




This document provides supplemental information relating to the technical specifications of the product to be certified. This shall be completed in full and signed by the personnel responsible for the testing of the product. This form or the original from RSP-100 Appendix B may be used.

1. PRODUCT DETAILS

Equipment Model Number	BIS 100
Manufacturer	Biscotti Inc.
Tested to Radio Standards Specification No.:	FCC Part 15 Subpart B
Open Area Test Site Industry Canada Number:	A2LA Certificate Number: 0214.24
Frequency Range:	30MHz – 6GHz
RF Power in Watts:	NA
Field Strength (and at what distance):	NA
Occupied Bandwidth (99% BW):	NA
Type of Modulation:	NA
Emission Designator (TRC-43):	NA
Transmitter Spurious (worst case):	NA
Receiver Spurious (worst case):	NA

2. ATTESTATION

DECLARATION OF COMPLIANCE: I declare that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned Industry Canada standard(s); and that the equipment identified in this application has been subjected to all the applicable test conditions specified in the Industry Canada standards and all of the requirements of the standard have been met.	
Signature:	
Date: 9/14/2011	
NAME and TITLE (Please print or type): Dieu Vo, EMC/EMI Manager	

**Electromagnetic Compatibility (EMC) ITE Equipment
For
Biscotti Inc., BIS100
FCC PART 15, SUB-PART B, CLASS B**

Prepared For: Biscotti Inc
700 Central Expressway South
Suite 240
Allen, TX 75013

Prepared By: National Technical Systems
1701E. Plano Parkway Suite 150
Plano, TX 75074

Issued: September 22, 2011

This report and the information contained herein represent the results of testing test articles identified and selected by the client performed to specifications and/or procedures selected by the client. National Technical Systems (NTS) makes no representations, expressed or implied, that such testing is adequate (or inadequate) to demonstrate efficiency, performance, reliability, or any other characteristic of the articles being tested, or similar products. This report should not be relied upon as an endorsement or certification by NTS of the equipment tested, nor does it represent any statement whatsoever as to its merchantability or fitness of the test article, or similar products, for a particular purpose. This report shall not be reproduced except in full.

TEST SUMMARY

This test record demonstrates compliance with the following EMC requirements for the BIS100

EMISSIONS
North America Regions: <ul style="list-style-type: none">◆ CFR 47, Part 15, Subpart B, Class B, FCC Emissions◆ ICES-003 Issue 4 CAN/CSA-CEI/IEC CISPR 22;02, Class B ITE Emissions

Service For: Biscotti Inc.
700 Central Expressway South Suite 240
Allen, TX 75013

Purchase Order No.: 99

This is to certify that the following report is true and correct to the best of my knowledge.



Dieu Vo
EMI Operations Supervisor
FCC, CE, Telecommunication



Kimberly Zavala
Quality Assurance Manager



Khoa To
Test Engineer

REVISIONS

Revision	Reason for Revision	Date
0	Original	September 14, 2011
1	Added data above 1GHz for Radiated Emissions and EUT description	September 22, 2011

TABLE OF CONTENTS

REVISIONS	3
1.0 GENERAL INFORMATION	6
1.1 PRODUCT DESCRIPTION	6
1.1.1 EUT TECHNICAL DESCRIPTION	6
1.1.2 HARDWARE DETAILS.....	7
1.1.3 INTERCONNECT TABLE	7
1.1.4 SUPPORT INFORMATION	8
1.1.5 PRIMARY POWER.....	8
1.1.6 MODE OF OPERATION	8
1.1.7 TEST CONFIGURATION DIAGRAM	9
1.2 INSTRUMENT CALIBRATION.....	10
1.3 AMBIENT TESTS.....	10
1.4 FAILURE REPORTING	10
1.5 THRESHOLD OF SUSCEPTIBILITY	10
1.6 TEST PROGRAM DEVIATION.....	10
1.7 INSPECTION	11
1.8 DISPOSITION OF TEST ITEMS.....	11
1.9 TEST FACILITY.....	11
2.0 GENERAL TEST METHODOLOGY	12
2.1 EMISSIONS	12
2.1.1 RADIATED EMISSIONS FIELD STRENGTH CALCULATIONS.....	13
2.2 ORDER OF TESTING.....	13
2.3 SPECIAL TEST JUSTIFICATION.....	13
3.0 TEST CONFIGURATION	14
3.1 SELECTION OF EUT CONFIGURATION AND MODES OF OPERATION	14

3.1	EQUIPMENT MODIFICATIONS	14
4.0	EMISSIONS	15
4.1	RADIATED EMISSIONS.....	15
4.1.1	RADIATED EMISSIONS TEST SETUP	15
4.1.2	RADIATED EMISSIONS MEASUREMENT DATA	17
	SUMMARY OF PERFORMANCE	18
4.1.3	RADIATED PRE-SCAN MEASUREMENT DATA	19
4.2	CONDUCTED EMISSIONS	23
4.2.1	CONDUCTED EMISSIONS TEST SETUP.....	23
4.2.2	CONDUCTED MEASUREMENT DATA.....	24
	SUMMARY OF PERFORMANCE	24
4.3	RADIATED AND CONDUCTED EMISSIONS TEST EQUIPMENTS LIST	24

1.0 GENERAL INFORMATION

1.1 Product Description

1.1.1 EUT Technical Description

Size and Weight (Biscotti TV Phone)

- Height: 6/8 inches (19 mm)
- Width: 5 7/8 inches (150 mm)
- Depth: 15/16 inches (25 mm)
- Weight: 1.5 ounces



What's in the Box

- Biscotti TV Phone
- 6-Button Remote Control
- Power Adapter
- Mount Kit
- Setup Guide
- Lots of Love

What Else You'll Need

- TV with HDMI Input

(If your TV does not have HDMI, an external converter is available)

