Report Number: B60718D1

### FCC PART 15, SUBPART B and C TEST REPORT

for

### MMC MULTI-CHANNEL TRANSMITTER

MODEL: MC-MMC001

Prepared for

BTX HOLDINGS, INC. 10763 SANDEN DRIVE DALLAS, TEXAS 75238

Prepared by: Harle Just

**KYLE FUJIMOTO** 

Approved by: James Rom

**JAMES ROSS** 

COMPATIBLE ELECTRONICS INC. 114 OLINDA DRIVE BREA, CALIFORNIA 92823 (714) 579-0500

**DATE: AUGUST 24, 2006** 

	REPORT		APPENDICES			TOTAL	
	BODY	A	В	C	D	E	
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Report Number: **B60718D1** 

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#### GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Device Tested: MMC Multi-channel Transmitter

Model: MC-MMC001

S/N: N/A

Product Description: See Expository Statement

Modifications: The EUT was not modified in order to meet the specifications.

Manufacturer: BTX Holdings, Inc.

10763 Sanden Drive Dallas, Texas 75238

Test Dates: July 17 and 18, 2006

Test Specifications: EMI requirements

CFR Title 47, Part 15 Subpart B; and Subpart C, Sections 15.205, 15.209 and 15.231

Test Procedure: ANSI C63.4

Test Deviations: The test procedure was not deviated from during the testing.

#### SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz	This test was not performed because the EUT is battery powered only and does not connect to the AC public mains.
2	Radiated RF Emissions, 10 kHz - 4400 MHz	Complies with the <b>Class B</b> limits of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231.



#### 1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the MMC Multi-channel Transmitter, Model: MC-MMC001. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231.



#### 2. ADMINISTRATIVE DATA

### 2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

#### 2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

### 2.3 Cognizant Personnel

BTX Holdings, Inc.

T. Kevin Keenan COO

Compatible Electronics, Inc.

Kyle Fujimoto Test Engineer James Ross Test Engineer

### 2.4 Date Test Sample was Received

The test sample was received on July 17, 2006

#### 2.5 Disposition of the Test Sample

The sample has not yet been returned to BTX Holdings, Inc. as of August 24, 2006.

### 2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF Radio Frequency
EMI Electromagnetic Interference
EUT Equipment Under Test
P/N Part Number
S/N Serial Number

S/N Serial Number
HP Hewlett Packard

ITE Information Technology Equipment

CML Corrected Meter Limit

LISN Line Impedance Stabilization Network

COO Chief Operating Officer

Report Number: **B60718D1** 

### 3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4 2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz



#### 4. DESCRIPTION OF TEST CONFIGURATION

### 4.1 Description Of Test Configuration - EMI

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

The MMC Multi-channel Transmitter Model: MC-MMC001 (EUT) was tested as a stand-alone unit and continuously transmitting. The EUT's antenna is a PCB trace. The EUT was tested in three orthogonal axis.

After the EUT is activated by pressing the button, the transmission will cease operation once the button is released.

The final radiated data was taken in the mode above. Please see Appendix E for the data sheets.

Model: MC-MMC001



#### 4.1.1 **Cable Construction and Termination**

There are no external cables connected to the EUT.



### 5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

### 5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL	SERIAL	FCC ID
		NUMBER	NUMBER	
MMC MULTI-CHANNEL	BTX HOLDINGS, INC.	MC-MMC001	N/A	UGPMMCTRANS001
TRANSMITTER (EUT)				



### 5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU- FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
	GENERAL TEST I	EQUIPMENT U	SED FOR ALL I	RF EMISSIONS TEST	S
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	May 26, 2006	May 26, 2007
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22279	May 26 2006	May 26, 2007
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	May 26, 2006	May 26, 2007
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100172	October 28, 2004	October 28, 2006
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
	RF RA	DIATED EMIS	SIONS TEST EQ	QUIPMENT	
Radiated Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A
Preamplifier	Com Power	PA-102	1017	January 19, 2006	Jan. 19, 2007
Biconical Antenna	Com Power	AB-900	15227	March 9, 2006	March 9, 2007
Log Periodic Antenna	Com Power	AL-100	16060	August 22, 2005	Aug. 22, 2006
Loop Antenna	Com Power	AL-130	17089	September 21, 2005	Sept. 21, 2006
Horn Antenna	Com Power	AH-118	10067	July 27, 2004	July 27, 2006
Microwave Preamplifier	Com Power	PA-122	181917	January 20, 2006	Jan. 20, 2007
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A

#### 6. TEST SITE DESCRIPTION

### 6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for EMI test location.

### 6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.

#### 7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

### 7.1 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer was used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com-Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, and the Com-Power Microwave Preamplifier Model: PA-122 was used for frequencies from 1 GHz to 4.4 GHz. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

The readings were averaged by a "duty cycle correction factor", derived from 20 log (dwell time / one pulse train with blanking interval).

