ENGINEERING TEST REPORT

Procaster
Model No.: AMTX200
FCC ID: VCJ-AMTX200

Applicant:

ChezRadio
18 Kingsgate Place
Bolton, Ontario
Canada L7E 5Z5

In Accordance With

Federal Communications Commission (FCC) Part 15, Subpart C
Unlicensed Low Power Transmitter Operating
in the band 510-1705 kHz

UltraTech's File No.: VIDC-002_F15C219

This Test report is Issued under the Authority of Tri M. Luu, BASc., Vice President of Engineering UltraTech Group of Labs Date: July 29, 2013	
Report Prepared by: Dharmajit Solanki Issued Date: July 29, 2013	Tested by: Mr. Hung Trinh, RFI Technician Test Dates: July 18 – 19, 2013

- *The results in this Test Report apply only to the sample(s) tested, and the sample tested is randomly selected.*
- *This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government.*

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FCC	VCCI	Industry Canada Approved Test Facility	NVLAP	BSMI	Korea KCC-RRL
91038	1309	46390-2049	NVLAP LAB CODE 200093-0	SL2-IN-E-1119R	CA2049

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EXHIBIT 1. INTRODUCTION

1.1. SCOPE

Reference:	FCC Part 15, Subpart C, Sec.15.219 - Operation within the band 510-1705 kHz.
Title:	Telecommunication - Code of Federal Regulations, CFR 47, Part 15, Subpart C
Purpose of Test:	To obtain Certification Authorization from FCC
Test Procedures:	Both conducted and radiated emissions measurements were conducted in accordance with American National Standards Institute ANSI C63.4 - 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.
Environmental Classification:	Residential Commercial, industrial or business environment

1.2. RELATED SUBMITTAL(S)/GRANT(S)

None

1.3. NORMATIVE REFERENCES

Publication	Year	Title
FCC CFR Parts 0-19	2013	Code of Federal Regulations – Telecommunication
ANSI C63.4	2009	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
ANSI C63.10	2009	American National Standard for Testing Unlicensed Wireless Devices
CISPR 22 & EN 55022	2008-09, Edition 6.0 2006	Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement
CISPR 16-1-1 +A1 +A2	2006 2006 2007	Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-1: Measuring Apparatus
CISPR 16-1-2 +A1 +A2	2003 2004 2006	Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-2: Conducted disturbances

EXHIBIT 2. PERFORMANCE ASSESSMENT

2.1. CLIENT INFORMATION

APPLICANT	
Name:	ChezRadio
Address:	18 Kingsgate Place, Bolton, ON Canada L7E 5Z5
Contact Person:	Mr. Gerry Herlinger, Phone #: 416-278-0467 Fax #: 905-857-5198 Email Address: info@chezradio.com

MANUFACTURER	
Name:	ChezRadio
Address:	18 Kingsgate Place, Bolton, ON Canada L7E 5Z5
Contact Person:	Mr. Gerry Herlinger, Phone #: 416-278-0467 Fax #: 905-857-5198 Email Address: info@chezradio.com

2.2. EQUIPMENT UNDER TEST (EUT) INFORMATION

The following information (with the exception of the Date of Receipt) has been supplied by the applicant.

Brand Name:	ChezRadio
Product Name:	Procaster
Model Name or Number:	AMTX200
Serial Number:	Test sample
Type of Equipment:	Low Power Transmitter
Input Power Supply Type:	120 VAC, 60Hz, AC Adaptor
Primary User Functions of EUT:	AM Broadcast Transmitter

2.3. EUT'S TECHNICAL SPECIFICATIONS

Transmitter	
Equipment Type:	▪ Fixed
Intended Operating Environment:	▪ Residential ▪ Commercial, light industry & heavy industry
Power Supply Requirement:	12 VDC, 100mA
Field Strength:	87.4 dBµV/m at 10m
Operating Frequency Range:	1290 - 1700 kHz
RF Output Power Rating:	100mW
20 dB Bandwidth:	4.68 kHz
Modulation Type:	AM
Clock Frequency:	10.24 MHz
Antenna Connector Type:	None, Permanently Attached
Antenna Description:	Manufacturer: ChezRadio Type: Whip

2.4. LIST OF EUT'S PORTS

Port Number	EUT's Port Description	Number of Identical Ports	Connector Type	Cable Type (Shielded/Non-shielded)
1	Audio Input	1	Terminal Block	Non Shielded
2	Power Supply	1	Terminal Block	Non-Shielded

2.5. ANCILLARY EQUIPMENT

The EUT was tested while connected to the following representative configuration of ancillary equipment necessary to exercise the ports during tests:

Ancillary Equipment # 1	
Description:	AC Adaptor
Brand name:	Mode Electronics
Model Name or Number:	KA12D120050035U
Part Number:	68-125P-1
Connected to EUT's Port:	Studio Interface