- Wi-Fi connection

(Minimum 768Kbps upload and download speeds)

Interoperability

- TVs: Biscotti TV Phone
- Computers: Google Talk, Gmail (www.google.com/talk/)
- Tablets and Smartphones: Google Talk, Vtok (www.vtokapp.com/)

Processor

- Digital Media System on Chip

Ports and interfaces

- High definition camera with pan/zoom
- High sensitivity microphone
- IR receiver
- Wi-Fi wireless network
- LED status indicator
- HDMI Input (optional)
- HDMI Output

- Power Input

Power

- Level V 110/120VAC to DC external power supply (Energy Star compliant)

Connectivity

- Wi-Fi (802.11b/g/n) wireless network
- HDMI with Consumer Electronics Control (CEC) connection

Camera

- 5 megapixel
- Fixed Focus (6 inches to infinity)
- Enhanced low-light performance
- Digital Pan/Tilt/Zoom

Video and Audio Formats

- H.264 video up to 720p, High Profile and Baseline Profile.
- 16 kHz wideband audio

TV and Pass-Through Compatibility

☐ Works with high definition TVs with HDMI and popular consumer electronics devices with HDMI, including cable boxes, satellite boxes, Blu-ray players, DVD players, Smart TV devices and gaming devices.

Earth Friendly

- ROHS compliant circuit assembly
- UL approved enclosure
- Recyclable packaging
- Level V Power Adapter meets ENERGY STAR requirements

Operating Environment

- Operating temperature: 0° to 86° F (0° to 30° C)
- Storage temperature: -4° to 113° F (-20° to 45° C)
- Relative humidity: 5% to 95% noncondensing

Accessories

- ☐ 9 foot HDMI Cable
- ☐ 15 foot HDMI Cable
- ☐ Biscotti Remote Control
- ☐ Biscotti Power Adapter
- ☐ Biscotti Mount Kit
- ☐ HDMI Converter
- ☐ Extended Product Protection Plan

1.1.2 Hardware Details

BIS 100

1.1.3 Interconnect Table

HDMI Input

Function: Interface to Cable or Satellite Box.

Location: Rear

Connector Type: HDMI Female

Length: N/A
Shielded Cable

HDMI Output

Function: Interface to TV
Location: Rear
Connector Type: HDMI Female
Length: N/A
Shielded Cable

Power Connector

Function: interface to 5V wall brick power supply
Location: Rear

1.1.4 Support Information

N/A

1.1.5 Primary Power

The primary input power to the test sample shall be 115VAC on the redundant (n + 1) power supply. The primary power inputs shall have an accuracy of $\pm 5\%$.

1.1.6 Mode of Operation

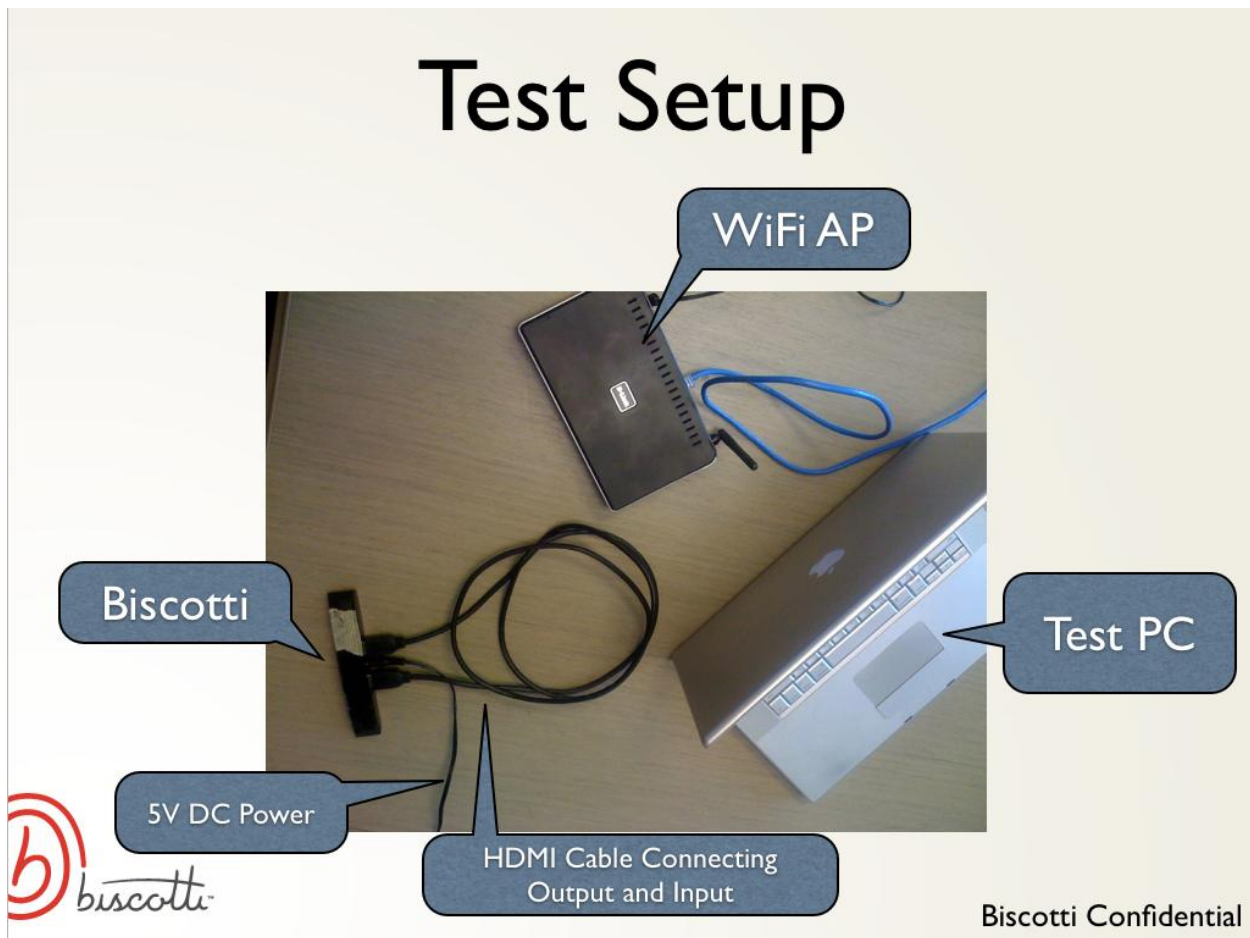
Biscotti Inc. is in the business of designing, manufacturing, branding and marketing consumer video-video calling systems. Its product, Biscotti, is designed to enable high definition video calling for consumers who have an HDTV and are Wi-Fi connected to high speed Internet.