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 4.4 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results. The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

### 7.2 Radiated Emissions (Spurious and Harmonics) Test (continued)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance to obtain final test data. The final qualification data sheets are located in Appendix E.

#### **Test Results:**

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.231.

#### 7.3 Bandwidth of the Fundamental

The -20 dB bandwidth was checked to see that it was within 0.25% of the fundamental frequency for the EUT. Plots of the -20 dB bandwidth are located in Appendix E.

#### **Test Results:**

The EUT complies with the requirements of CFR Title 47, Part 15, Subpart C, section 15.231 (c) for the -20 dB bandwidth of the fundamental. The EUT has a -20dB bandwidth that is less than 0.25% of frequency of the fundamental.

### 8. CONCLUSIONS

The MMC Multi-channel Transmitter Model: MC-MMC001 meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231.



Report Number: **B60718D1 FCC Part 15 Subpart B** and **FCC Section 15.231** Test Report *MMC Multi-channel Transmitter Model: MC-MMC001* 

### **APPENDIX A**

### LABORATORY RECOGNITIONS

### LABORATORY RECOGNITIONS

#### Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200528-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Conformity Assessment Body for the EMC Directive Under the US/EU MRA Appointed by NIST

#### Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

**Industry Canada** 

Radio-Frequency Technologies (Competent Body)

Report Number: **B60718D1 FCC Part 15 Subpart B** and **FCC Section 15.231** Test Report *MMC Multi-channel Transmitter Model: MC-MMC001* 

### **APPENDIX B**

### **MODIFICATIONS TO THE EUT**

### MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.231 or FCC Class B specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT.



### **APPENDIX C**

### ADDITIONAL MODELS COVERED UNDER THIS REPORT

# ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

MMC Multi-channel Transmitter Model: MC-MMC001

S/N: N/A

There were no additional models covered under this report.



Report Number: **B60718D1 FCC Part 15 Subpart B** and **FCC Section 15.231** Test Report *MMC Multi-channel Transmitter Model: MC-MMC001* 

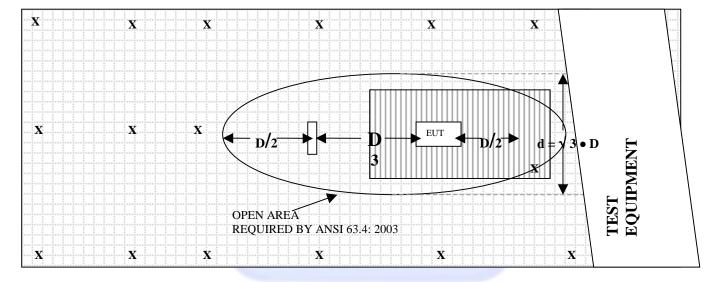
### APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS



# FIGURE 1: PLOT MAP AND LAYOUT OF 3 METER RADIATED SITE

### **OPEN LAND > 15 METERS**



### **OPEN LAND > 15 METERS**

X = GROUND RODS = GROUND SCREEN

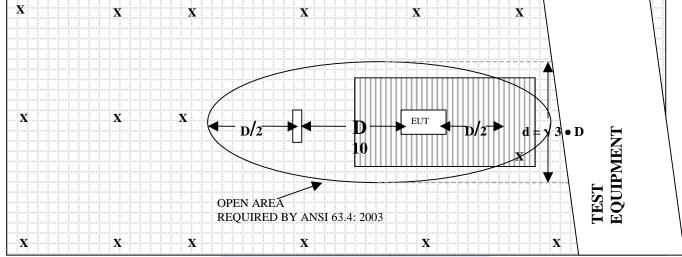
**D** = TEST DISTANCE (meters) = WOOD COVER