2.6. GENERAL TEST SETUP

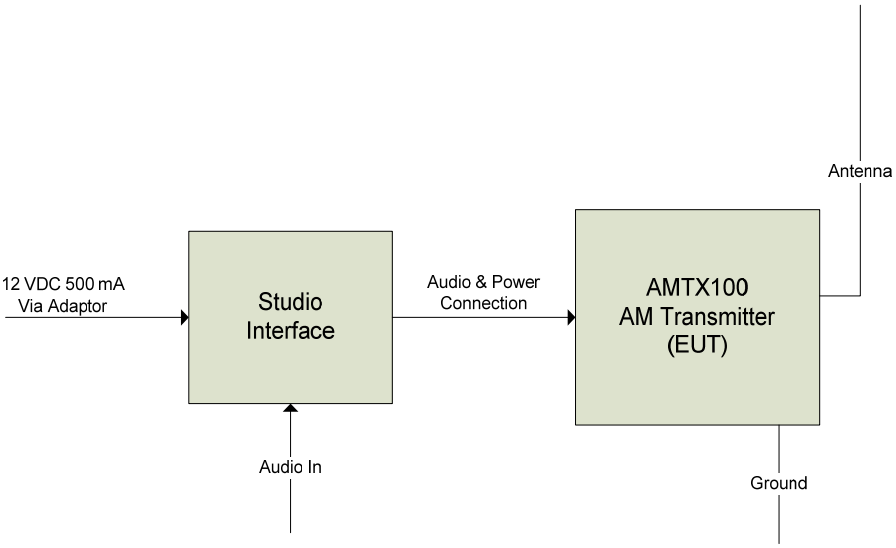


EXHIBIT 3. EUT OPERATING CONDITIONS AND CONFIGURATIONS DURING TESTS

3.1. CLIMATE TEST CONDITIONS

The climate conditions of the test environment are as follows:

Temperature:	21°C - 24°C
Humidity:	40 to 55%
Pressure:	101 -102 kPa
Power input source:	12 VDC (AC Adaptor)

3.2. OPEPERATIONAL TEST CONDITIONS & ARRANGEMENT FOR TESTS

Operating Modes:	Normal
Special Test Software:	None
Special Hardware Used:	None
Transmitter Test Antenna:	External, Permanently Attached

Transmitter Test Signals:	
Frequency:	1500 kHz
Transmitter Wanted Output Test Signals:	
▪ RF Input Power to Final RF Stage(measured):	97.0 mW
▪ Normal Test Modulation:	AM
▪ Modulating signal source:	Internal

EXHIBIT 4. SUMMARY OF TEST RESULTS

4.1. LOCATION OF TESTS

All of the measurements described in this report were performed at Ultratech Group of Labs located in the city of Oakville, Province of Ontario, Canada.

- AC Power Line Conducted Emissions were performed in UltraTech's shielded room, 24'(L) by 16'(W) by 8'(H).

- Radiated Emissions were performed at the Ultratech's 3-10 TDK Semi-Anechoic Chamber situated in the Town of Oakville, province of Ontario. This test site been calibrated in accordance with ANSI C63.4, and found to be in compliance with the requirements of Sec. 2.948 of the FCC Rules. The descriptions and site measurement data of the Oakville 3-10 TDK Semi-Anechoic Chamber has been filed with FCC office (FCC File No.: 91038) and Industry Canada office (Industry Canada File No.: 2049A-3). Expiry Date: 2014-04-04.

4.2. APPLICABILITY & SUMMARY OF EMC EMISSION TEST RESULTS

FCC Regulations	Test Requirements	Compliance (Yes/No)
15.203 & 15.204	The transmitter shall use a transmitting antenna that is an integral part of the device	Yes
	20 dB & 99% Bandwidth	Yes
15.219(a)	Total Input Power to the Final RF Stage $\leq$ 100mW	Yes
15.219(b)	Total Length of the Transmission Line, Antenna and Ground Lead $\leq$ 3 meters	Yes
15.219(c)	Field Strength of Emissions Outside the Permitted Band 510 - 1705 kHz	Yes
15.107 & 15.207	Class B - AC Power Line Conducted Emissions	Yes
15.109(b)	Class B - Radiated Emissions from Unintentional Radiators	Yes

4.3. MODIFICATIONS INCORPORATED IN THE EUT FOR COMPLIANCE PURPOSES

None

EXHIBIT 5. MEASUREMENTS, EXAMINATIONS & TEST DATA FOR EMC EMISSIONS

5.1. TEST PROCEDURES

This section contains test results only. Details of test methods and procedures can be found in ANSI C63.4 and ULTR-P001-2004.