The Biscotti is designed to mount on top of the HDTV. The device has three external physical connections: i) Power connects to a 5V DC power supply, ii) HDMI Input connects to an HDMI source such as a cable or satellite box, and ii) HDMI Output connects the Biscotti to the HDTV.

The Biscotti also has a Wi-Fi chipset that allows the device to connect to the Internet via the users Wi-Fi access point. The Biscotti also contains a camera and microphone to enable video calling.

Setup is performed via an on-screen menu system that allows users to configure their device. Once configured, the device is able to place video calls. During a call, the microphone and camera are enabled. The captured audio and video are encoded and transmitted to the remote user via the Wi-Fi connection. Simultaneously, the Biscotti is receiving encoded audio and video data from the remote user. The data is decoded and transmitted to the TV via the HDMI output.

1.1.7 Test Configuration Diagram



1.2 Instrument Calibration

All test instrumentation requiring calibration will be calibrated in accordance with ANSI Standard NCSL Z540-1. There will be a current calibration sticker attached to the item and traceability documentation will be provided at the customer's request.

1.3 Ambient Tests

In the event that an out-of-tolerance interference condition arises, ambient measurements shall be made in the frequency range where out-of-tolerance condition is present. Ambient measurements shall be made with power applied to all equipment, with the exception of the system under test. This level shall be at least 6 dB below the specification limits of FCC Part 15.

1.4 Failure Reporting

In the event of a test item failure or a test anomaly, the following procedure will be followed:

1. The testing will be stopped.
2. The Biscotti Inc. Program Manager or his designate will immediately be notified.
3. A Notice of Deviation (NOD) will be prepared.
4. The test item will be retained in the setup or in storage, as applicable, pending disposition from Biscotti Inc.
5. Testing will be resumed only on instructions (written, if practicable) of Biscotti Inc. to the project engineer or test engineer.

1.5 Threshold of Susceptibility

When susceptibility indications are noted in test sample operation, the threshold level shall be determined where the susceptible condition is no longer present. The threshold level shall be determined as follows:

1. When a susceptibility condition is detected, reduce the signal level until the test sample recovers.
2. Gradually increase the signal level until the susceptibility condition reoccurs. The resulting level is the threshold of susceptibility, and that level shall be recorded.

1.6 Test Program Deviation

Unless otherwise directed by the responsible test witness, the tests described in the table summary page of this document may be performed in any sequence.

In the event that test plan deviations are required during the normal qualification test program, they shall be made only upon approval of the cognizant representative and that approval shall be noted in the test log with a complete description and justification for such deviations.

1.7 Inspection

All tests described herein may have been witnessed by the authorized representative(s) of Biscotti Inc.. All testing will be performed by qualified test engineers/personnel.

1.8 Disposition of Test Items

The test sample was returned to Biscotti Inc. upon completion of the test program.

1.9 Test Facility

Measurements for this report were taken at **National Technical Systems, EMC Test Facility**, 1701 East Plano Parkway Suite 150, Plano Texas, USA. At the time of testing, the EMC facility had the following accreditations, registrations, etc.:

- Compliance with the requirements of ISO/IEC 17025;2005
- Compliance with the requirements of ISO 9000: 1997 (E).
- Compliance with the requirements A2LA, VCCI, BSMI.
- Semi-anechoic chamber is accepted by the FCC and expiration August 25, 2007.
- Compliance with the radiated and AC line conducted test site criteria in ANSI C63.4-2005 as required by the Federal Communications Commission (FCC).

The EMC chamber is qualified as having performance characteristics suitable for testing to the requirements of IEC 1000-4-3, CISPR, Part 16, and ANSI C63.4;2005.

2.0 GENERAL TEST METHODOLOGY

2.1 Emissions

Required emissions testing is performed in accordance with the respective measurement procedures listed on page 1. Specifics such as test locations will be listed in the appropriate data sections of this report.

Conducted measurements are made with power supplied to the EUT through a 50 Ω /50 μ h Line Impedance Stabilization Network (LISN); support equipment not part of the EUT will be powered through a similar but separate LISN. Typically, each of the EUT's input power leads will be scanned first with a peak detector. The highest peak amplitudes relative to the appropriate limits will be identified and remeasured using a quasipeak detector. At least six of all peaks closest to the respective limits will be recorded in this report. The conducted emissions test was performed using NTS' automatic EMI test equipment. This equipment utilized HP EMI measurement software running on an HP computer that interfaced directly with HPIB (IEEE) compatible instruments with graphical displays presented on the spectrum analyzer's CRT, with hard copies of the data generated by a plotter. The program automatically selects the range of test frequencies or band, and sets the specification line limits to be used during the test. This equipment/software allows for real-time data reduction and prints tabulated data on peak value or quasi-peak value measurements.

