Test of Thinkify TR 200

To: FCC 47 CFR Part15.247 & IC RSS-210

Test Report Serial No.: THNK02-U1 Rev A

TEST REPORT

FROM

Test of Thinkify TR 200

To FCC 47 CFR Part15.247 & IC RSS-210

Test Report Serial No.: THNK02-U1 Rev A

This report supersedes: None

Manufacturer: Thinkify
18450 Technology Drive Suite E
Morgan Hill
California 95037, USA

Product Function: RFID Reader

Copy No: pdf **Issue Date:** 7th October 2010

This Test Report is Issued Under the Authority of;

MiCOM Labs, Inc.
440 Boulder Court, Suite 200
Pleasanton, CA 94566 USA
Phone: +1 (925) 462-0304
Fax: +1 (925) 462-0306
www.micomlabs.com

ACCREDITED

TESTING CERTIFICATE #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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ACCREDITATION, LISTINGS & RECOGNITION

MiCOM Labs, Inc. an accredited laboratory complies with the international standard EN ISO/IEC 17025. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-01.pdf

ilac-MRA

A2LA World Class Accreditation

The American Association for Laboratory Accreditation

Accredited Laboratory

A2LA has accredited

MICOM LABS

Pleasanton, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 14th day of April 2010.

President & CEO
For the Accreditation Council
Certificate Number 2381.01
Valid to November 30, 2011

For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

LISTINGS

MiCOM Labs test facilities are listed by the following organizations;

North America

United States of America
Federal Communications Commission (FCC) Listing #: 102167

Canada

Industry Canada (IC) Listing #: 4143A

Japan Registration

VCCI Membership Number: 2959

- Radiated 3 meter site; Registration No. R-2881
- Line Conducted, Registration Nos. C-3181 & T-1470
- Emissions; Registration Nos. C-3180 & T-1469

RECOGNITION

APEC MRA (Asia-Pacific Economic Community Mutual Recognition Agreement)

Conformity Assessment Body (CAB) – MiCOM Labs

Test data generated by MiCOM Labs is accepted in the following countries under the APEC MRA.

Country	Recognition Body	Phase	CAB Identification No.
Australia	Australian Communications and Media Authority (ACMA)	I	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)	I	
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)	I	
Singapore	Infocomm Development Authority (IDA)	I	
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)	I I	
Vietnam	Ministry of Information and Communications	I	

DOCUMENT HISTORY

Document History		
Revision	**Date**	**Comments**
Draft		
Rev A	7th October, 2010	Initial Release

1. TEST RESULT CERTIFICATE

Manufacturer:	Thinkify 18450 Technology Drive Suite E Morgan Hill California 95037, USA	Tested By:	MiCOM Labs, Inc. 440 Boulder Court Suite 200 Pleasanton California, 94566, USA
EUT:	RFID Reader	Telephone:	+1 925 462 0304
Model:	TR 200	Fax:	+1 925 462 0306
S/N:	S/N 2 (Engineering Sample)		
Test Date(s):	Aug 19th & 24th 2010	Website:	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC 47 CFR Part15.247 & IC RSS-210	EQUIPMENT COMPLIES

MiCOM Labs, Inc. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Notes:

1. This document reports conditions under which testing was conducted and the results of testing performed.
2. Details of test methods used have been recorded and kept on file by the laboratory.
3. Test results apply only to the item(s) tested.

Approved & Released for MiCOM Labs, Inc. by:

ACCREDITED
TESTING CERTIFICATE #2381.01

Graeme Grieve
Quality Manager MiCOM Labs,

Gordon Hurst
President & CEO MiCOM Labs, Inc.

2. REFERENCES AND MEASUREMENT UNCERTAINTY

2.1. Normative References

Ref.	Publication	Year	Title
(i)	FCC 47 CFR Part 15.247	2007	Code of Federal Regulations
(ii)	Industry Canada RSS-210	Issue 7 June 2007	Low Power License-Exempt Radiocommunication Devices (All Frequency Bands)
(iii)	Industry Canada RSS-Gen	Issue 2 June 2007	General Requirements and Information for the Certification of Radiocommunication Equipment.
(iv)	ANSI C63.4	2009	American National Standards for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
(v)	CISPR 22/ EN 55022	2008 2006+A1:2007	Limits and Methods of Measurements of Radio Disturbance Characteristics of Information Technology Equipment
(vi)	M 3003	Edition 1 Dec. 1997	Expression of Uncertainty and Confidence in Measurements
(vii)	LAB34	Edition 1 Aug 2002	The expression of uncertainty in EMC Testing
(viii)	ETSI TR 100 028	2001	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
(ix)	A2LA	9th June 2010	Reference to A2LA Accreditation Status – A2LA Advertising Policy

2.2. Test and Uncertainty Procedures

Conducted and radiated emission measurements were conducted in accordance with American National Standards Institute ANSI C63.4, listed in the Normative References section of this report.

Measurement uncertainty figures are calculated in accordance with ETSI TR 100 028 Parts 1 and 2.

Measurement uncertainties stated are based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95 % in accordance with UKAS document M 3003 listed in the Normative References section of this report.

3. PRODUCT DETAILS AND TEST CONFIGURATIONS

3.1. Technical Details

Details	Description
Purpose:	Test of the Thinkify TR 200 to FCC Part 15.247 and Industry Canada RSS-210 regulations
Applicant:	As Manufacturer
Manufacturer:	Thinkify 18450 Technology Drive Suite E Morgan Hill California 95037, USA
Laboratory performing the tests:	MiCOM Labs, Inc. 440 Boulder Court, Suite 200 Pleasanton, California 94566 USA
Test report reference number:	THNK02-U1 Rev A
Standard(s) applied:	FCC 47 CFR Part15.247 & IC RSS-210
Date EUT received:	Aug 19th & Aug 24th 2010 (Note 1)
Dates of test (from - to):	Aug 19th & 24th 2010
No of Units Tested:	1 Unit – FCC Test Code
Type of Equipment:	902 - 928 MHz RFID Reader
Manufacturers Trade Name:	Thinkify
Model:	TR 200
Location for use:	Indoor
Declared Frequency Range(s):	902 - 928 MHz
Type of Modulation:	ASK
Declared Nominal Output Power:	25dBm (+1dB /- 2dB)
EUT Modes of Operation:	FHSS
Transmit/Receive Operation:	Transceiver, Simplex
Rated Input Voltage and Current:	5 VDC USB powered
Operating Temperature Range:	0 – 50 degree C
ITU Emission Designator:	90K1L1D
Clock/Oscillator(s):	20 MHz
Frequency Stability:	±20ppm
EUT Dimensions:	5.5" x 4" x 1.5"
EUT Weight :	6 oz
Primary function of equipment:	RFID Reader

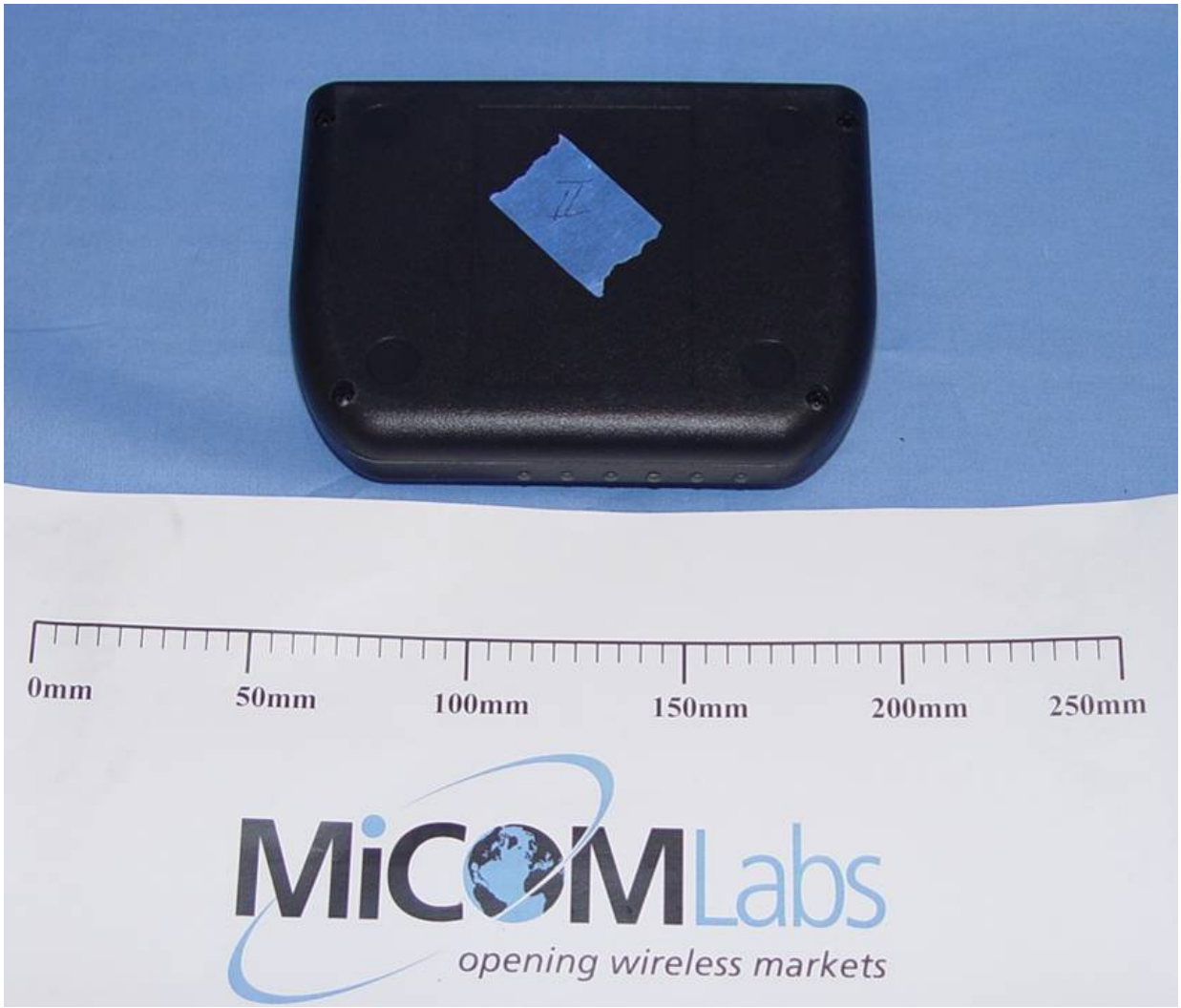
Note 1: EUT was not under lab control between test dates.

3.2. Scope of Test Program

The scope of the test program was to test the Thinkify TR 200 in the frequency ranges 902 - 928 MHz against FCC 47 CFR Part 15.247 and Industry Canada RSS-210 specifications for radiated and conducted emissions for intentional radiators.