5.2. MEASUREMENT UNCERTAINTIES

The measurement uncertainties stated were calculated in accordance with requirements of UKAS Document LAB 34 with a confidence level of 95%. Please refer to Exhibit 6 for Measurement Uncertainties.

5.3. MEASUREMENT EQUIPMENT USED

The measurement equipment used complied with the requirements of the Standards referenced in the Methods & Procedures ANSI C63.4 and CISPR 16-1-1.

5.4. COMPLIANCE WITH FCC PART 15 – GENERAL TECHNICAL REQUIREMENTS

FCC Section	FCC Rules	
15.203	Described how the EUT complies with the requirement that either its antenna is permanently attached, or that it employs a unique antenna connector, for every antenna proposed for use with the EUT. The exception is in those cases where EUT must be professionally installed. In order to demonstrate that professional installation is required, the following 3 points must be addressed: • The application (or intended use) of the EUT • The installation requirements of the EUT • The method by which the EUT will be marketed	External whip antenna permanently mounted directly to transmitter PCB without any transmission line.
15.204	Provided the information for every antenna proposed for use with the EUT: (a) type (e.g. Yagi, patch, grid, dish, etc…), (b) manufacturer and model number (c) gain with reference to an isotropic radiator	Yes. Manufacturer: ChezRadio Type: Whip

5.5. OCCUPIED BANDWIDTH

5.5.1. Limits

The bandwidth shall show band-edge compliance.

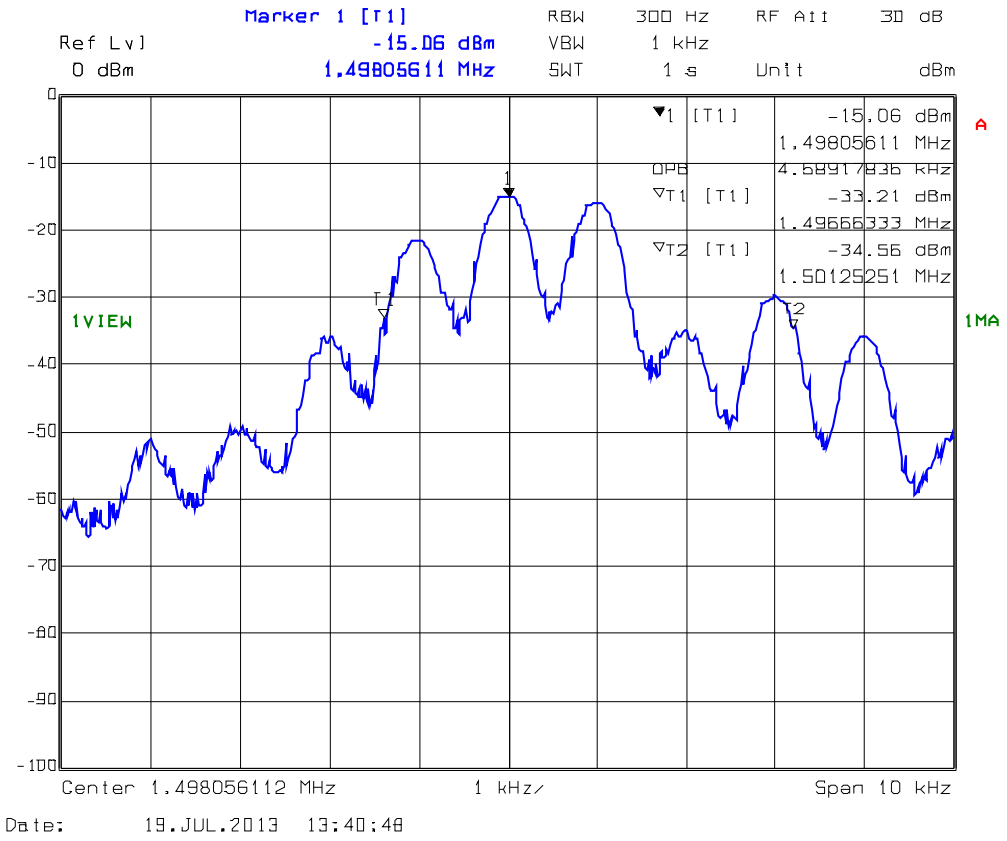
5.5.2. Method of Measurements

Refer to Ultratech Test Procedures, File # ULTR P001-2004 and ANSI C63.4 for measurement methods