Radiated measurements are performed in either a semi-anechoic chamber meeting the normalized site attenuation of ANSI C63.4 and listed with the FCC with an antenna to EUT distance of 3m or an OATS Site with an antenna to EUT distance of 10m. The applicable frequency spectrum is scanned with a calibrated RF measuring system using an antenna and a spectrum analyzer and compared to the appropriate limits. "Maximization" of each suspect frequency is accomplished by a combination of a 360° azimuth search and varying the antenna to ground plane height from 1m to 4m. Also, both the vertical and horizontal polarization are scanned in the frequency range of 30 MHz to 1 GHz per ANSI C63.4. Final data is collected in the worst case configurations of the EUT with the highest emission levels.

Other emissions tests will be performed in accordance with the appropriate measurement procedures listed in this report.

2.1.1 Radiated Emissions Field Strength Calculations

$FS = RA + AF + CF - AG$ where: FS = field strength CF = cable attenuation factor
RA = receiver amplitude AG = amplifier gain
AF = Antenna Factor

The receiver used for radiated emissions measurements performed the field strength calculations automatically. The program has resident AF and CF figures for individual antennas and cables.

2.2 Order of Testing

Testing normally proceeds from the least volatile to the most. As an example for “global” requirements the sequence typically would begin with conducted emissions, then radiated prescans in the semi-anechoic chamber, then Final radiated emissions measurements inside the FCC Certified Chamber. The actual order may vary due to tests conducted, scheduling and facility availability.

2.3 Special Test Justification

None

3.0 TEST CONFIGURATION

3.1 Selection of EUT Configuration and Modes of Operation

As per measurement procedures, **the worst-case test configuration and mode of operation was used for all testing.** Unless otherwise noted elsewhere in this report, this selection will apply to all testing. The selection process was based on previous investigative testing of the EUT system. Worst case operating mode is described as “Operate.” Other modes used will be listed in the respective data measurement sections when appropriate. Operating modes considered were all those available to the operator, including Standby.

3.1 Equipment Modifications

None

4.0 EMISSIONS

The test procedures of Paragraph 2.1 were followed for these measurements. Radiated final measurements were made Semi-anechoic chamber at three meters distance from antenna described in Paragraph 2.0. All readings are quasi-peak unless otherwise stated and are listed in order of ascending delta. The original test data is contained in Master Job Folder B11305, located at the National Technical Systems EMC Facility. Mode of operation is that listed under Paragraph 3.1, unless otherwise stated.

4.1 Radiated Emissions

4.1.1 Radiated Emissions Test Setup



Radiated Emissions 30MHz-1GHz (FCC Chamber), Front of EUT



Radiated Emissions 1GHz-6GHz (FCC Chamber), Front of EUT



Radiated Emissions (FCC Chamber), Rear of EUT

4.1.2 Radiated Emissions Measurement Data

Date of measurement: 9/9/2011. Test Personnel: Khoa To, EMC Engineer

Radiated Emissions (The limit were extrapolated to 3m distance from antenna)

Frequency MHz	FCC B Limits	Polarity Antenna	Peaks Measured	QP Measured	QP Margin	Turn Table	Tower Height
43.238 MHz	40.000	V	27.466	28.426	-11.574	1.900	112.400
191.98 MHz	43.520	V	33.803	34.203	-9.317	186.400	118.300
371.23 MHz	46.020	V	35.304	37.144	-8.876	2.300	117.300
371.26 MHz	46.020	H	38.204	40.444	-5.576	-0.200	123.500
371.28 MHz	46.020	H	42.575	43.805	-2.215*	180.000	116.800
445.46 MHz	46.020	V	35.461	37.041	-8.979	183.700	115.200
668.25 MHz	46.020	H	39.609	40.389	-5.631	191.400	115.200
742.52 MHz	46.020	H	37.923	42.633	-3.387	177.800	111.300
816.74 MHz	46.020	H	39.076	41.856	-4.164	6.700	113.000
887.97 MHz	46.020	V	25.957	27.107	-18.913	-1.600	115.200
890.97 MHz	46.020	H	39.775	41.555	-4.465	0.000	115.200
890.98 MHz	46.020	V	33.376	37.296	-8.724	177.400	109.200

Date of measurement: 9/20/2011. Test Personnel: Khoa To, EMC Engineer

Radiated Emissions (The limit were extrapolated to 3m distance from antenna)