Thinkify TR 200 - Top

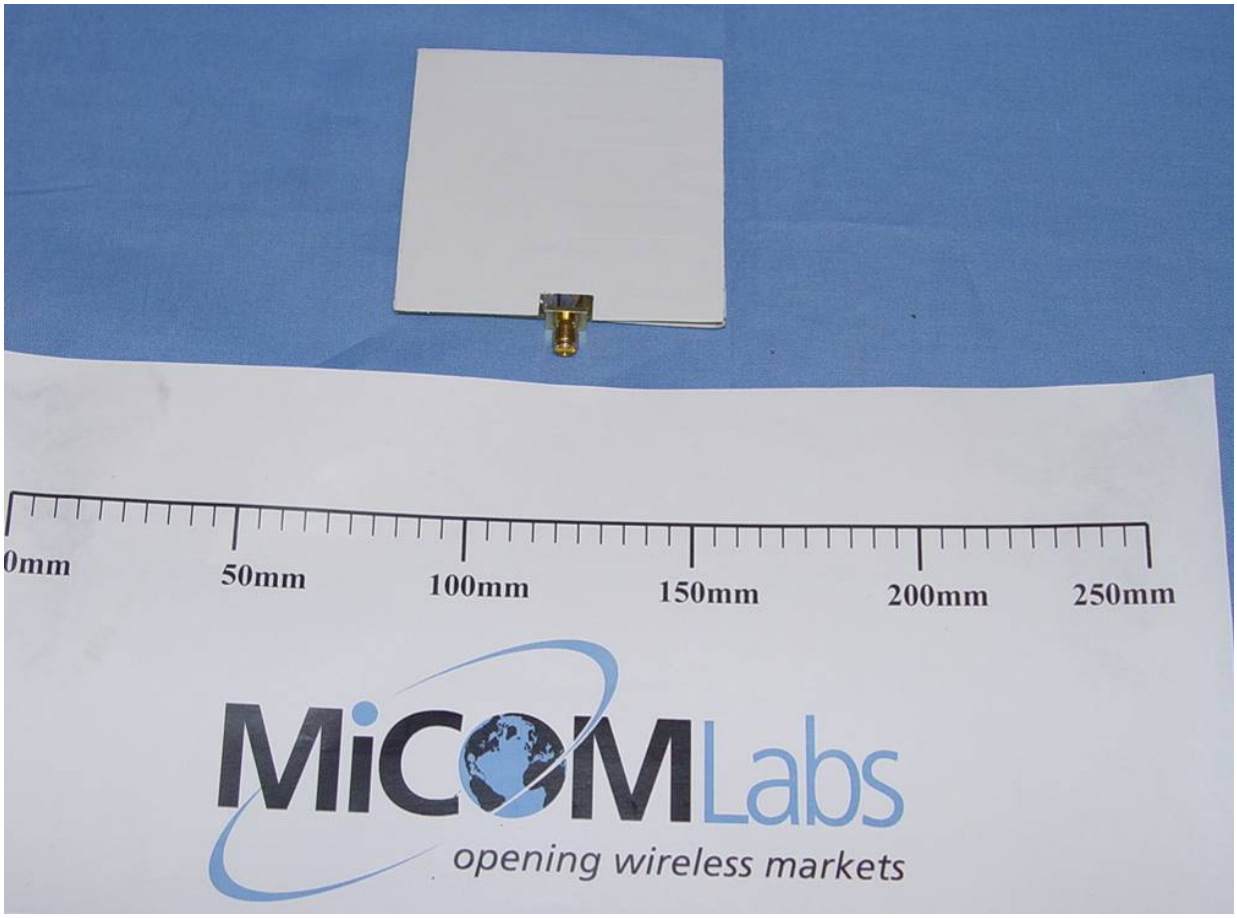
Thinkify TR 200 - Bottom



Antenna 1: ANT-916-CW-HWR-RPS

Antenna 2: TAC-060-IP67

Antenna 3: ECA1C-915-RevU



3.3. Equipment Model(s) and Serial Number(s)

Type (EUT/ Support)	Equipment Description (Including Brand Name)	Mfr	Model No.	Serial No.
EUT	Desktop RFID Reader	Thinkify	TR 200	2
Support	Dell Laptop model E5500	Dell	E5500	76487-OEM-0011903-00102
Support	Laboratory DC Power Supply	Hewlett Packard	6274B	2713A-09023

3.4. Antenna Details

Antenna	Model Number	Manufacturer	Frequencies Band	Type	Antenna Gain
Antenna 1	ANT-916-CW-HWR-RPS	Antenna Factor	902 - 928 MHz	Dipole	2.3 dBi
Antenna 2	TAC-060-IP67	Thinkify Insight	902 - 928 MHz	Patch	6 dBi
Antenna 3	ECA1C-915-RevU	DockOn	902 - 928 MHz	Patch	3 dBi
Not tested	TAL-060-IP67	Thinkify Insight	902 - 928 MHz	Patch	6 dBi

3.5. Cabling and I/O Ports

Number and type of I/O ports

- RF Port (902-928 MHz) - Reverse SMA
- DC Power Port; Mini-USB connector - 2 meter shielded USB cable used during testing.
- GPIO Port

3.6. Test Configurations

Test configurations

Operating Channel	Frequencies (MHz)	Data Rate	20dB BW (nominal)	Channel Spacing
0	902.75	160kHz	90 kHz	250 kHz
25	915.25	160kHz	90 kHz	250 kHz
49	927.25	160kHz	90 kHz	250 kHz

3.7. Equipment Modifications

The following modifications were required to bring the equipment into compliance:

1. RF output power levels were adjusted to bring harmonic emissions into compliance.

Power Level Chart:

Operating Channel	Frequencies (MHz)	Antenna	Compliant Power Setting	Measured Power
0	902.75	Antenna 1	RA11	22.13
25	915.25	Antenna 1	RA7	23.78
49	927.25	Antenna 1	RA9	22.40
0	902.75	Antenna 2	RA10	22.94
25	915.25	Antenna 2	RA8	22.34
49	927.25	Antenna 2	RA8	23.25
0	902.75	Antenna 3	RA10	22.94
25	915.25	Antenna 3	RA9	23.09
49	927.25	Antenna 3	RA8	23.25

3.8. Deviations from the Test Standard

The following deviations from the test standard were required in order to complete the test program:

1. NONE

3.9. Subcontracted Testing or Third Party Data

The following tests were performed by a MiCOM Labs approved test facility;-

1. NONE

4. TEST SUMMARY

List of Measurements

The following table represents the list of measurements required under the **FCC CFR47 Part 15.247**, **Industry Canada RSS-210** and **Industry Canada RSS-Gen.**

Section(s)	Test Items	Description	Condition	Result	Test Report Section
15.247(a)(1) A8.1	20 dB BW	20 dB BW	Conducted	Complies	5.1.1
15.247(a)(1) **A8.1**	Transmitter Channels	Channel Spacing	Conducted	Complies	5.1.2
15.247(a)(1) **A8.1**	Transmitter Channels	Number of Channels	Conducted	Complies	5.1.3.1
		Channel Occupancy	Conducted	Complies	5.1.3.2
15.247(b)(2) **A8.4**	Output Power	Transmit Power	Conducted	Complies	5.1.4
15.247(i) **5.5**	Maximum Permissible Exposure	Exposure to radio frequency energy levels	Conducted	Complies	5.1.5
15.247(d) **A8.5**	Conducted Spurious Emissions	Band Edge	Conducted	Complies	5.1.6
		Spurious Emissions Transmitter (1 to 10 GHz)	Conducted	Complies	
§7.2.3		Standby	Conducted	Complies	5.1.7

List of Measurements

The following table represents the list of required measurements.

Section(s)	Test Items	Description	Condition	Result	Test Report Section
15.247(d) **15.205** **15.209** **A8.5** **2.2** **2.6** **4.9**	Radiated Emissions - Transmitter and Receiver	Transmitter Peak Emissions Radiated Spurious Emissions	Radiated	Complies	5.1.8
4.10		Receiver	Radiated	Complies	5.1.8
15.109 **ICES-003**	Radiated Emissions - Digital Emissions		Radiated	Complies	5.1.9
15.207 **7.2.2**	Conducted	AC Wireline Conducted Emissions	Conducted	N/A	N/A

Note 1: *Test results reported in this document relate only to the items tested*
Note 2: *The required tests demonstrated compliance as per client declaration of test configuration, monitoring methodology and associated pass/fail criteria*
Note 3: *Section 3.7 - Equipment Modifications highlights the equipment modifications that were required to bring the product into compliance with the above test matrix*

5. TEST RESULTS

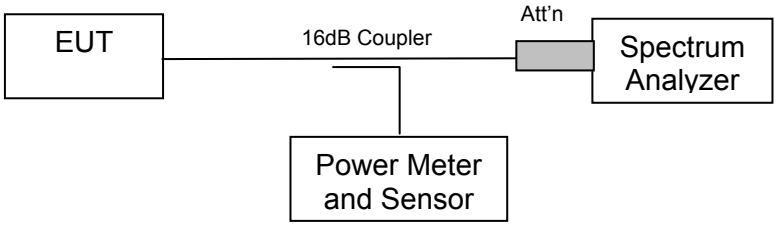
5.1. Device Characteristics

5.1.1. 20 dB Bandwidth

FCC, Part 15 Subpart C §15.247(a)(1)
Industry Canada RSS-210 §A8.1

Test Procedure
The 20 dB bandwidth is measured with a spectrum analyzer connected to the antenna terminal, while the EUT is operating in transmission mode at the appropriate center frequency and modulation.

Test Measurement Set up



Measurement set up for 20 dB bandwidth test

Test Results for 20 dB Bandwidth

Ambient conditions.

Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

Testing was performed on all data rates available on the EUT.

TABLE OF RESULTS: 33kHz Deviation; 25 Kbits/S

Channel #	Center Frequency (MHz)	20 dB Bandwidth (kHz)	Specification (kHz)
0	902.75	90.18	<500
25	915.25	90.18	
49	927.25	87.37	

5.1.1.1. 20 dB Bandwidth Test Results:

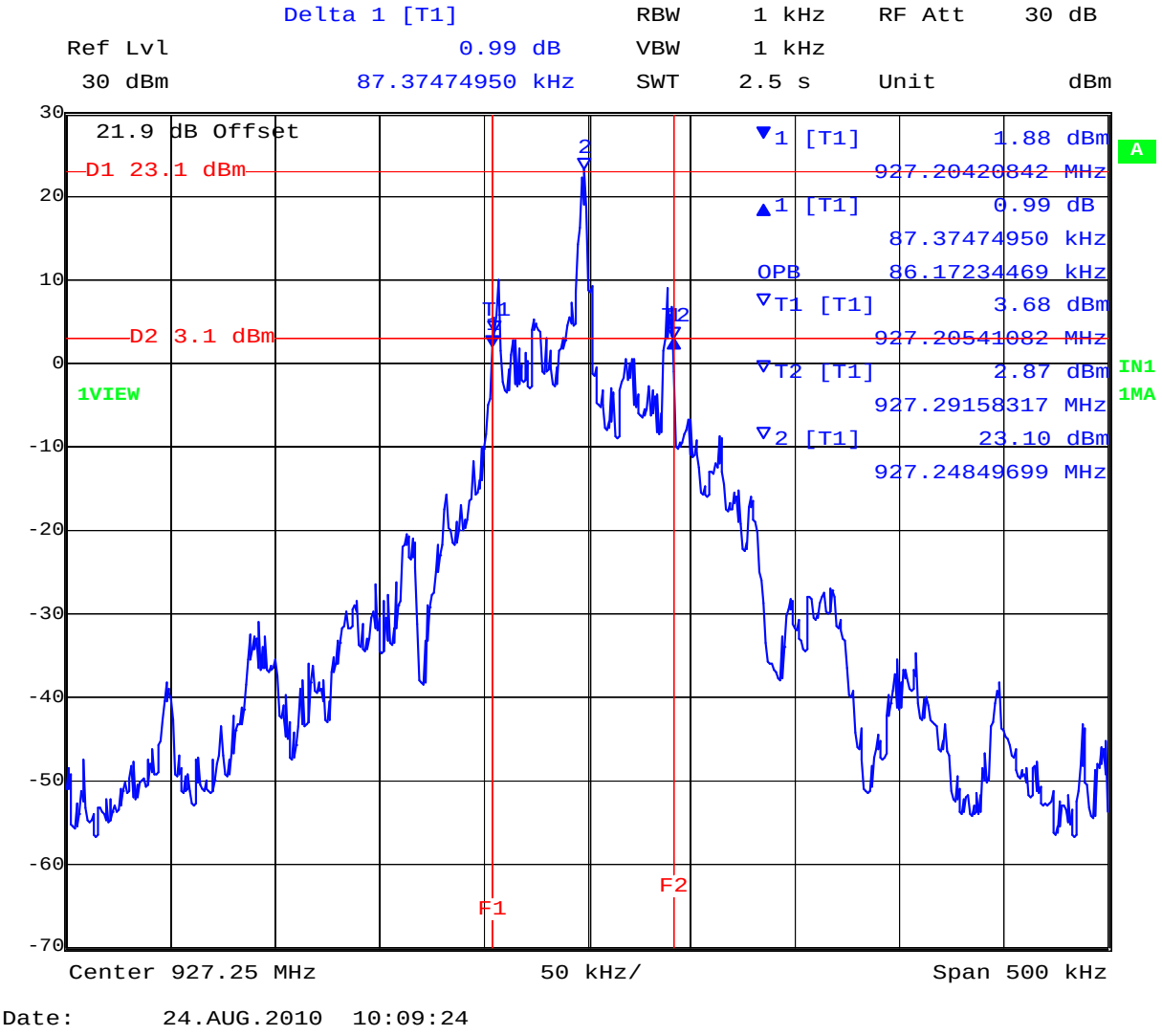
902.75MHz

Date: 24.AUG.2010 10:19:15

915.25MHz

Date: 24.AUG.2010 10:14:05

927.25MHz



Date: 24.AUG.2010 10:09:24

Specification

Limits

FCC §15.247 (a)(1)
Industry Canada RSS-210 §8.1

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

Laboratory Measurement Uncertainty for Spectrum Measurement

Measurement uncertainty	±2.81 dB

Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-03 'Measurement of RF Spectrum Mask'	0158, 0193, 0252, 0313, 0314, 0070, 0116, 0117