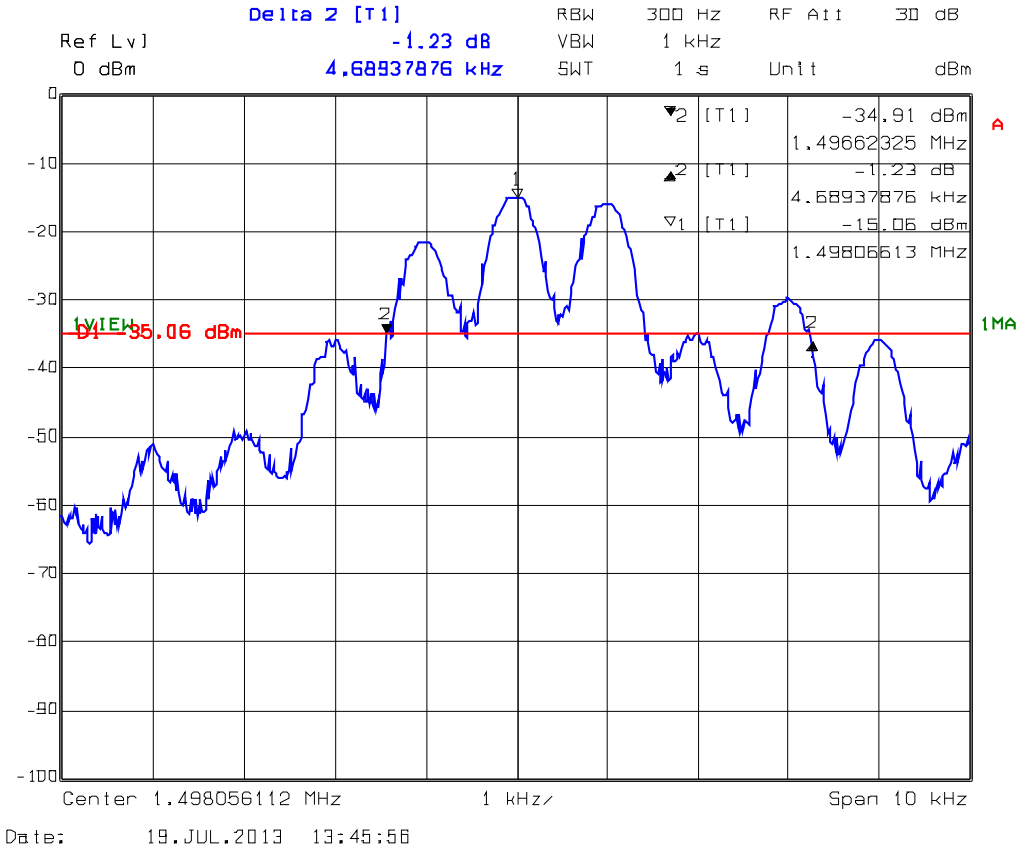
5.5.3. Test Data

Test Frequency (kHz)	Occupied Bandwidth (kHz)	
	20 dB BW	99 % BW
1500	4.69	4.59

Plot 1: 20dB Bandwidth
Test Frequency: 1500 kHz



Plot 2: 99% Occupied Bandwidth
Test Frequency: 1500 kHz



5.6. TOTAL INPUT POWER TO THE FINAL RADIO FREQUENCY STAGE OF AMPLIFIER [47 CFR 15.219 (a)]

5.6.1. Limits

(a) The total input power to the final radio frequency stage (exclusive of filament or heater power) shall not exceed 100 milliwatts.

Note:- The following measurements and test results were supplied by the manufacturer and are copied here to show compliance with this requirement.

5.6.2. Over View

It can be proven mathematically that maximum power is delivered across the load when the effective load resistance presented by the final amplifier (the voltage across the final amplifier divided by the current) is equal to R. If an equivalent resistance equal to R is added between a power supply set at double the voltage across the final amplifier, then automatic power regulation is achieved.

Through experimentation, it was found that the final output stage in the AMTX200 transmitter works most efficiently when 2.5V is applied resulting in a current flow of 40mA. This is an input power of 100mW and a resulting final resistance of 62.5 ohms (R).

If the external voltage source is doubled to 5V and a series resistor equivalent to 62.5 ohms is added then 100mW will be maintained across all frequencies.

Through experimentation, it was found that 82 ohms was the best choice to maintain final amplifier input power under 100mW.