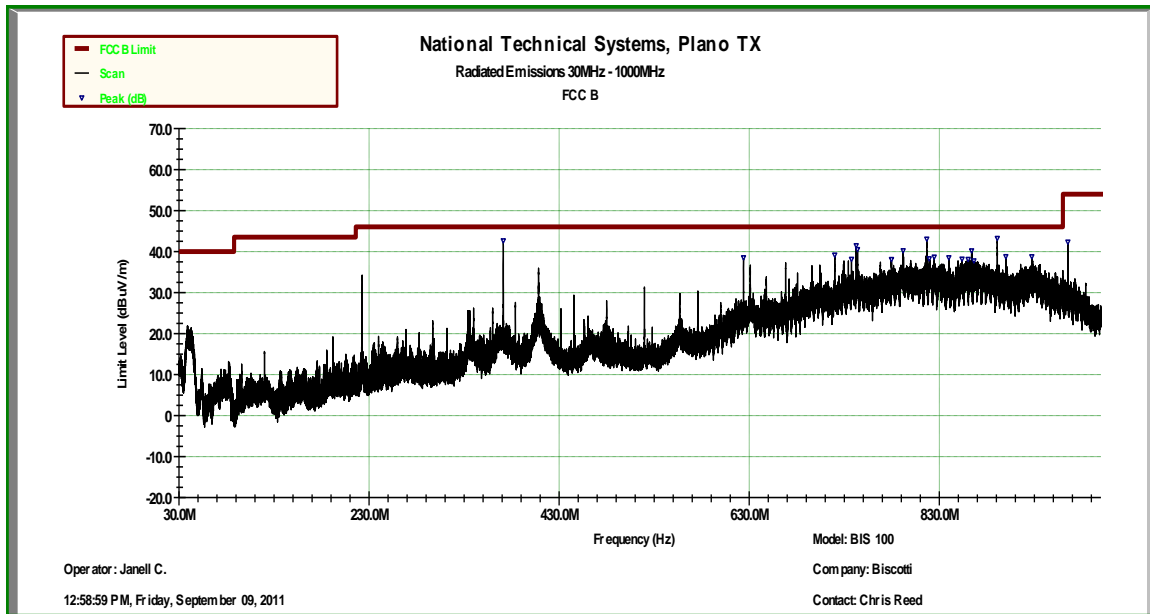
Frequency MHz	Peak Limit	AVG Limit	Antenna Polarity	Peak Measured	Peak Margin	AVG Measured	AVG Margin	Turn Table	Antenna Height
1.3275 GHz	70.000	50.000	H	25.564	-44.436	16.654	-33.346	180.200	122.700
1.3294 GHz	70.000	50.000	H	26.563	-43.437	16.963	-33.037	0.000	137.100
1.4603 GHz	70.000	50.000	V	27.006	-42.994	17.156	-32.844	74.900	130.100
2.3521 GHz	70.000	50.000	V	28.929	-41.071	20.509	-29.491	32.900	122.300
2.59 GHz	70.000	50.000	H	31.343	-38.657	19.543	-30.457	22.500	126.100
3.3706 GHz	74.000	54.000	H	35.095	-38.905	24.265	-29.735	62.000	136.600
3.7548 GHz	74.000	54.000	V	34.582	-39.418	22.203	-31.797	20.200	113.000
3.7555 GHz	74.000	54.000	V	33.493	-40.507	22.124	-31.876	27.000	113.000
4.4187 GHz	74.000	54.000	V	32.360	-41.640	39.540	-14.460	21.700	117.000
4.9653 GHz	74.000	54.000	H	33.369	-40.631	33.559	-20.441	16.400	133.000
5.1347 GHz	74.000	54.000	H	34.656	-39.344	30.145	-23.855	17.700	119.900
5.43 GHz	74.000	54.000	V	33.716	-40.284	24.756	-29.244	27.000	113.000
5.9507 GHz	74.000	54.000	H	32.174	-41.826	24.295	-29.705	29.300	126.800

* At these frequencies, the measured Electric-field strength exhibits a margin of compliance that is less than 3dB below the specification limit. NTS recommend that every emission measured, have at least a 3dB margin to allow for deviation in the emission characteristics that may occur during the production process.

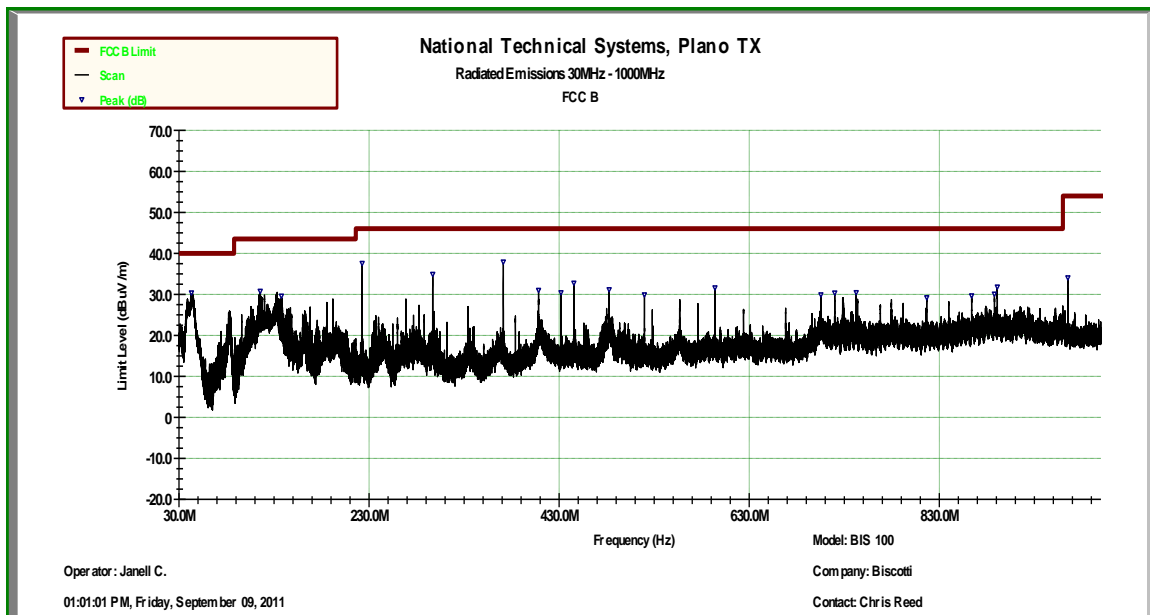
Summary of Performance

The test results derived from this testing demonstrates that the BIS100 conforms to FCC part 15 subpart B class B at 3 meter distance from antenna.