---

**OPEN LAND > 15 METERS** 

# FIGURE 2: PLOT MAP AND LAYOUT OF 10 METER RADIATED SITE

### **OPEN LAND > 15 METERS**



### **OPEN LAND > 15 METERS**

X = GROUND RODS = GROUND SCREEN

**D** = TEST DISTANCE (meters) = WOOD COVER

### **COM-POWER AB-900**

### **BICONICAL ANTENNA**

S/N: 15227

CALIBRATION DATE: MARCH 9, 2006

FREQUENCY	FACTOR	FREQUENCY	FACTOR
(MHz)	(dB)	(MHz)	(dB)
30	11.12	120	13.50
35	10.17	125	12.63
40	9.75	140	12.20
45	12.22	150	11.85
50	13.28	160	13.25
60	11.36	175	15.74
70	7.95	180	16.23
80	5.95	200	16.79
90	7.62	250	16.47
100	10.89	300	17.49



### COM-POWER AL-100

### LOG PERIODIC ANTENNA

S/N: 16060

CALIBRATION DATE: AUGUST 22, 2005

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	12.73	700	19.72
400	13.38	800	20.49
500	15.12	900	21.31
600	16.27	1000	24.25



### **COM-POWER PA-102**

### **PREAMPLIFIER**

S/N: 1017

CALIBRATION DATE: JANUARY 19, 2006

ī			
FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.3	300	38.4
40	38.4	350	38.4
50	38.3	400	38.0
60	38.4	450	38.1
70	38.5	500	37.5
80	38.4	550	38.0
90	38.4	600	38.0
100	38.4	650	37.7
125	38.1	700	37.7
150	38.5	750	37.7
175	38.4	800	37.0
200	38.3	850	37.2
225	38.3	900	36.6
250	38.1	950	36.3
275	38.3	1000	36.3



### **COM-POWER PA-122**

### **PREAMPLIFIER**

S/N: 181917

CALIBRATION DATE: JANUARY 20, 2006

	r		
FREQUENCY	FACTOR	FREQUENCY	FACTOR
(GHz)	(dB)	(GHz)	(dB)
1.0	34.697	10.0	36.558
1.5	33.817	10.5	35.048
2.0	33.587	11.0	33.258
2.5	33.804	11.5	32.960
3.0	33.850	12.0	33.312
3.5	33.943	12.5	33.836
4.0	34.399	13.0	34.178
4.5	34.847	13.5	34.197
5.0	35.172	14.0	33.769
5.5	35.383	14.5	33.392
6.0	35.539	15.0	33.387
6.5	34.802	15.5	34.038
7.0	33.793	16.0	34.884
7.5	33.511	16.5	35.740
8.0	33.910	17.0	35.341
8.5	34.907	17.5	34.729
9.0	36.036	18.0	33.760
9.5	36.661		

### **COM POWER AH-118**

### HORN ANTENNA

S/N: 10067

CALIBRATION DATE: JULY 27, 2004

FREQUENCY	FACTOR	FREQUENCY	FACTOR
(GHz)	(dB)	(GHz)	(dB)
1.0	25.0	10.0	37.8
1.5	27.9	10.5	39.4
2.0	31.5	11.0	39.4
2.5	31.1	11.5	40.6
3.0	30.6	12.0	40.8
3.5	30.5	12.5	40.5
4.0	30.6	13.0	41.2
4.5	31.4	13.5	42.0
5.0	33.7	14.0	43.1
5.5	33.8	14.5	43.4
6.0	34.7	15.0	39.2
6.5	35.0	15.5	38.8
7.0	35.9	16.0	40.1
7.5	38.1	16.5	40.2
8.0	38.2	17.0	43.4
8.5	37.7	17.5	46.6
9.0	37.7	18.0	45.8
9.5	38.4		



### COM-POWER AL-130

### **LOOP ANTENNA**

S/N: 17089

CALIBRATION DATE: SEPTEMBER 21, 2005

FREQUENCY	MAGNETIC	ELECTRIC
(MHz)	(dB/m)	(dB/m)
0.009	-42.84	8.66
0.01	-41.93	9.57
0.02	-41.29	10.21
0.05	-42.37	9.13
0.07	-41.8	9.7
0.1	-41.83	9.67
0.2	-44.13	7.37
0.3	-41.73	9.77
0.5	-41.8	9.7
0.7	-41.53	9.97
1	-41.46	10.04
2	-41.14	10.36
3	-41.26	10.24
4	-41.46	10.04
5	-41.10	10.40
10	-40.83	10.67
15	-41.47	10.03
20	-35.44	16.06
25	-42.37	9.13
30	-42.94	8.56



#### **FRONT VIEW**

BTX HOLDINGS, INC.