5.6.3. Test Diagram

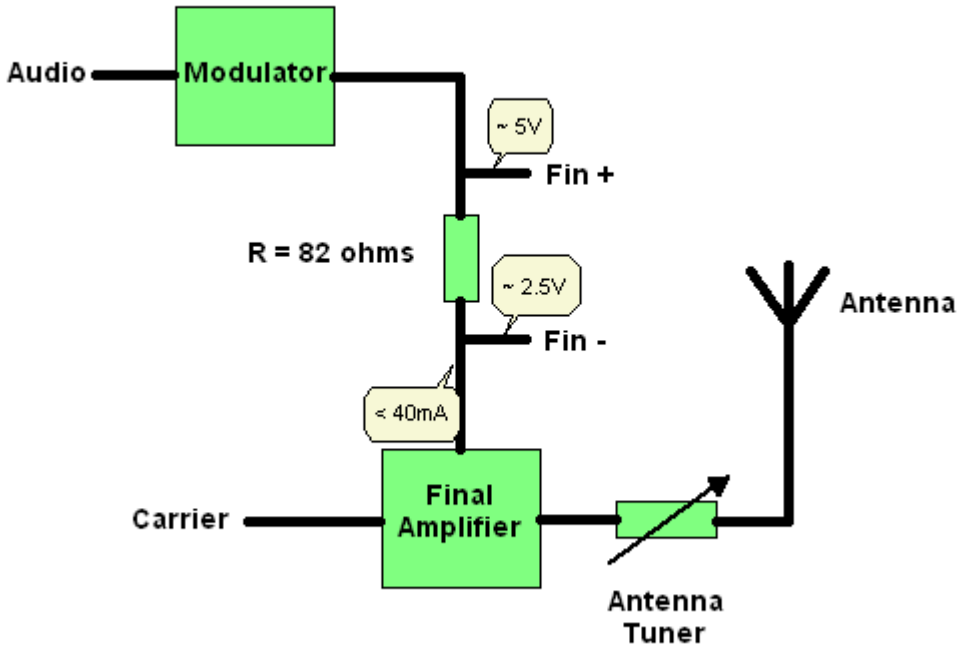


Fig - Final output stage configuration

5.6.4. Test Data

The following measurements were made at the low (1290kHz), mid (1500kHz) and high (1700kHz) frequency ranges of the AMTX200 transmitter with the antenna tuned to resonance (maximum power).

At 1290 kHz:

Voltage across FIN+ and FIN- = 3.55 V
Current through R = 43mA
Voltage at FIN- wrt ground = 2.13 V
Power input to final amplifier = 92mW

At 1500 kHz:

Voltage across FIN+ and FIN- = 2.63V
Current through R = 32mA
Voltage at FIN- wrt ground = 3.05V
Power input to final amplifier = **97mW**

At 1700 kHz:

Voltage across FIN+ and FIN- = 3.17V
Current through R = 38mA
Voltage at FIN- wrt ground = 2.53V
Power input to final amplifier = 96mW

5.7. TOTAL LENGTH OF THE ANTENNA, TRANSMISSION LINE & GROUND LEAD [47 CFR 15.219 (b)]

5.7.1. Limits

(b) The total length of the transmission line, antenna and ground lead (if used) shall not exceed 3 meters.

5.7.2. Results

The manufacturer ChezRadio has confirmed that the installation will meet the above requirement and listed this as a warning statement in the user manual as per below.

Warning: FCC rules (47 part 15.219) state:" the total length of the transmission line, antenna and ground lead (if used) shall not exceed 3 meters." [3 meters = 118 inches]

The PROCASTER™ has an attached 103 inch antenna measured from its tip to the lower mounting bolt which is the connection of the transmitter output. It has no transmission line. A 15 inch maximum ground lead is allowed from the grounding lug to a massive ground.

5.8. FIELD STRENGTH OF EMISSIONS INSIDE & OUTSIDE THE PERMITTED BAND 510-1705 kHz [47 CFR 15.219 (c)]

5.8.1. Limits

(c) All emissions below 510 kHz or above 1705 kHz shall be attenuated at least 20 dB below the level of the unmodulated carrier. Determination of the compliance with the 20 dB attenuation specification may be based on the measurements at the intentional radiator's antenna output terminal unless the intentional radiator uses a permanently attached antenna, in which case compliance shall be demonstrated by measuring the radiated emissions.

Remarks:

FCC CFR 47, Part 15, Subpart C, Para. 15.205(a) - Restricted Frequency Bands

MHz	MHz	MHz	GHz
0.090 - 0.110	162.0125 - 167.17	2310 - 2390	9.3 - 9.5
0.49 – 0.51	167.72 - 173.2	2483.5 - 2500	10.6 - 12.7
2.1735 - 2.1905	240 - 285	2655 - 2900	13.25 - 13.4
8.362 - 8.366	322 - 335.4	3260 - 3267	14.47 - 14.5
13.36 - 13.41	399.9 - 410	3332 - 3339	14.35 - 16.2
25.5 – 25.67	608 - 614	3345.8 - 3358	17.7 - 21.4
37.5 – 38.25	960 - 1240	3600 - 4400	22.01 - 23.12
73 - 75.4	1300 - 1427	4500 - 5250	23.6 - 24.0
108 – 121.94	1435 - 1626.5	5350 - 5460	31.2 - 31.8
123 – 138	1660 - 1710	7250 - 7750	36.43 - 36.5
149.9 – 150.05	1718.8 - 1722.2	8025 - 8500	Above 38.6
156.7 – 156.9	2200 - 2300	9000 - 9200	