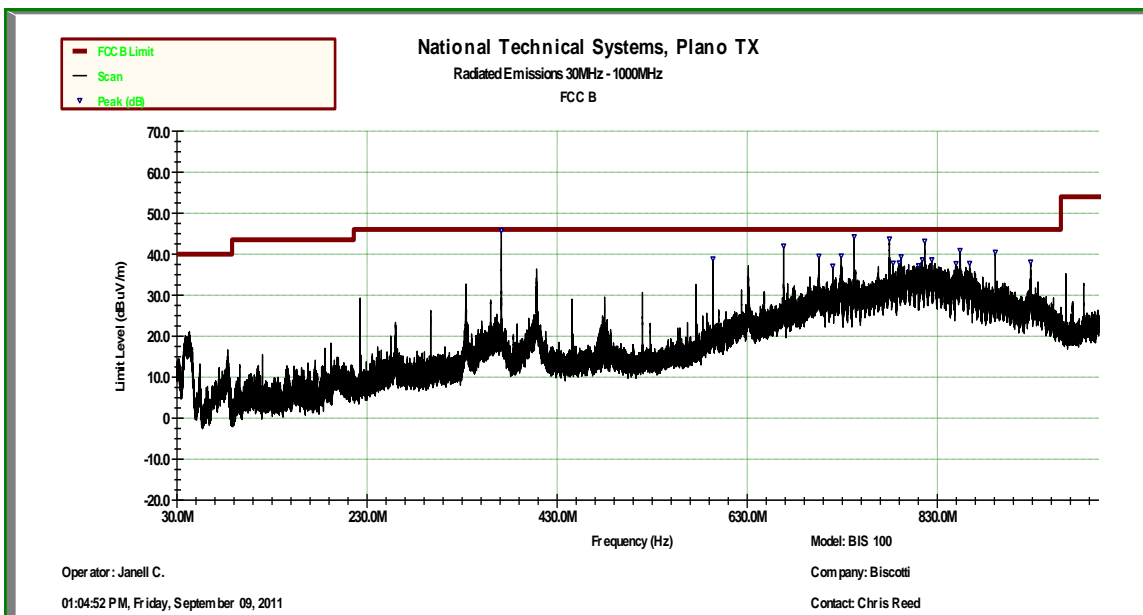
4.1.3 Radiated Pre-scan Measurement Data



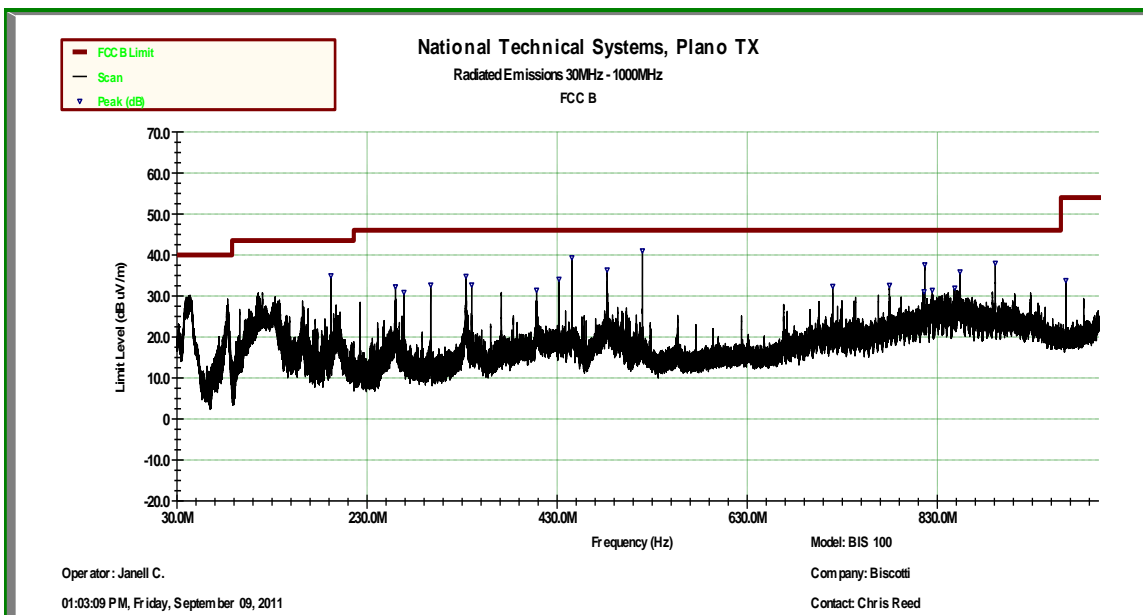
Radiated Emissions Pre-scan 30-1000MHz, Horizontal Front



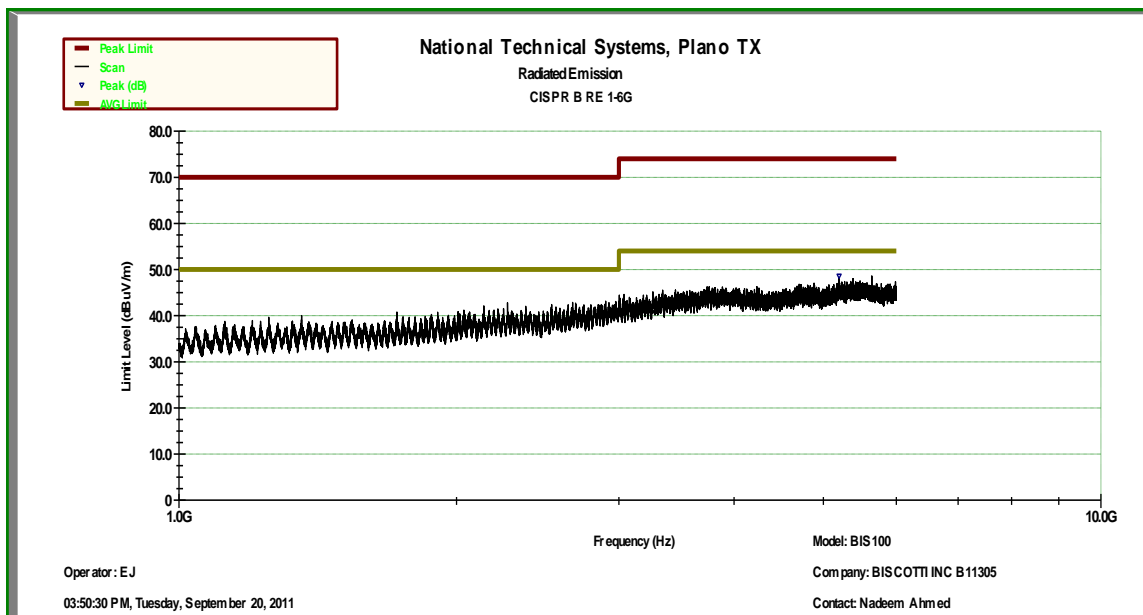
Radiated Emissions Pre-scan 30-1000MHz, Vertical Front