MMC MULTI-CHANNEL TRANSMITTER

MODEL: MC-MMC001

FCC SUBPART B AND FCC SUBPART C – RADIATED EMISSIONS – LAB B



#### **REAR VIEW**

BTX HOLDINGS, INC.

MMC MULTI-CHANNEL TRANSMITTER

MODEL: MC-MMC001

FCC SUBPART B AND FCC SUBPART C – RADIATED EMISSIONS – LAB B



#### **FRONT VIEW**

BTX HOLDINGS, INC.

MMC MULTI-CHANNEL TRANSMITTER

MODEL: MC-MMC001

FCC SUBPART B AND FCC SUBPART C – RADIATED EMISSIONS – LAB D



#### **REAR VIEW**

BTX HOLDINGS, INC.

MMC MULTI-CHANNEL TRANSMITTER

MODEL: MC-MMC001

FCC SUBPART B AND FCC SUBPART C – RADIATED EMISSIONS – LAB D

Report Number: **B60718D1 FCC Part 15 Subpart B** and **FCC Section 15.231** Test Report *MMC Multi-channel Transmitter Model: MC-MMC001* 

APPENDIX E

DATA SHEETS



### RADIATED EMISSIONS

DATA SHEETS



FCC 15.231

BTX, Inc. Date: 07/17/06 Handheld Transmitter Labs: B & D

Model: TBD Tested By: James Ross

Duty Cycle: 31.51% - X-Axis

					Peak /	Ant.	Table	
Freq.	Level				QP/	Height	Angle	
(MHz)	(dBuV)	Pol (v/h)	Limit	Margin	Avg	(m)	(deg)	Comments
433.92	73.32	V	100.8	-27.48	Peak	1	0	
433.92	63.289	V	8.08	-17.511	Avg	1	0	
867.84	55.98	V	80.8	-24.82	Peak	2.2	180	
867.84	45.949	V	60.8	-14.851	Avg	2.2	180	
1301.76	43.5	V	74	-30.5	Peak	4	200	
1301.76	33.469	V	54	-20.531	Avg	4	200	
4705.7	F0.7F	\ /	00.0	20.05	Daale	0.00	205	
1735.7	58.75	V	80.8	-22.05	Peak	2.38	225	
1735.7	48.719	V	60.8	-12.081	Avg	2.38	225	
2169.6	50.43	V	80.8	-30.37	Peak	2.98	190	
2169.6	40.399	V	60.8	-20.401	Avg	2.98	190	
2100.0	40.000	V	00.0	20.401	7.09	2.00	100	
2603.52	51.75	V	80.8	-29.05	Peak	4	200	
2603.52	41.719	V	60.8	-19.081	Avg	4	200	
3037.44	55.37	V	80.8	-25.43	Peak	2.22	195	
3037.44	45.339	V	60.8	-15.461	Avg	2.22	195	
3471.36	43.67	V	80.8	-37.13	Peak	2.3	190	
3471.36	33.639	V	60.8	-27.161	Avg	2.3	190	
3905.28	47.75	V	74	-26.25	Peak	4	80	
3905.28	37.719	V	54	-16.281	Avg	4	80	
4000.0								
4339.2		V	74		Peak			No Harmonic Discovered
4339.2		V	54		Avg			

Report Number: **B60718D1** FCC Part 15 Subpart B and FCC Section 15.231 Test Report MMC Multi-channel Transmitter