FCC CFR 47, Part 15, Subpart C, Para. 15.209(a)
-- Field Strength Limits within Restricted Frequency Bands --

FREQUENCY (MHz)	FIELD STRENGTH LIMITS (microvolts/m)	DISTANCE (Meters)
0.009 - 0.490	2,400 / F (KHz)	300
0.490 - 1.705	24,000 / F (KHz)	30
1.705 - 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 – 960	200	3
Above 960	500	3

5.8.2. Method of Measurements

Refer to Ultratech Test Procedures, File # ULTR P001-2004 and ANSI C63.4 for measurement methods

Applies to harmonics/spurious that fall in the restricted bands listed in Section 15.205. the maximum permitted average field strength is listed in Section 15.209. A Pre-Amp and high-pass filter are used for this measurement.

- For measurements from 9 KHz to 150 KHz, set RBW = 200 Hz, VBW ≥ RBW, SWEEP=AUTO.
- For measurements from 150 KHz to 30 MHz, set RBW = 10 KHz, VBW ≥ RBW, SWEEP=AUTO.
- For measurements from 30 MHz to 1 GHz, set RBW = 100 KHz, VBW ≥ RBW, SWEEP=AUTO.
- For measurement above 1 GHz, set RBW = 1 MHz, VBW = 1 MHz, SWEEP=AUTO.

If the emission is pulsed, modified the unit for continuous operation, then use the settings above for measurements, then correct the reading by subtracting the peak-average correction factor derived from the appropriate duty cycle calculation. See Section 15.35(b) and (c).

5.8.3. Test Data

5.8.3.1. Field Strength level of Un-modulated Carrier

Frequency (MHz)	Measured Field Strength @ 10m (dBµV/m)	Detector Used (Peak/QP)	Antenna Plane	Limit
1.5	76.8	Peak	0°	N/A
1.5	87.4	Peak	90º	N/A

5.8.3.2. Field Strength of Emissions Outside the Permitted Band (10 kHz to 30 MHz)

Frequency (MHz)	Measured Field Strength @ 10m (dBµV/m)	Detector Used (Peak/QP)	Antenna Plane	§ 15.219(c) Limit (dBµV/m)	§ 15.205 (Restricted Band) Limit (dBµV/m)	Margin (dB)
3.0	41.6	Peak	0°	67.4	N/A	-25.8
3.0	50.4	Peak	90º	67.4	N/A	-17.0
4.5	34.7	Peak	0°	67.4	N/A	-32.7
4.5	41.0	Peak	90º	67.4	N/A	-26.4
7.5	28.8	Peak	0°	67.4	N/A	-38.6
7.5	32.3	Peak	90º	67.4	N/A	-35.1

5.9. RADIATED EMISSIONS FROM CLASS B UNINTENTIONAL RADIATORS (DIGITAL DEVICES) [47 CFR 15.109(a)]

5.9.1. Limits

The equipment shall meet the limits of the following table:

Frequency of emission (MHz)	Class B Limits	
	(dBµV/m at 3 m)	(dBµV/m at 10 m)
30 – 88	40.0	29.5
88 – 216	43.5	33.1
216 – 960	46.0	35.6
Above 960	54.0	43.5

5.9.2. Method of Measurements

Refer to Ultratech Test Procedures ULTR-P001-2004 & ANSI C63.4 for method of measurements.

The spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 -1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

5.9.3. Test Data (Field Strength of Radiated Emissions 30 MHz to 1 GHz)

Frequency (MHz)	Measured Field Strength @ 3m (dBµV/m)	Detector Used (Peak/QP)	Antenna Plane (H/V)	§ 15.219 Limit (dBµV/m)	§ 15.109 Field Strength Limits (dBµV/m)	Margin (dB)
92.17	31.5	Peak	V	67.4	43.5	-12.0
144.0	33.7	Peak	V	67.4	43.5	-9.8
173.0	33.1	Peak	V	67.4	43.5	-10.4
183.9	33.2	Peak	V	67.4	43.5	-10.3

5.10. AC POWERLINE CONDUCTED EMISSIONS [47 CFR 15.107(a) & 15.207]

5.10.1. Limits

The equipment shall meet the limits of the following table:

Test Frequency Range (MHz)	Class B Limits (dBμV)		Measuring Bandwidth
	Quasi-Peak	Average	
0.15 to 0.5	66 to 56*	56 to 46*	RBW = 9 kHz VBW ≥ 9 kHz for QP VBW = 1 Hz for Average
0.5 to 5	56	46	RBW = 9 kHz VBW ≥ 9 kHz for QP VBW = 1 Hz for Average
5 to 30	60	50	RBW = 9 kHz VBW ≥ 9 kHz for QP VBW = 1 Hz for Average