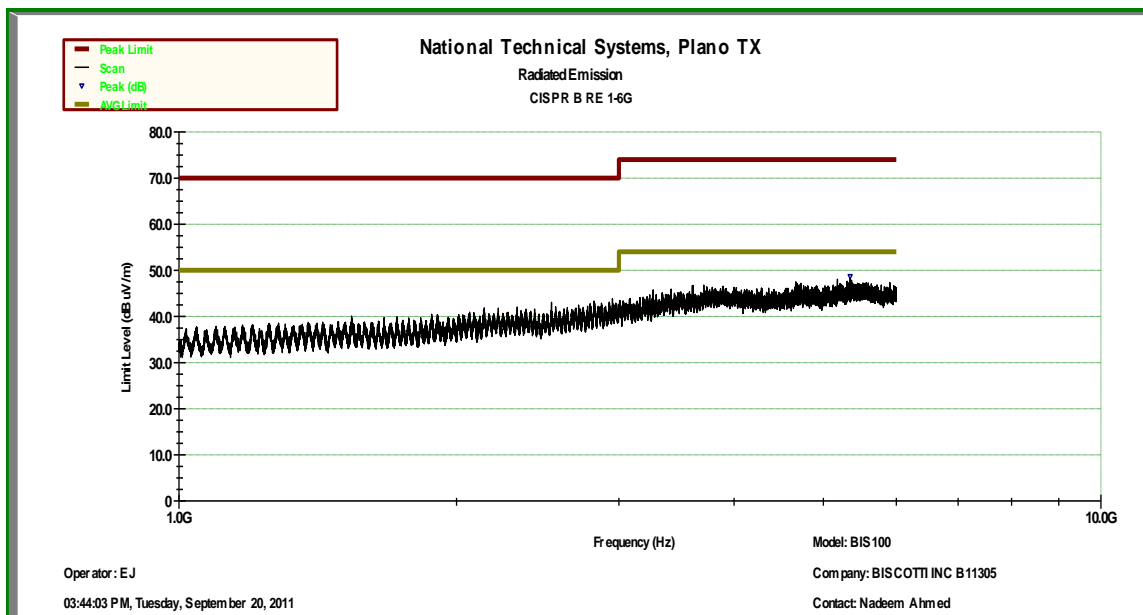
Radiated Emissions Pre-scan 30-1000MHz, Horizontal Rear



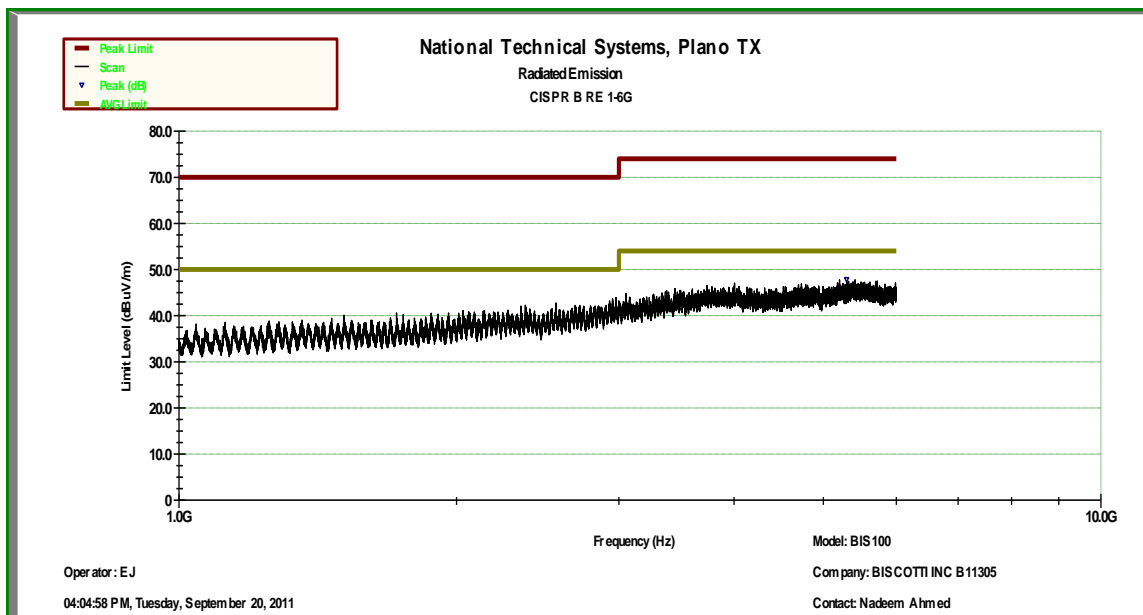
Radiated Emissions Pre-scan 30-1000MHz, Vertical Rear