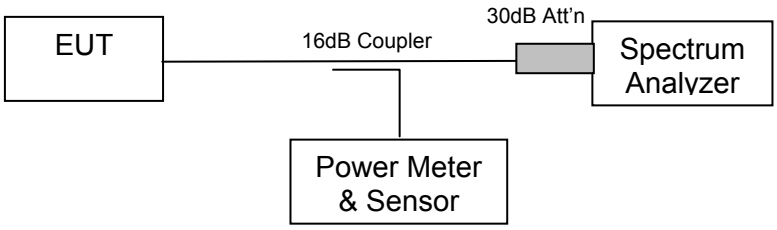
5.1.2. Transmitter Channels - Channel Spacing

FCC, Part 15 Subpart C §15.247(a)(1)
Industry Canada RSS-210 §8.1(2)

Test Procedure

The channel spacing is measured with a spectrum analyzer connected to the antenna terminal, while the EUT is operating in transmission mode at the appropriate center frequency and modulation.

Test Measurement Set up



Measurement set up for Channel Spacing Test

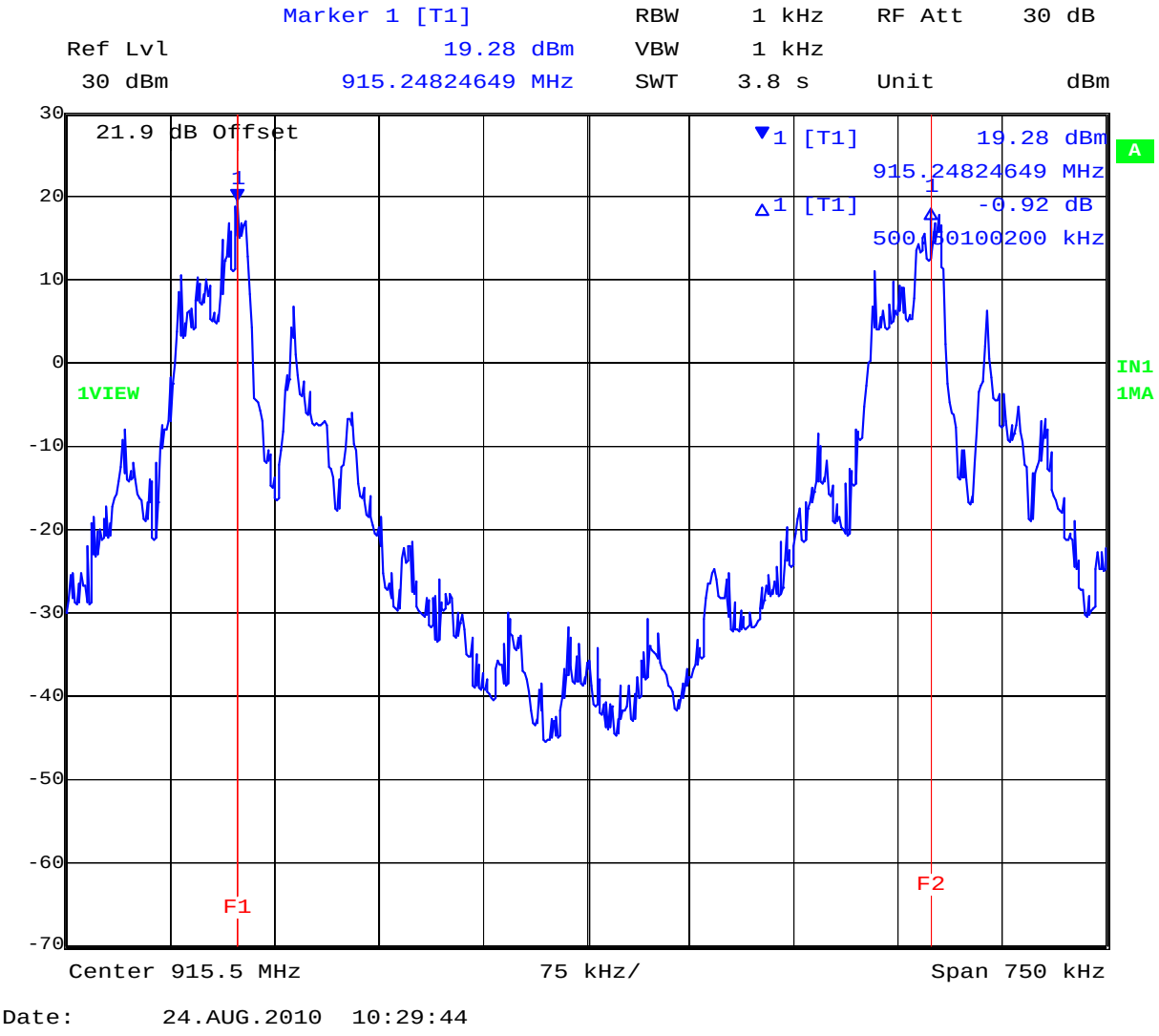
5.1.2.1. Channel Spacing Test Results:

Ambient conditions.
Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

Table of Results

Channel(s)	Channel Spacing (KHz)	Specification
915.25 / 915.75MHz	500.6	Greater than maximum 20 dB Bandwidth

Maximum 20 dB bandwidth = 90.18 kHz



Specification for Channel Spacing

Limits

FCC §15.247 (a)(1)
Industry Canada RSS-210 §A8.1(2)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Laboratory Uncertainty for Frequency Measurements

Measurement uncertainty	±0.86ppm

Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-02 'Frequency Measurement"	0078, 0134, 0158, 0184, 0193, 0250, 0252 0310, 0312.

5.1.3. Transmitter Channels

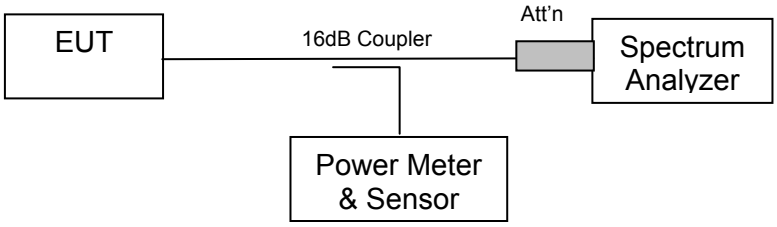
5.1.3.1. Number of Channels

FCC, Part 15 Subpart C §15.247(a)(1)
Industry Canada RSS-210 §A8.1

Test Procedure

The number of channels and channel occupancy is measured with a spectrum analyzer connected to the antenna terminal, while the EUT is operating in transmission mode at the appropriate center frequency and modulation.

Test Measurement Set up



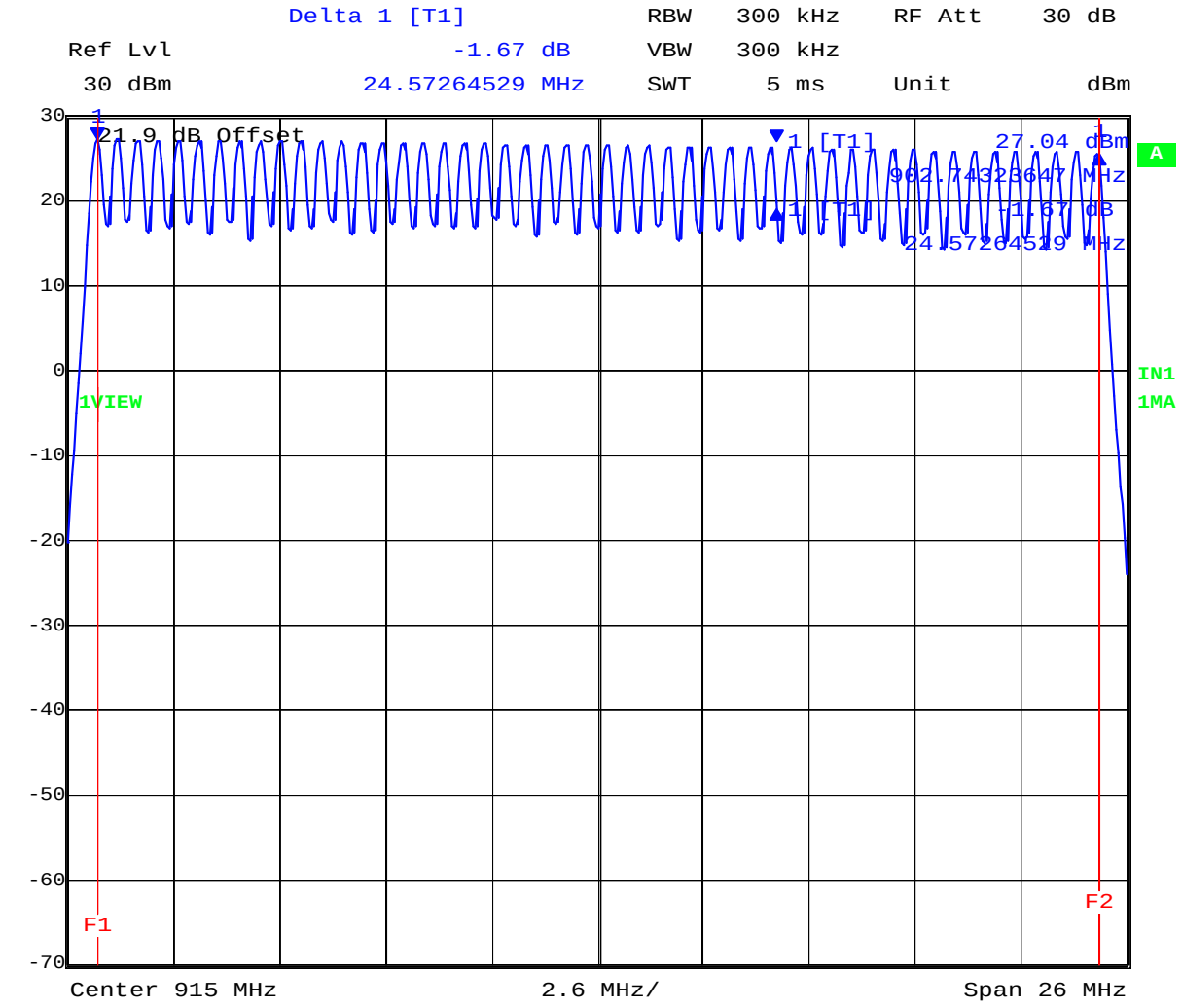
Test set up to measure the number of channels and channel occupancy