* Decreasing linearly with logarithm of frequency

5.10.2. Method of Measurements

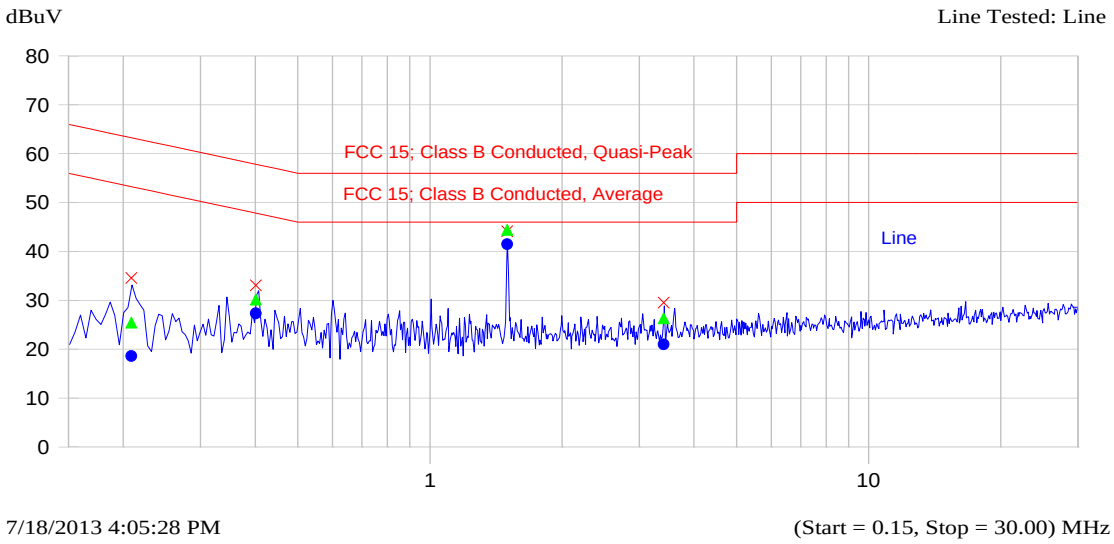
Refer to Ultratech Test Procedures, File # ULTR P001-2004 and ANSI C63.4 for measurement methods

5.10.3. Test Data

Plot 3: AC Power Line Conducted Emission
Line Tested: L1
Line Voltage 120 VAC 60 Hz

Setup Name: FCC 15 Class B
Customer Name: Chezradio
Project Number: VIDC-002Q
Operator Name: Wei
EUT Name: 100mW AM radio.
Date Created: 7/18/2013 3:08:54 PM

Current Graph



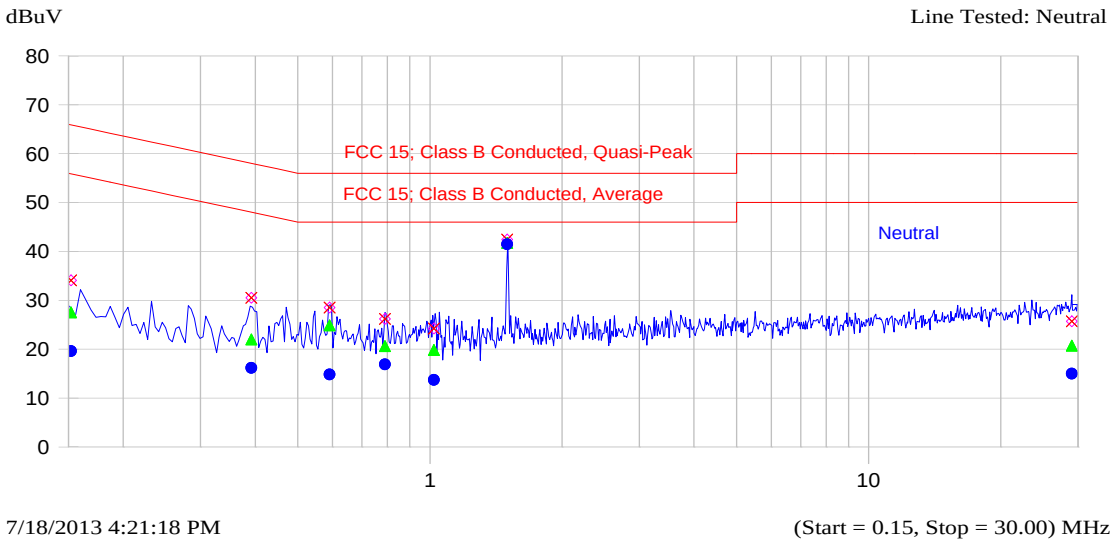
Current List

Frequency MHz	Peak dBuV	QP dBuV	Delta QP-QP Limit dB	Avg dBuV	Delta Avg-Avg Limit dB	Trace Name
0.209	34.6	25.4	-38.8	18.6	-35.7	Line
0.401	33.1	30.2	-28.6	27.3	-21.4	Line
1.500	44.1	44.4	-11.6	41.5	-4.5	Line
3.408	29.5	26.3	-29.7	21.0	-25.0	Line