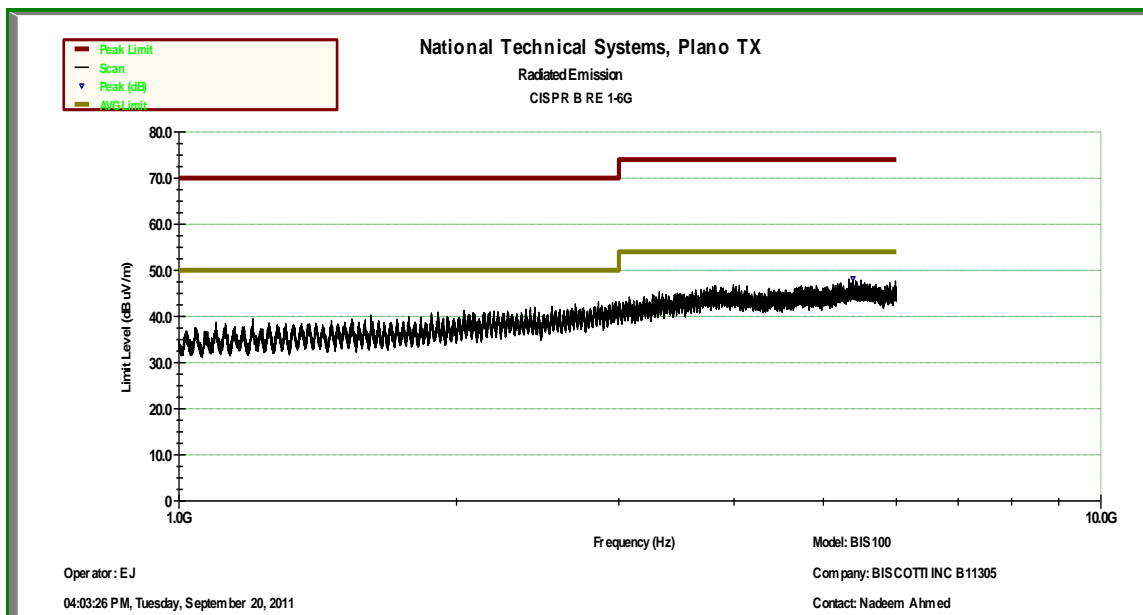
Radiated Emissions Pre-scan 1GHz-6GHz, Horizontal Front



Radiated Emissions Pre-scan 1GHz-6GHz, Vertical Front



Radiated Emissions Pre-scan 1GHz-6GHz, Horizontal Rear



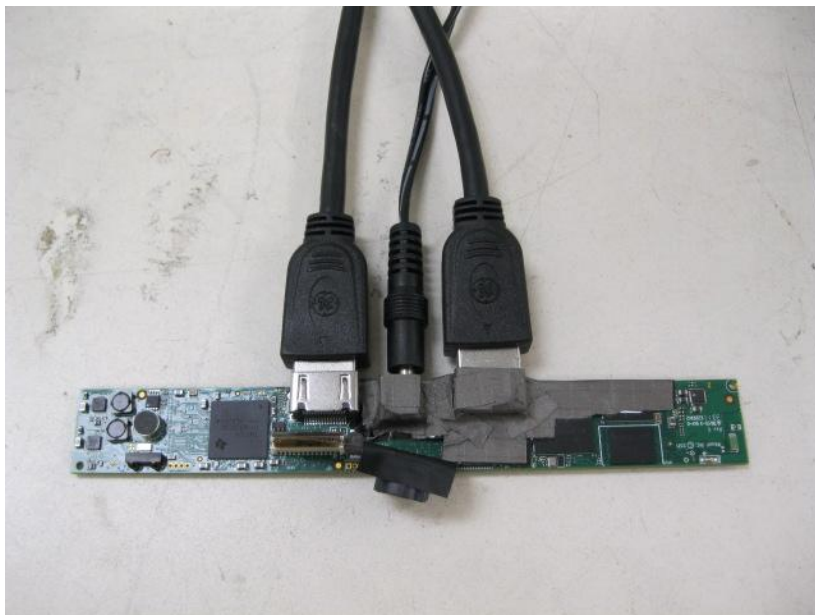
Radiated Emissions Pre-scan 1GHz-6GHz, Vertical Rear

4.2 Conducted Emissions

4.2.1 Conducted Emissions Test Setup



Conducted Emissions Test Setup



Conducted Emissions Test Setup

4.2.2 Conducted Measurement Data

Date of measurement: 9/9/2011. Test Personnel: Janell C., EMC Personnel

Line 1 115VAC				
Frequency	QP Limits	Factor	Quasi Raw	QP Margin
464.77 kHz	48	11	36	-1
464.55 kHz	48	11	32	-5
482.188 kHz	48	11	34	-3
497.96 kHz	48	11	36	-1
20.00 MHz	48	11	5	-32
28.65 MHz	48	11	4	-33
Neutral				
Frequency	QP Limits	Factor	Quasi Raw	QP Margin
465.42 kHz	48	11	34	-3
475.85 kHz	48	11	32	-5
497.96 kHz	48	11	29	-8
209.00 kHz	48	11	25	-12
9.00 MHz	48	11	7	-30
29.10 MHz	48	11	3	-34

Summary of Performance

The test results derived from this testing demonstrates that the BIS100 conforms to FCC part 15 subpart B class B.

Note:

- The worst-case configuration was selected to perform the emissions test.

4.3 Radiated and Conducted Emissions Test Equipments List

NTS ID#	Manufacturer/Model	Calibration Due
E1347P	Spectrum Analyzer Agilent E4440A	03/11/2012
E1318P	Spectrum Analyzer Rohde & Schwarz FSP 03	02/09/2012
E1289P	ETS Bilog Antenna 3142C	11/11/2011
E1148P	Miteq Pre-Amp AM1431-N-1179-SC	06/10/2012
E1354P	R&S LISN ESH 3Z5	11/22/2011
E1009P	HP preamplifier 8448B	10/14/2011
E1019P	ETS Horn antenna 3115	09/01/2012