Model: MC-MMC001

FCC 15.231

BTX, Inc. Handheld Transmitter Model: TBD

Labs: B & D Tested By: James Ross

Date: 07/17/06

Duty Cycle: 31.51% -X-Axis

					Peak /	Ant.	Table	
Freq.	Level				QP/	Height	Angle	
(MHz)	(dBuV)	Pol (v/h)	Limit	Margin	Avg	(m)	(deg)	Comments
433.92	89.62	Н	100.8	-11.18	Peak	1	90	
433.92	79.589	Н	80.8	-1.211	Avg	1	90	
867.84	61.08	Н	80.8	-19.72	Peak	1	265	
867.84	51.049	Н	60.8	-9.751	Avg	1	265	
4004 70	00.04			40.00	<u> </u>	0.00	0.5	
1301.76	60.61	H	74	-13.39	Peak	2.96	95	
1301.76	50.579	Н	54	-3.421	Avg	2.96	95	
1735.7	66.28	Н	00.0	-14.52	Doole	1.09	100	
		Н	80.8		Peak			
1735.7	56.249	П	60.8	-4.551	Avg	1.09	100	
2169.6	53.87	Н	80.8	-26.93	Peak	2.86	260	
2169.6	43.839	Н	60.8	-16.961	Avg	2.86	260	
2100.0	10.000		00.0	10.001	7.19	2.00		
2603.52	56.93	Н	80.8	-23.87	Peak	1.41	165	
2603.52	46.899	Н	60.8	-13.901	Avg	1.41	165	
3037.44	62.11	Н	80.8	-18.69	Peak	4	180	
3037.44	52.079	Н	60.8	-8.721	Avg	4	180	
3471.36	48.5	Н	80.8	-32.3	Peak	2.74	180	
3471.36	38.469	Н	60.8	-22.331	Avg	2.74	180	
000 7 65	<b>=</b> 0.46			22.25				
3905.28	53.18	H	74	-20.82	Peak	3.1	325	
3905.28	43.149	Н	54	-10.851	Avg	3.1	325	
4339.2	44.71	Н	74	-29.29	Peak	2.28	220	
4339.2	34.679	Н	54	-19.321		2.28	220	
4333.2	34.079	П	54	-19.321	Avg	2.20	220	



Model: MC-MMC001

FCC 15.231

BTX, Inc. Date: 07/17/06 Handheld Transmitter Labs: B & D

Model: TBD Tested By: James Ross

Duty Cycle: 31.51% - Y-Axis

					Peak /	Ant.	Table	
Freq.	Level				QP/	Height	Angle	
(MHz)	(dBuV)	Pol (v/h)	Limit	Margin	Avg	(m)	(deg)	Comments
433.92	87.02	V	100.8	-13.78	Peak	1	270	
433.92	76.989	V	80.8	-3.811	Avg	1	270	
867.84	61.08	V	80.8	-19.72	Peak	1.2	180	
867.84	51.049	V	60.8	-9.751	Avg	1.2	180	
1301.76	50.3	V	74	-23.7	Peak	1	180	
1301.76	40.269	V	54	-13.731	Avg	1	180	
4705.7	50.40		00.0	00.04	Б		400	
1735.7	58.16	V	80.8	-22.64	Peak	1	180	
1735.7	48.129	V	60.8	-12.671	Avg	1	180	
2169.6	50.43	V	80.8	-30.37	Peak	1.1	355	
2169.6	40.399	V	60.8	-30.37	Avg	1.1	355	
2109.0	40.399	V	00.0	-20.401	Avg	1.1	300	
2603.52	51.22	V	80.8	-29.58	Peak	1.49	80	
2603.52	41.189	V	60.8	-19.611	Avg	1.49	80	
2000.02	11.100	•	00.0	10.011	7.09	1.10		
3037.44	52.33	V	80.8	-28.47	Peak	1.23	355	
3037.44	42.299	V	60.8	-18.501	Avg	1.23	355	
3471.36	41.77	V	80.8	-39.03	Peak	1.2	35	
3471.36	31.739	V	60.8	-29.061	Avg	1.2	35	
					-			
3905.28	47.77	V	74	-26.23	Peak	1.4	350	
3905.28	37.739	V	54	-16.261	Avg	1.4	350	
4339.2		V	74		Peak			No Harmonic Discovered
4339.2		V	54		Avg			

Report Number: B60718D1 FCC Part 15 Subpart B and FCC Section 15.231 Test Report MMC Multi-channel Transmitter

