm / 3.0Watts ERP: $Power_{AMP} - Loss_{Cable} + Gain_{Ant}$ ERP = 34.77dB - 3.6dB + 5dB = 36.17dBm or 4.14 Watts

Test Result: PASS
Comments: Refer to Test Report Data sheets for more detail.

2.4 EMISSION LIMITATIONS FOR CELLULAR – OCCUPIED BANDWIDTH

Test Summary	
Test Lab: MPB Technologies Inc. Ottawa Test Personnel: D. BECK Test Date: February 7, 2001	Product: BST301 <i>iDEN</i> Motorola Trunking Booster

Test Description	
Objectives/Criteria	Specifications
<p>For an F3E/F3D emission mask, the mean power of emissions must be attenuated below that specified in mask (b), or mask (c). Measurement bandwidths are to be 300 Hz for any frequency removed from the carrier less than 45 kHz and 30 kHz for all else. For equipment which does not perform modulation and only amplifies the RF signal, pass/fail criteria shall be based on the following:</p> <p>a) The 20 dB bandwidth of the modulated carrier shall be the same (input signal vs. output signal).</p> <p>b) The difference of the amplitudes between the input signal and the output signal shall remain consistent (+/- 0.5 dB), for the 20 dB bandwidth of the modulated carrier.</p>	<p>FCC PART 90: 1996, Subpart H Section 90.211(b)/(c)</p> <p>Mask (b) $(f_c - 45 \text{ kHz})$ to $(f_c - 20 \text{ kHz})$, 26 dB $(f_c + 20 \text{ kHz})$ to $(f_c + 45 \text{ kHz})$, 26 dB 0 to $(f_c - 45 \text{ kHz})$, 60 <u>or</u> $43 + 10\log P$ dB $(f_c + 45 \text{ kHz})$ to $(2 \times f_c)$, 60 <u>or</u> $43 + 10\log P$ dB</p> <p>Mask (c) $(f_c - 20 \text{ kHz})$ to $(f_c - 12 \text{ kHz})$, $117\log(f_d/12)$ dB $(f_c + 12 \text{ kHz})$ to $(f_c + 20 \text{ kHz})$, $117\log(f_d/12)$ dB 0 to $(f_c - 20 \text{ kHz})$, $100\log(f_d/12)$ <u>or</u> 60 <u>or</u> $43 + 10\log P$ dB $(f_c + 20 \text{ kHz})$ to $(2 \times f_c)$, $100\log(f_d/12)$ <u>or</u> 60 <u>or</u> $43 + 10\log P$ dB</p> <p>Note: dB refers to attenuation from the mean power of the unmodulated carrier. f_c refers to frequency of the carrier f_d refers to displacement frequency from the carrier in kHz P refers to the mean power of unmodulated carrier wave.</p>

Test Result: PASS
Comments: Refer to Test Report Data sheets for more detail.