Ambient conditions.
Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

TABLE OF RESULTS

Number of Channels	Specification
50	Minimum of 50 hopping channels

NUMBER OF TRANSMISSION CHANNELS



5.1.3.2. Channel Occupancy

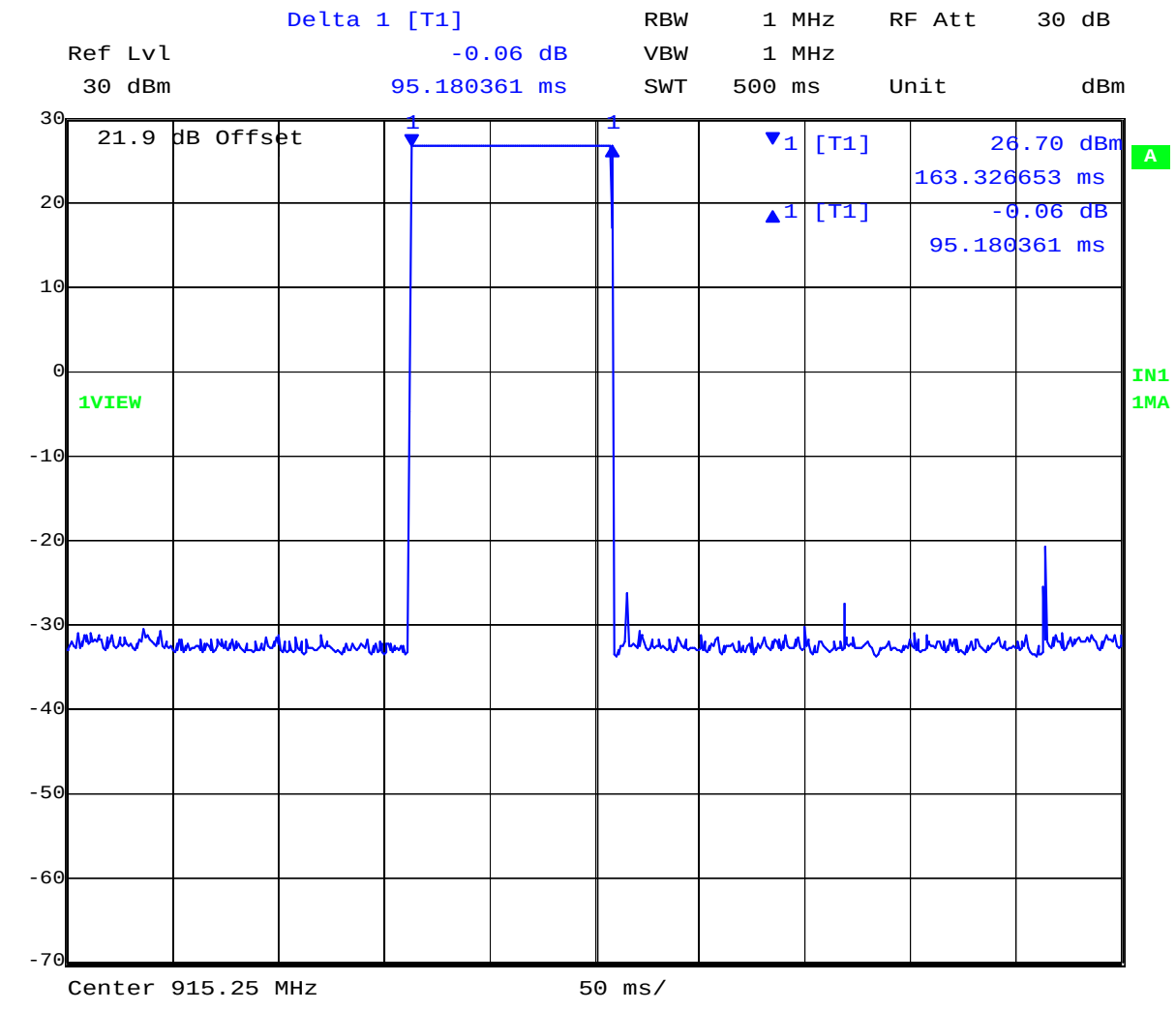
FCC, Part 15 Subpart C §15.247(a)(1)
Industry Canada RSS-210 §A8.1

Ambient conditions.
Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

Channel Dwell Time

TABLE OF RESULTS

Channel #	Center Frequency (MHz)	Channel Dwell Time (single channel) (mSecs)
25	915.25	95.18



Date: 24.AUG.2010 10:45:16

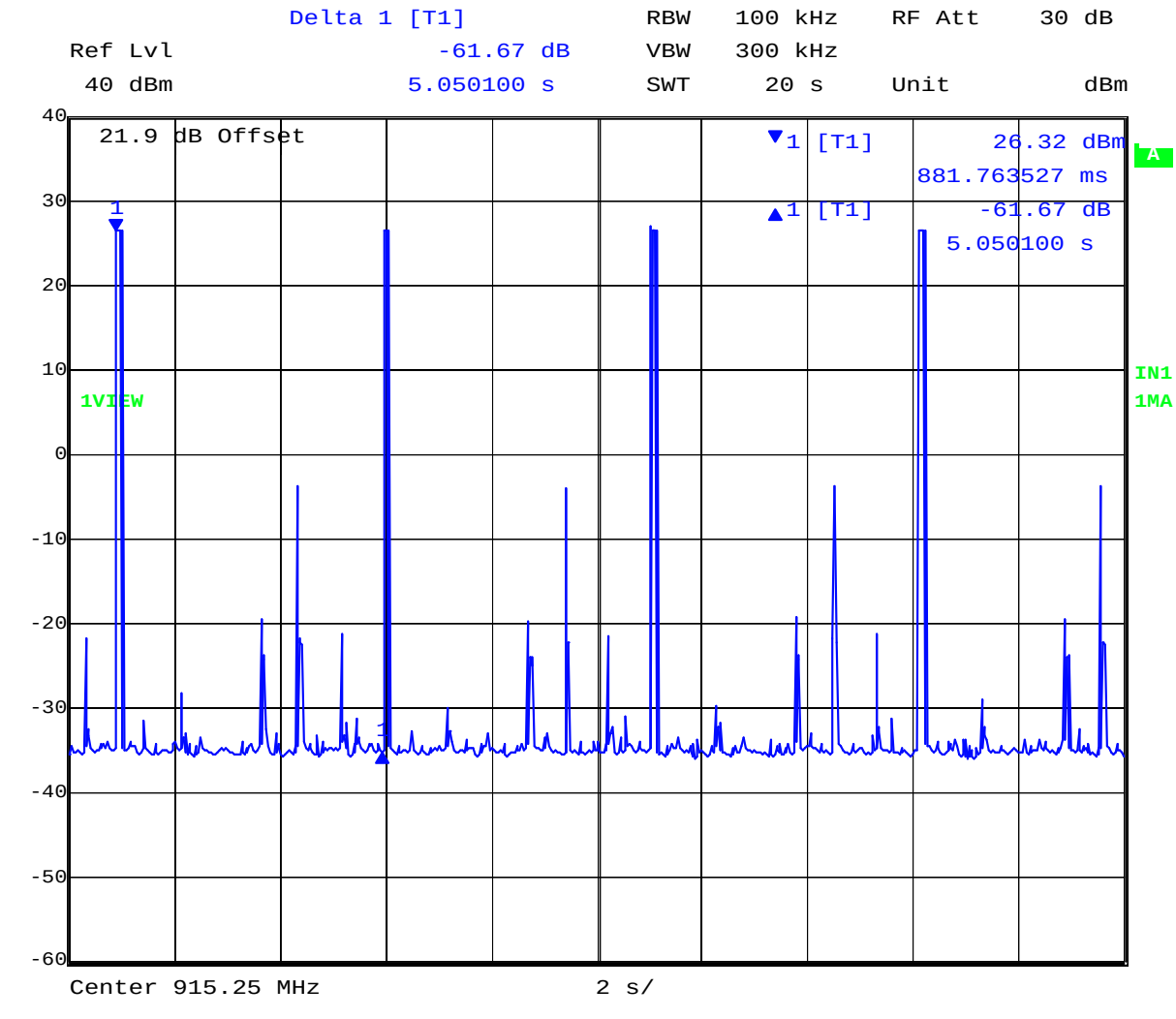
Channel Occupancy

TABLE OF RESULTS

Channel #	Center Frequency (MHz)	Channel Occupancy within 10 Second Period (mSeconds)
25	915.25	190.36

Note: Channel repeats after 5.05 seconds

Channel Occupancy 915.25 MHz



Specification for Number of Channels and Channel Occupancy

Limits

FCC, Part 15 Subpart C §15.247(a)(1)
Industry Canada RSS-210 §A8.1

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

Laboratory Uncertainty for Frequency Measurements

Measurement uncertainty	±0.86ppm

Traceability

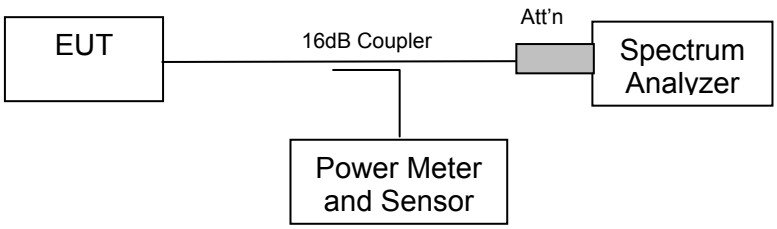
Method	Test Equipment Used
Measurements were made per work instruction WI-02 'Frequency Measurement"	0078, 0134, 0158, 0184, 0193, 0250, 0252 0310, 0312.

5.1.4. Output Power

FCC, Part 15 Subpart C §15.247(b)(2)
Industry Canada RSS-210 §A8.4

Test Procedure
The transmitter terminal of EUT was set for CW (continuous wave) operation and connected to the input of the power meter which was calibrated to measure power. The value of measured power including antenna cable loss was reported.

Test Measurement Set up



Measurement set up for Transmitter Output Power

5.1.4.1. Measurement Results for Output Power

Ambient conditions.
Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

TABLE OF RESULTS

Channel #	Center Frequency (MHz)	Power (dBm)
0	902.75	24.89
25	915.25	24.22
49	927.25	23.42

Specification

Limits

FCC, Part 15 Subpart C §15.247 (b)(2) The maximum output power of the intentional radiator shall not exceed the following:
(2) For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

Industry Canada RSS-210 §A8.4
For frequency hopping systems operating in the 902 - 928 MHz band, the maximum peak conducted power output power is not to succeed 1.0 W if the hopset uses 50 or more hopping channels and 0.25 W if the hopset uses less than 50 hopping channels.

Laboratory Measurement Uncertainty for Power Measurements

Measurement uncertainty	±1.33 dB

Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-01 'Measuring RF Output Power'	0158, 0193, 0252, 0313, 0314, 0070, 0116, 0117

5.1.5. Maximum Permissible Exposure

FCC, Part 15 Subpart C §15.247(i)
Industry Canada RSS-Gen §5.5

Calculations for Maximum Permissible Exposure Levels

Power Density = Pd (mW/cm^2) = EIRP/(4πd^2)
EIRP = P * G
P = Peak output power (mW)
G = Antenna numeric gain (numeric)
d = Separation distance (cm)
Numeric Gain = 10 ^ (G (dBi)/10)

Because the EUT belongs to the General Population/Uncontrolled Exposure the limit of power density is 1.0 mW/cm^2

Freq. Band (GHz)	Antenna Gain (dBi)	Peak Output Power (dBm)	Antenna Gain (numeric)	EIRP (mW)	Distance @ 1mW/cm2 Limit(cm)	Minimum Separation Distance (cm)
2.4 - 2.5	6	24.89	3.98107171	1227.44	9.89	20

*Note: for mobile or fixed location transmitters the minimum separation distance is 20cm, even if calculations indicate the MPE distance to be less.

Specification

Maximum Permissible Exposure Limits

§15.247(i) Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency levels in excess of the Commission's guidelines.

FCC §1.1310 Limit = 1mW / cm^2 from 1.310 Table 1

RSS-Gen §5.5 Before equipment certification is granted, the applicable requirements of RSS-102 shall be met.