Date: 07/17/06

Labs: B & D

Model: MC-MMC001

FCC 15.231

BTX, Inc. Handheld Transmitter

Model: TBD Tested By: James Ross

Duty Cycle: 31.51% - Y-Axis

					Peak /	Ant.	Table	
Freq.	Level				QP/	Height	Angle	
(MHz)	(dBuV)	Pol (v/h)	Limit	Margin	Avg	(m)	(deg)	Comments
433.92	77.92	Н	100.8	-22.88	Peak	1	315	
433.92	67.889	Н	80.8	-12.911	Avg	1	315	
867.84	49.08	Н	80.8	-31.72	Peak	1	100	
867.84	39.049	Н	60.8	-21.751	Avg	1	100	
1301.76	46.42	Н	74	-27.58	Peak	2.81	50	
1301.76	36.389	Н	54	-17.611	Avg	2.81	50	
1735.7	55.56	Н	80.8	-25.24	Peak	1.13	125	
1735.7	45.529	Н	60.8	-15.271	Avg	1.13	125	
2169.6	48.32	Н	80.8	-32.48	Peak	3.56	200	
2169.6	38.289	Н	60.8	-22.511	Avg	3.56	200	
2603.52	64.76	Н	80.8	-16.04	Peak	1.36	355	
2603.52	54.729	Н	60.8	-6.071	Avg	1.36	355	
3037.44	64.56	Н	80.8	-16.24	Peak	1.39	355	
3037.44	54.529	Н	60.8	-6.271	Avg	1.39	355	
0.474.00	= 4.0					4.40		
3471.36	51.8	Н	80.8	-29	Peak	1.16	0	
3471.36	41.769	Н	60.8	-19.031	Avg	1.16	0	
2005.00	F7 F7		7.4	40.40	Daal	4.40	0	
3905.28	57.57	Н	74	-16.43	Peak	1.16	0	
3905.28	47.539	Н	54	-6.461	Avg	1.16	0	
4339.2	45.09	Н	74	-28.91	Book	2.54	180	
4339.2	35.059	Н	54	-18.941	Peak	2.54	180	
4339.2	35.059	П	54	-18.941	Avg	2.54	180	

MMC Multi-channel Transmitter Model: MC-MMC001

FCC 15.231

BTX, Inc. Date: 07/17/06 Handheld Transmitter Labs: B & D

Model: TBD Tested By: James Ross

Duty Cycle: 31.51% - Z-Axis

					Peak /	Ant.	Table	
Freq.	Level				QP/	Height	Angle	
(MHz)	(dBuV)	Pol (v/h)	Limit	Margin	Avg	(m)	(deg)	Comments
433.92	81.82	V	100.8	-18.98	Peak	1	0	
433.92	71.789	V	80.8	-9.011	Avg	1	0	
867.84	53.88	V	80.8	-26.92	Peak	200	2	
867.84	43.849	V	60.8	-16.951	Avg	200	2	
1301.76	42.43	V	74	-31.57	Peak	4	225	
1301.76	32.399	V	54	-21.601	Avg	4	225	
4705.7	50.40	\ /	00.0	07.04	D I-	0.04	000	
1735.7	53.49	V	80.8	-27.31	Peak	3.34	220	
1735.7	43.459	V	60.8	-17.341	Avg	3.34	220	
2169.6	45.6	V	80.8	-35.2	Peak	3.3	280	
2169.6	35.569	V	60.8	-25.231	Avg	3.3	280	
2103.0	33.303	V	00.0	-20.201	Avg	5.5	200	
2603.52	51.62	V	80.8	-29.18	Peak	3.32	180	
2603.52	41.589	V	60.8	-19.211	Avg	3.32	180	
								_
3037.44	53.09	V	80.8	-27.71	Peak	2.16	100	
3037.44	43.059	V	60.8	-17.741	Avg	2.16	100	
					_			
3471.36	45.92	V	80.8	-34.88	Peak	2.12	105	
3471.36	35.889	V	60.8	-24.911	Avg	2.12	105	
3905.28	51.15	V	74	-22.85	Peak	2.15	85	
3905.28	41.119	V	54	-12.881	Avg	2.15	85	
4000 5								
4339.2		V	74		Peak			No Harmonic Discovered
4339.2		V	54		Avg			