Plot 4: AC Power Line Conducted Emission
Line Tested: L2
Line Voltage 120 VAC 60 Hz

Setup Name: FCC 15 Class B
Customer Name: Chezradio
Project Number: VIDC-002Q
Operator Name: Wei
EUT Name: 100mW AM radio.
Date Created: 7/18/2013 3:08:54 PM

Current Graph



Current List

Frequency MHz	Peak dBuV	QP dBuV	Delta QP-QP Limit dB	Avg dBuV	Delta Avg-Avg Limit dB	Trace Name
0.152	34.1	27.5	-38.4	19.6	-36.3	Neutral
0.392	30.5	22.0	-37.0	16.2	-32.8	Neutral
0.591	28.5	24.9	-31.1	14.8	-31.2	Neutral
0.789	26.2	20.6	-35.4	16.9	-29.1	Neutral
1.020	24.2	19.8	-36.2	13.7	-32.3	Neutral
1.500	42.4	41.8	-14.2	41.5	-4.5	Neutral
29.046	25.7	20.7	-39.3	15.0	-35.0	Neutral

EXHIBIT 6. TEST EQUIPMENTS

Test Instruments	Manufacturer	Model No.	Serial No.	Frequency Range	Cal Due Date
Loop Antenna	EMCO	6502	9104-2611	10KHz-30MHz	26 Aug 2013
Spectrum Analyzer	Rohde & Schwarz	FSEK30	100077	20 Hz – 40 GHz	02 Nov 2013
Spectrum Analyzer	HP	8593EM	3412A00103	9 kHz–26.5 GHz	06 Feb 2014
Attenuator	Pasternack	PE7010-20	-	DC–2 GHz	11 Jan 2014
LISN	EMCO	3825/2	8907-1531	0.01 -100 MHz	14 May 2014
EMI Receiver	Rohde & Schwarz	ESU40	100037	20Hz-40GHz	07 Mar 2014
Biconilog Antenna	EMCO	3142C	34792	26-3000MHz	12 Jun 2014
Preamplifier	AH System	PAM-0118	225	20 MHz – 18 GHz	25 Mar 2014
Horn Antenna	EMCO	3115	9701-5061	1-18GHz	18 Feb 2014

EXHIBIT 7. MEASUREMENT UNCERTAINTY

The measurement uncertainties stated were calculated in accordance with the requirements of CISPR 16-4-2 @ IEC:2003 and JCGM 100:2008 (GUM 1995) – Guide to the Expression of Uncertainty in Measurement.

7.1. LINE CONDUCTED EMISSION MEASUREMENT UNCERTAINTY

	Line Conducted Emission Measurement Uncertainty (150 kHz – 30 MHz):	**Measured**	**Limit**
u_c	**Combined standard uncertainty:** $u_c(y) = \sqrt{\sum_{i=1}^{m} u_i^2(y)}$	**± 1.57**	**± 1.8**
U	**Expanded uncertainty U:** $U = 2u_c(y)$	**± 3.14**	**± 3.6**

7.2. RADIATED EMISSION MEASUREMENT UNCERTAINTY

	Radiated Emission Measurement Uncertainty @ 3m, Horizontal (30-1000 MHz):	**Measured**	**Limit**
u_c	**Combined standard uncertainty:** $u_c(y) = \sqrt{\sum_{i=1}^{m} u_i^2(y)}$	**± 2.15**	**± 2.6**
U	**Expanded uncertainty U:** $U = 2u_c(y)$	**± 4.30**	**± 5.2**

	Radiated Emission Measurement Uncertainty @ 3m, Vertical (30-1000 MHz):	**Measured**	**Limit**
u_c	**Combined standard uncertainty:** $u_c(y) = \sqrt{\sum_{i=1}^{m} u_i^2(y)}$	**± 2.39**	**± 2.6**
U	**Expanded uncertainty U:** $U = 2u_c(y)$	**± 4.78**	**± 5.2**

	Radiated Emission Measurement Uncertainty @ 3 m, Horizontal & Vertical (1 – 18 GHz):	**Measured**	**Limit**
u_c	**Combined standard uncertainty:** $u_c(y) = \sqrt{\sum_{i=1}^{m} u_i^2(y)}$	**± 1.87**	Under consideration
U	**Expanded uncertainty U:** $U = 2u_c(y)$	**± 3.75**	Under consideration