Laboratory Measurement Uncertainty for Power Measurements

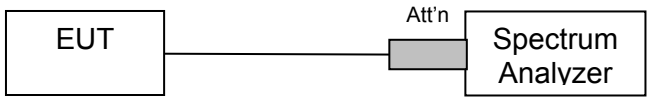
Measurement uncertainty	±1.33 dB

5.1.6. Conducted Spurious Emissions Transmitter

FCC, Part 15 Subpart C §15.247(d)
Industry Canada RSS-210 §A8.5

Test Procedure
Conducted emissions were measured at a limit of 20 dB below the highest in-band spectral density measured with a spectrum analyzer connected to the antenna terminal. Emissions at the band edge were measured and recorded. Measurements were made while EUT was operating in transmit mode of operation at the appropriate center frequency.

Test Measurement Set up



Band-edge measurement test configuration

Measurement Results of Conducted Spurious Emissions

Ambient conditions.
Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

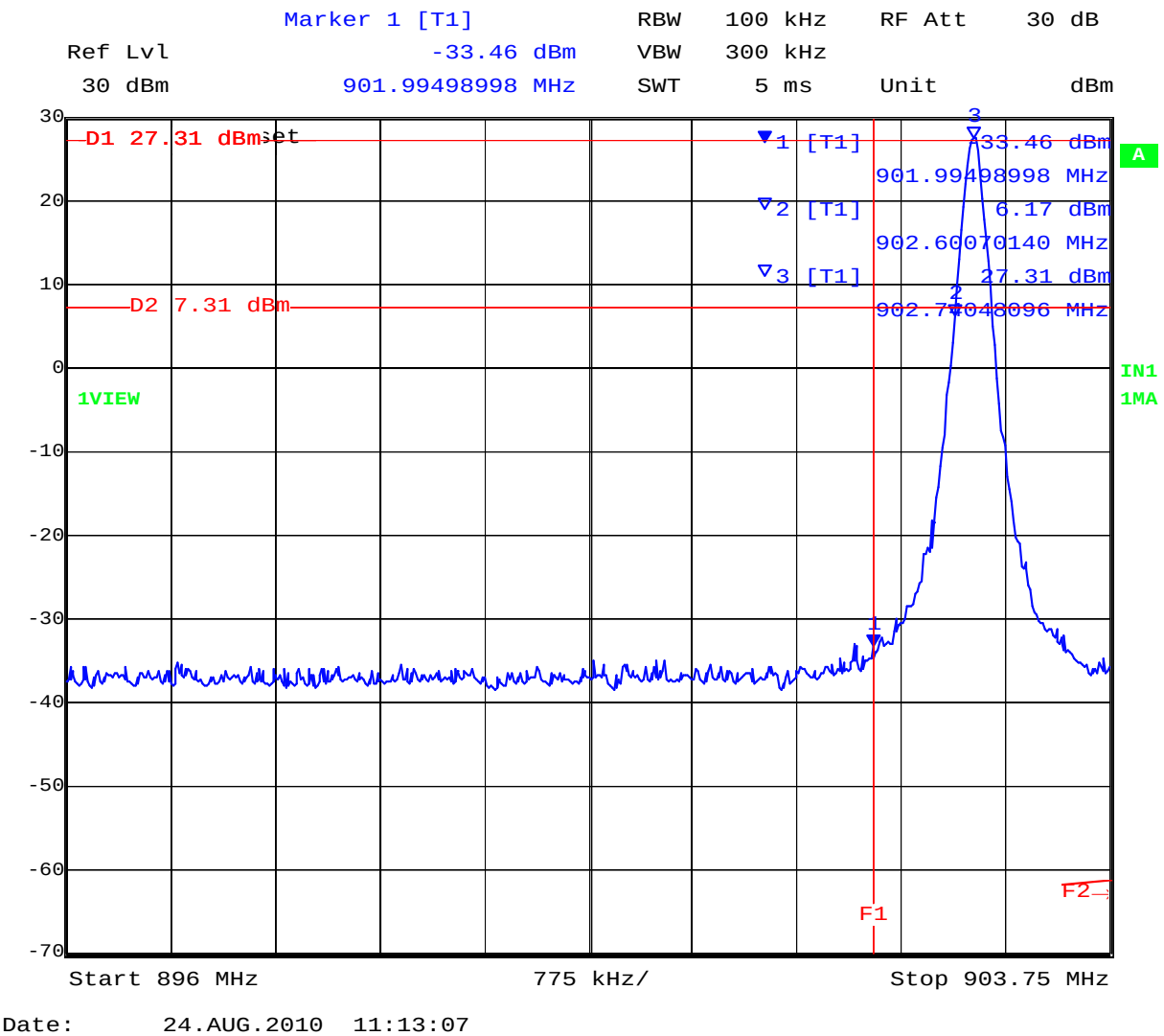
5.1.6.1. Conducted Band-Edge Results

TABLE OF RESULTS

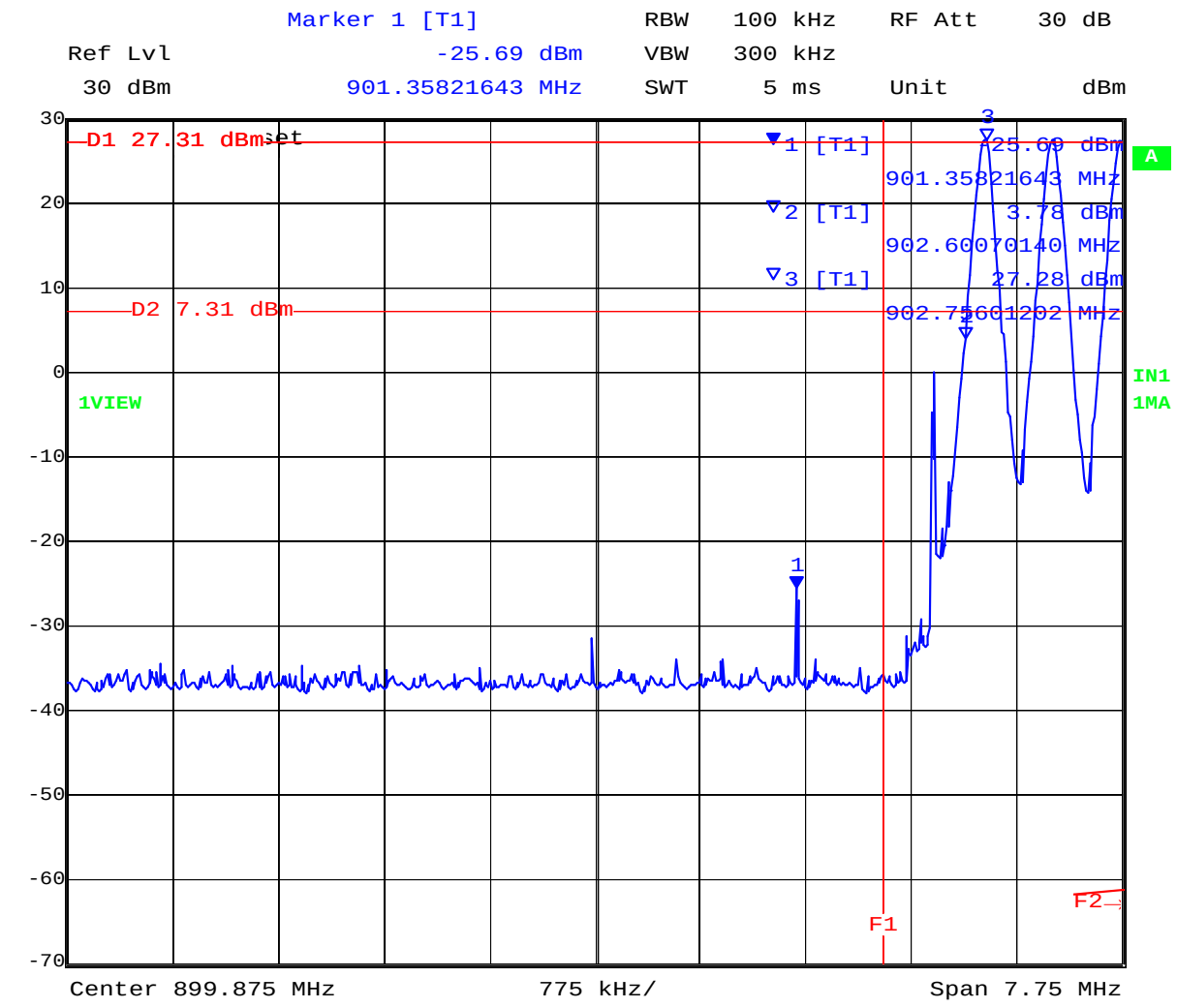
Channel #	Center Frequency (MHz)	Band-edge Frequency (MHz)	Limit (dBm)	Amplitude @ Band-edge (dBm)	Margin (dB)
0	902.75	902.0	7.31	-25.69	-33.0
49	927.25	928.0	5.87	-34.26	-40.13

Note: Worst case measurement used for table of results.