FCC 15.231

BTX, Inc. Date: 07/17/06 Handheld Transmitter Labs: B & D

Model: TBD Tested By: James Ross

Duty Cycle: 31.51% - Z-Axis

					Peak /	Ant.	Table	
Freq.	Level				QP/	Height	Angle	
(MHz)	(dBuV)	Pol (v/h)	Limit	Margin	Avg	(m)	(deg)	Comments
433.92	88.62	Н	100.8	-12.18	Peak	1	90	
433.92	78.589	Н	8.08	-2.211	Avg	1	90	
007.04	00.00		00.0	47.00				
867.84	62.88	Н	80.8	-17.92	Peak	1	80	
867.84	52.849	Н	60.8	-7.951	Avg	1	80	
1301.76	62.62	Н	74	-11.38	Peak	2.94	270	
1301.76	52.589	Н	54	-1.411	Avg	2.94	270	
1735.7	67.09	Н	80.8	-13.71	Peak	2.48	270	
1735.7	57.059	Н	60.8	-13.71	Avg	2.48	270	
1735.7	57.059	П	00.0	-3.741	Avg	2.40	210	
2169.6	56.14	Н	80.8	-24.66	Peak	2.96	270	
2169.6	46.109	Н	60.8	-14.691	Avg	2.96	270	
2603.52	56.12	Н	80.8	-24.68	Peak	2.57	225	
2603.52	46.089	H	60.8	-14.711	Avg	2.57	225	
2000.02	40.000		00.0	1-7.7 1 1	7119	2.01	220	
3037.44	59.92	Н	80.8	-20.88	Peak	2.53	170	
3037.44	49.889	Н	8.06	-10.911	Avg	2.53	170	
3471.36	47.12	Н	80.8	-33.68	Peak	3.15	180	
3471.36	37.089	H	60.8	-33.66		3.15	180	
3471.30	37.009	П	00.0	-23.711	Avg	3.13	100	
3905.28	46.25	Н	74	-27.75	Peak	2.88	185	
3905.28	36.219	Н	54	-17.781	Avg	2.88	185	
4339.2		Н	74		Peak			No Harmonic Discovered
4339.2			54		Avg			. to hamonio biocovorou

Report Number: **B60718D1 FCC Part 15 Subpart B** and **FCC Section 15.231** Test Report *MMC Multi-channel Transmitter* 

Model: MC-MMC001

Test Location : Compatible Electronics Page : 1/1

Customer: BTX Holdings, Inc.Date: 7/18/2006Manufacturer: BTX Holdings, Inc.Time: 8:50:03

Eut name : MMC Multi-channel Transmitter Lab : D

Model : MC-MMC001 Test Distances : 3 meters
Serial # \*10 meters

Specification : FCC Class B

Distance correction factor (20 \* log(test/spec) : 0.00

Test Mode : Test Type: Spurious Emissions (Final)

Test Frequency Range: 10 kHz to 4.34 GHz

(Vertical and Horizontal)

Test Engineer: James Ross

Pol Freq Rdng Cable Ant Amp Cor'd Limit Delta rdg = Rloss = L R-L factor gain dBuV dВ dВ dВ dBuV dBuV/m dВ MHz

No spurious emissions were discovered from the EUT in the above noted test frequency range.

\_\_\_\_\_\_

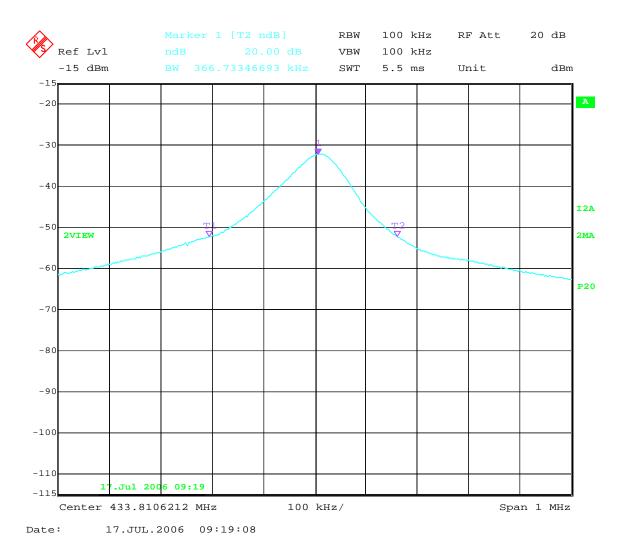
<sup>\*</sup>The 10-meter test distance was done with the loop antenna, 10 kHz to 30 MHz measurements only

Report Number: **B60718D1 FCC Part 15 Subpart B** and **FCC Section 15.231** Test Report *MMC Multi-channel Transmitter Model: MC-MMC001* 

-20 dB BANDWIDTH

DATA SHEET

Model: MC-MMC001



-20 dB Bandwidth Plot of the Fundamental