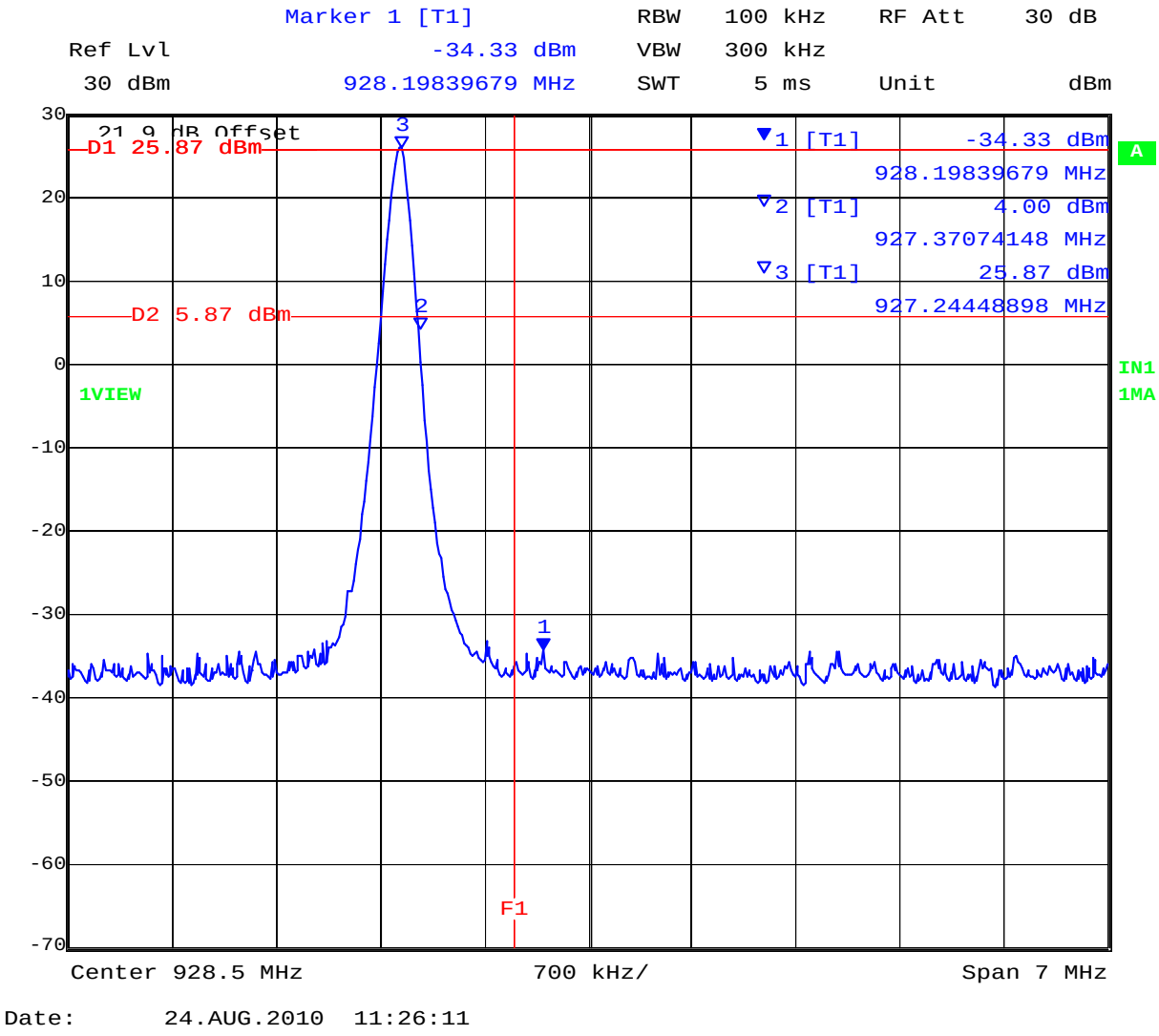
902 MHZ LOWER BAND EDGE – HOPPING OFF



902 MHZ LOWER BAND EDGE – HOPPING ON

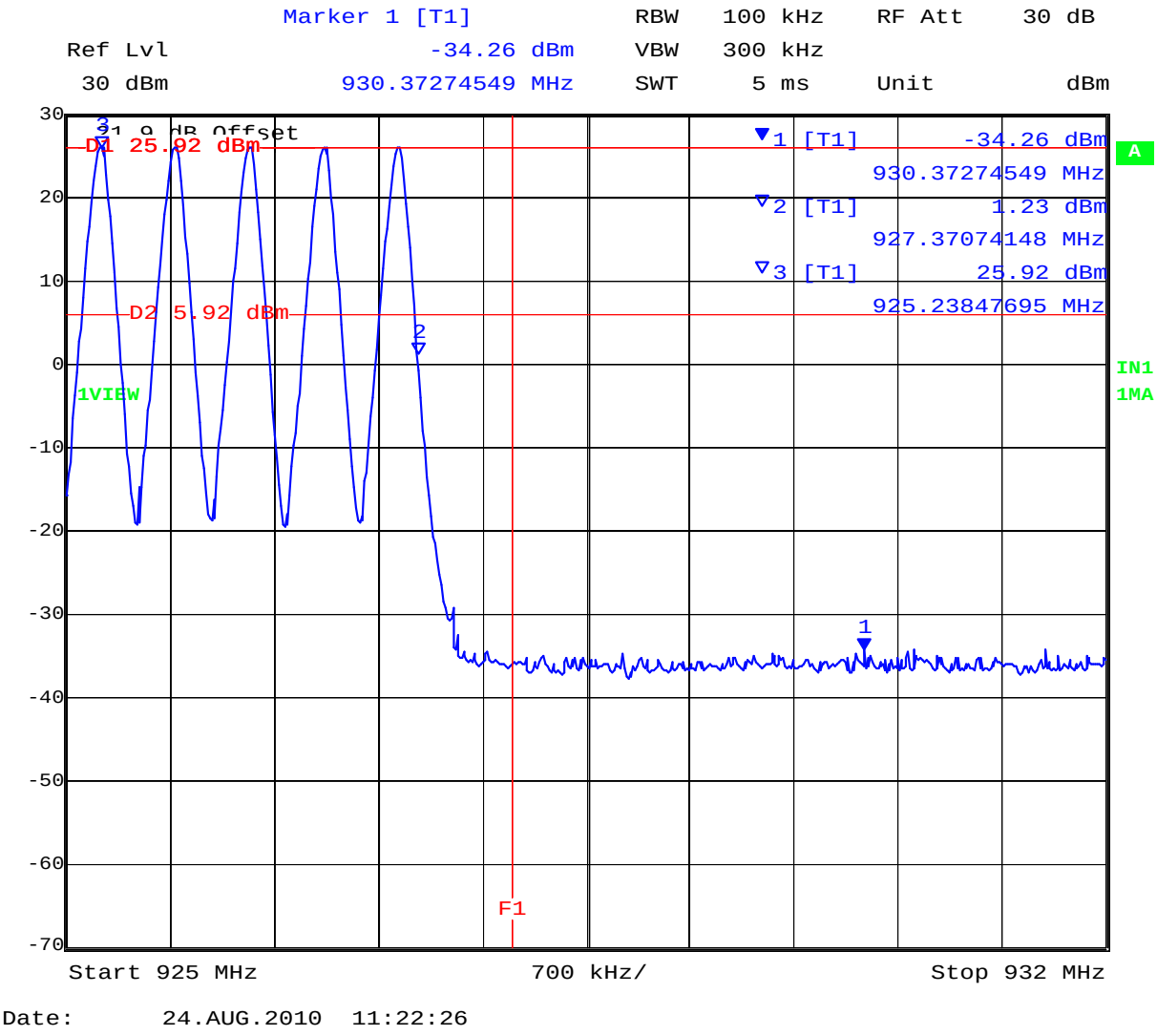


928 MHZ UPPER BAND EDGE – HOPPING OFF



Date: 24.AUG.2010 11:26:11

928 MHZ UPPER BAND EDGE – HOPPING ON



Date: 24.AUG.2010 11:22:26

5.1.6.2. Spurious Emissions (1-10 GHz)

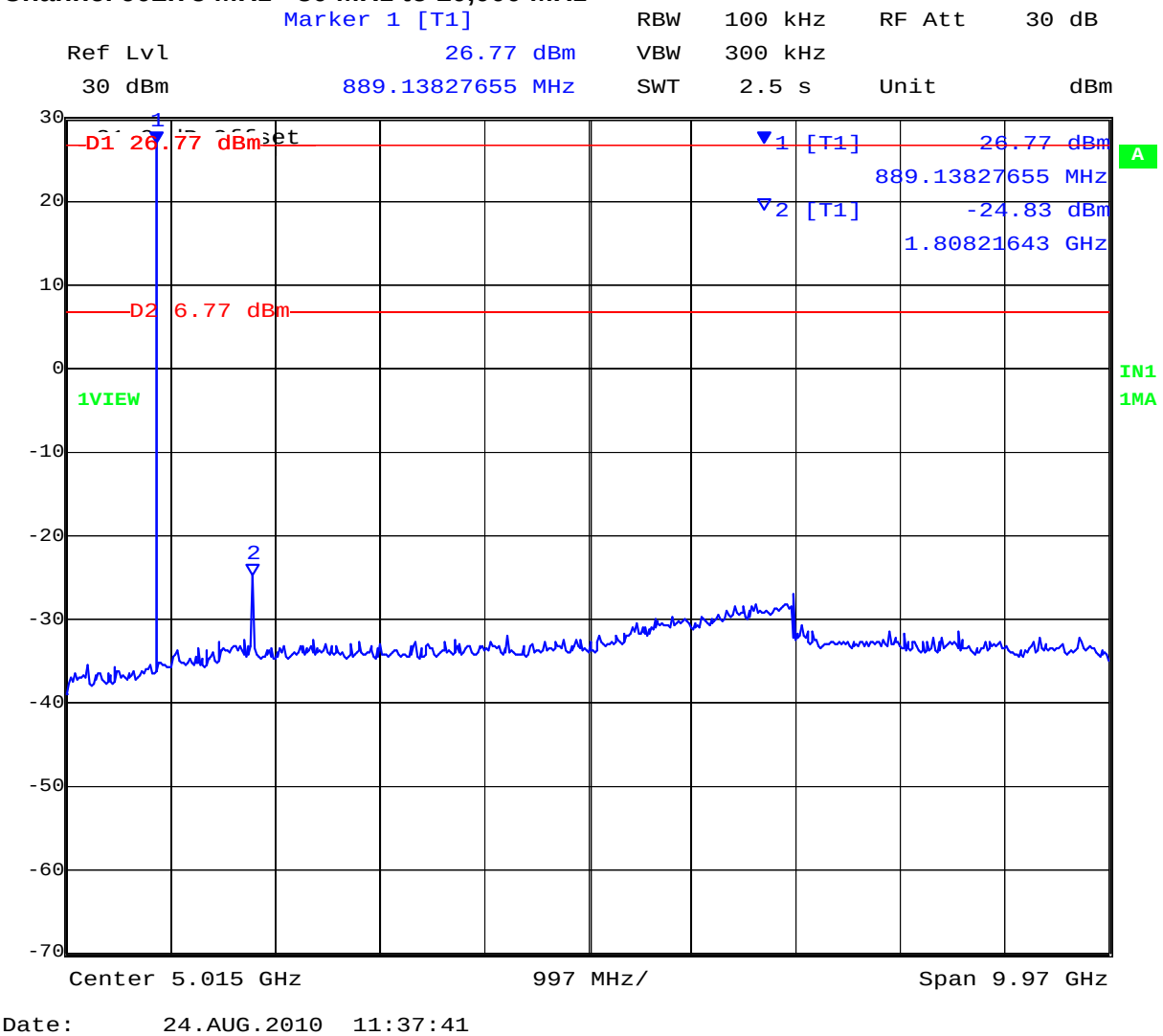
Conducted spurious emissions (30MHz - 10 GHz) are provided below. The maximum emissions observed are indicated in the results table before each plot. \

TABLE OF RESULTS

Channel Centre Frequency (MHz)	Start Frequency (MHz)	Stop Frequency (MHz)	Maximum Emission Observed (dBm)	Limit (dBm)	Margin (dB)
902.75	30	10,000	-24.83	6.77	-31.9

The emission breaking the limit line is the carrier.

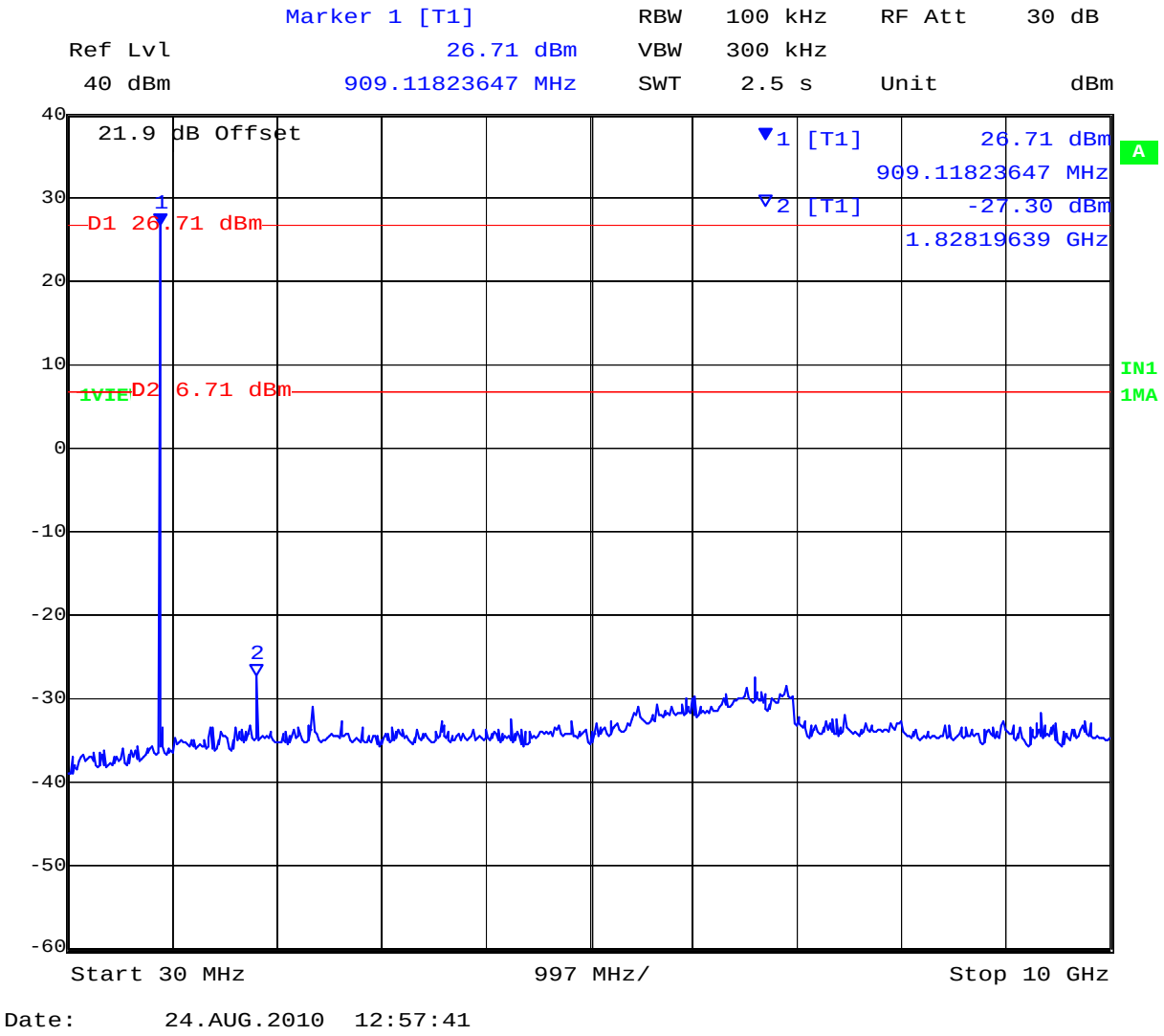
Channel 902.75 MHz - 30 MHz to 10,000 MHz



Channel Centre Frequency (MHz)	Start Frequency (MHz)	Stop Frequency (MHz)	Maximum Emission Observed (dBm)	Limit (dBm)	Margin (dB)
915.25	30	10,000	-27.30	6.71	-34.01

The emission breaking the limit line is the carrier.

CHANNEL 915.25 MHZ - 30 MHZ TO 10,000 MHZ

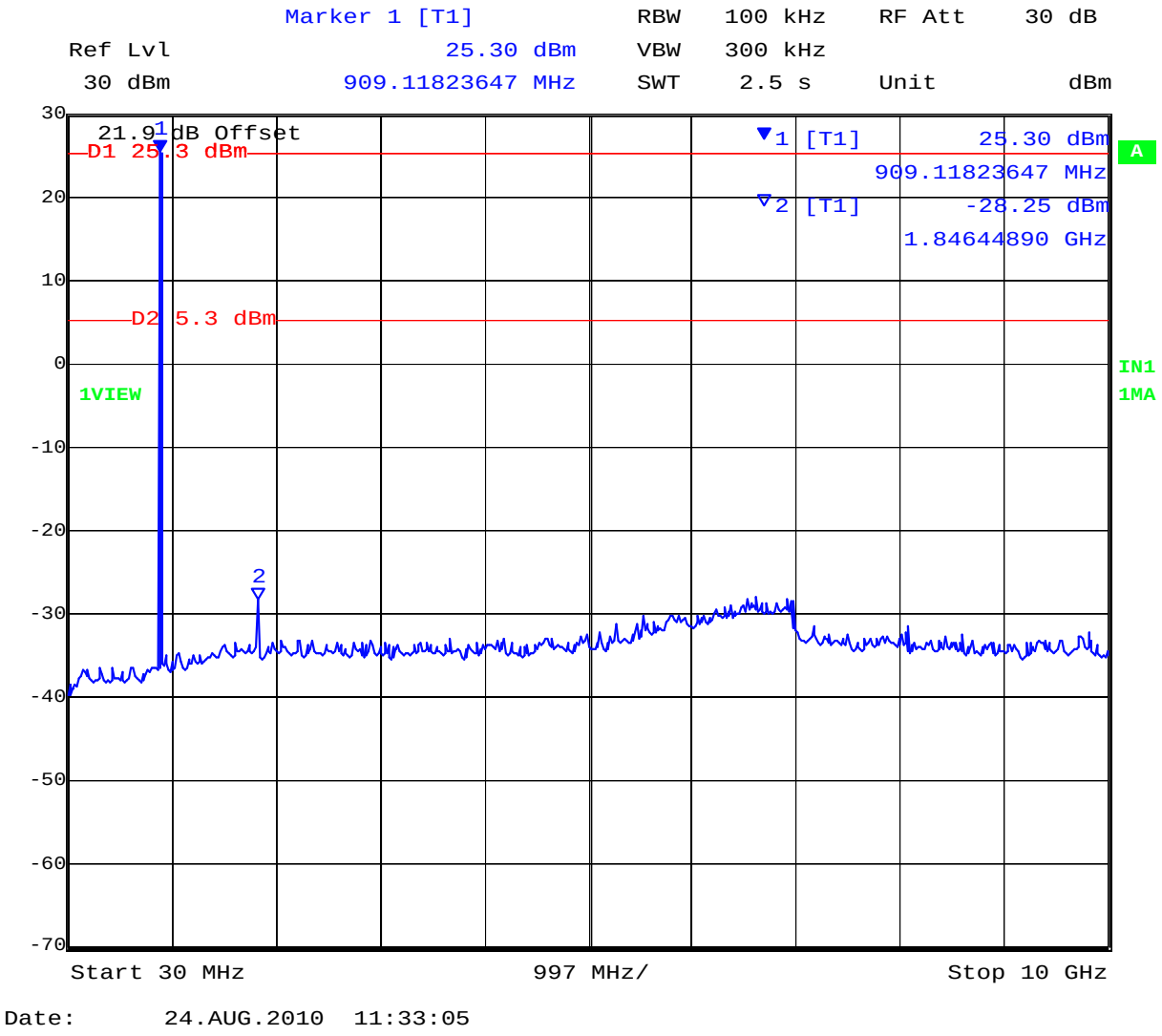


Date: 24.AUG.2010 12:57:41

Channel Centre Frequency (MHz)	Start Frequency (MHz)	Stop Frequency (MHz)	Maximum Emission Observed (dBm)	Limit (dBm)	Margin (dB)
927.25	30	10,000	-28.25	5.3	-33.55

The emission breaking the limit line is the carrier.

CHANNEL 927.25 MHZ - 30 MHZ TO 10,000 MHZ



Specification

Limits Band-Edge

Lower Limit Band-edge	Upper Limit Band-edge	Limit below highest level of desired power
902 MHz	928 MHz	≥ 20 dB

FCC, Part 15 Subpart C §15.247(d)

Industry Canada RSS-210 §A.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

Laboratory Measurement Uncertainty for Conducted Spurious Emissions

Measurement uncertainty	±2.37 dB

Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-05 'Measurement of Spurious Emissions'	0287, 0158, 0193, 0252, 0313, 0314, 0070, 0116, 0117.

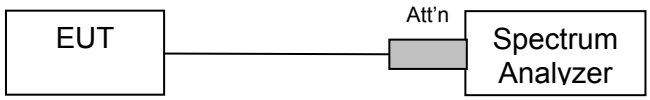
5.1.7. Conducted Spurious Emissions Stand-By

Industry Canada RSS-Gen §7.2.3

Test Procedure

Conducted Stand-By emissions were measured on the device on the mid channel. The EUT was placed in Stand-By mode and emissions were measured 30 MHz – 10 GHz.

Test Measurement Set up



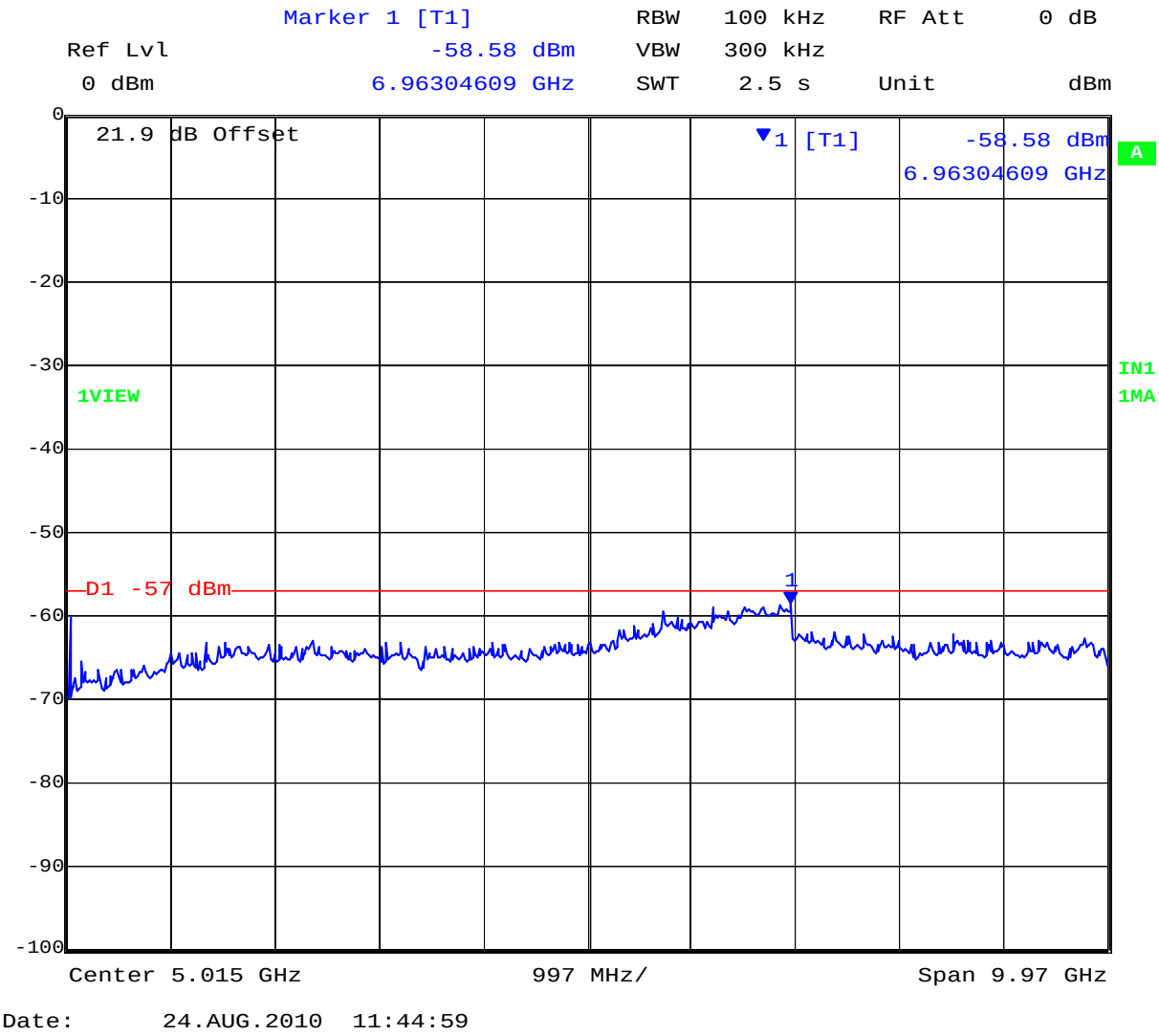
Stand-By spurious emissions test configuration

Measurement Results of Stand –By Spurious Emissions

Ambient conditions.
Temperature: 17 to 23 °C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

5.1.7.1. Conducted Stand-By Spurious Emissions 30M - 10 GHz

No emissions were observed breaking the limit.



Specification
Antenna Conducted Measurement
Industry Canada RSS-Gen §7.2.3

If the device has a detachable antenna of known antenna impedance, then the antenna conducted method is permitted in lieu of a radiated measurement.
Receiver spurious emissions at any discrete frequency shall not exceed 2 nanowatts (-57 dBm) in the band 30-1000 MHz, or 5 nanowatts (-53 dBm) above 1 GHz.

Laboratory Measurement Uncertainty for Conducted Spurious Emissions

Measurement uncertainty	±2.37 dB

Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-05 'Measurement of Spurious Emissions'	0287, 0158, 0193, 0252, 0313, 0314, 0070, 0116, 0117.

5.1.8. Radiated Emissions - Transmitter and Receiver/Standby Mode

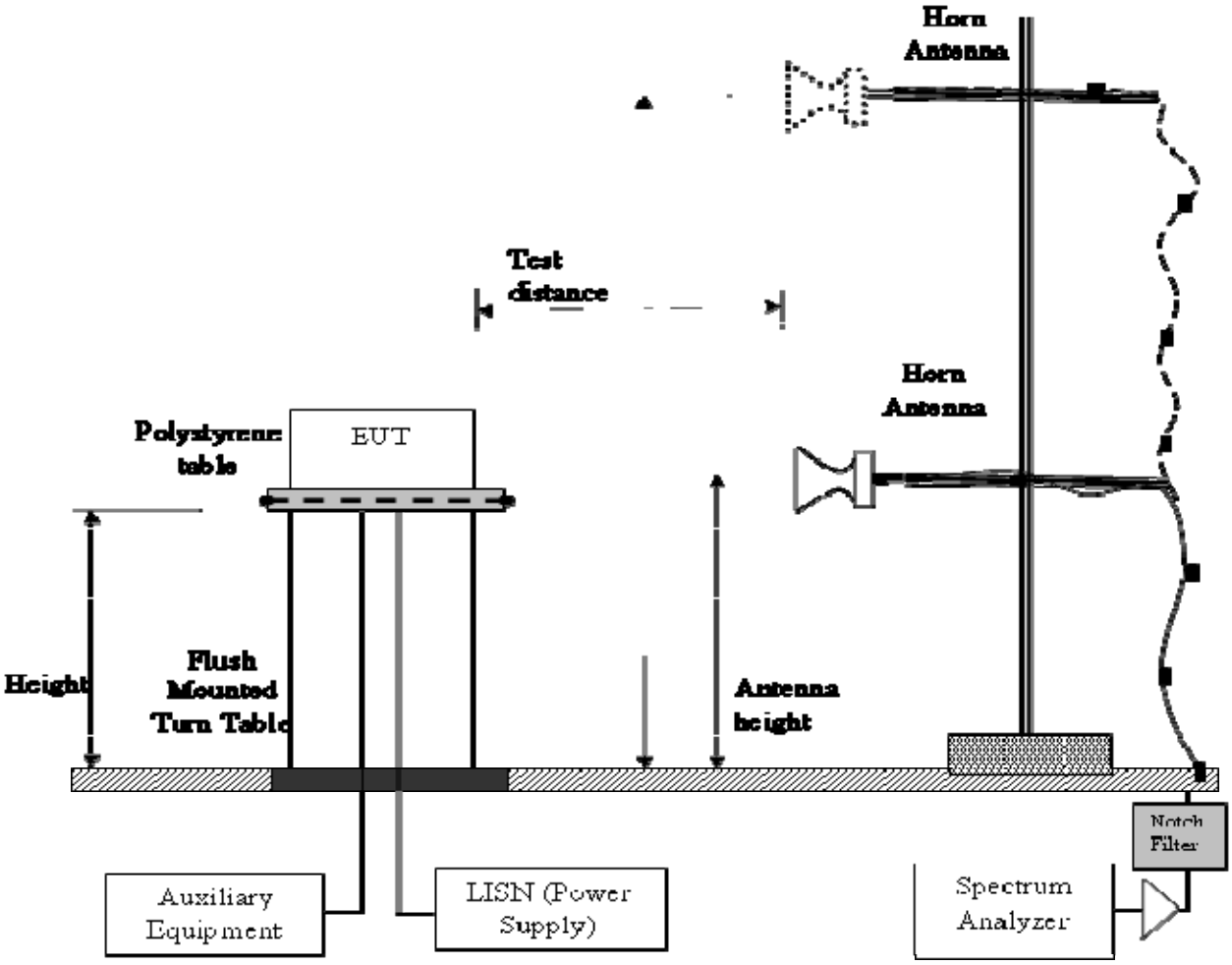
FCC, Part 15 Subpart C §15.247(d)
Industry Canada RSS-210 §A8.5

Test Procedure

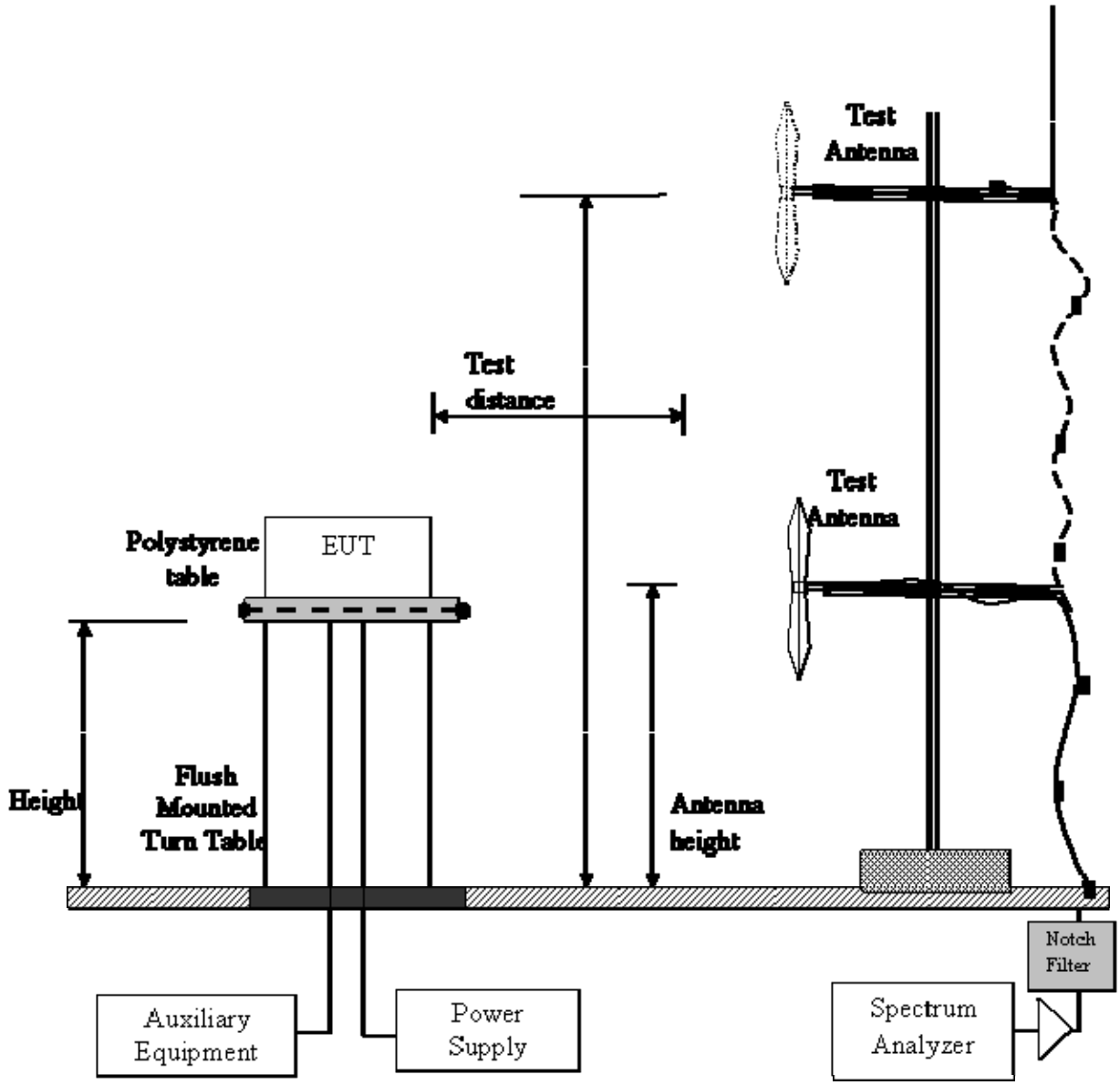
Testing was performed in a 3-meter anechoic chamber. Preliminary radiated emissions were measured on every azimuth and with the receiving antenna in both horizontal and vertical polarizations. Preliminary emissions were recorded with in Spectrum Analyzer mode, using a maximum peak detector while in peak hold mode.

Emissions nearest the limits were chosen for maximization and formal measurement using a CISPR Compliant receiver. Emissions above 1000 MHz are measured utilizing a CISPR compliant average detector with a tuned receiver, using a bandwidth of 1 MHz. Emissions from 30 MHz – 1000 MHz are measured utilizing a CISPR compliant quasi-peak detector with a tuned receiver, using a bandwidth of 120 kHz. Only the highest emissions relative to the limit are listed.

Test Measurement Set Up



Radiated Emission Measurement Setup – Above 1 GHz



Radiated Emission Measurement Setup – Below 1 GHz

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

FS = R + AF + CORR – FO

FS = Field Strength
R = Measured Spectrum analyzer Input Amplitude
AF = Antenna Factor

CORR = Correction Factor = CL – AG + NFL

CL = Cable Loss
AG = Amplifier Gain
FO = Distance Falloff Factor
NFL = Notch Filter Loss or Waveguide Loss

Field Strength Calculation Example:

Given receiver input reading of 51.5 dBμV; Antenna Factor of 8.5 dB; Cable Loss of 1.3 dB; Falloff Factor of 0 dB, an Amplifier Gain of 26 dB and Notch Filter Loss of 1 dB. The Field Strength of the measured emission is:

FS = 51.5 + 8.5 + 1.3 - 26.0 +1 = 36.3 dBμV/m

Conversion between dBμV/m (or dBμV) and μV/m (or μV) are done as:

Level (dBμV/m) = 20 * Log (level (μV/m))

40 dBμV/m = 100 μV/m
48 dBμV/m = 250 μV/m

Specification

Radiated Spurious Emissions

FCC §15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section §15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(a)).

FCC §15.205 (a) Except as shown in paragraph (d) of 15.205 (a), only spurious emissions are permitted in any of the frequency bands listed.

FCC §15.205 (a) Except as shown in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

FCC §15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

Table 1: FCC 15.209 Spurious Emissions Limits

Frequency (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance (meters)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Laboratory Measurement Uncertainty for Spectrum Measurement

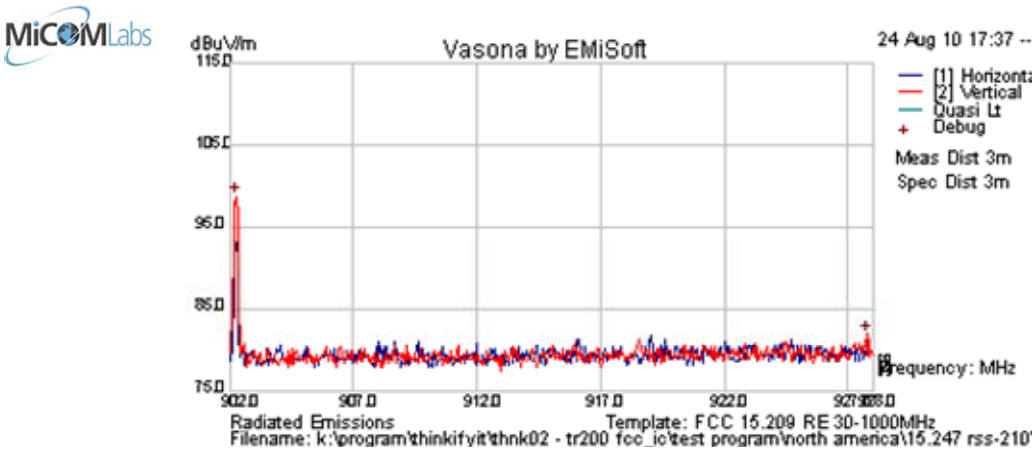
Measurement Uncertainty	+5.6/ -4.5 dB

Traceability:

Method	**Test Equipment Used**
Work instruction WI-03	0088, 0158, 0134, 0304, 0311, 0315, 0310, 0312

5.1.8.1. Transmitter Peak Emissions - Antenna 1

Test Freq.	902.75 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	902 - 928	**Rel. Hum.(%)**	34
Power Setting	RA11	**Press. (mBars)**	998
Antenna	Stub	**Duty Cycle (%)**	100
Test Notes 1			
Test Notes 2			

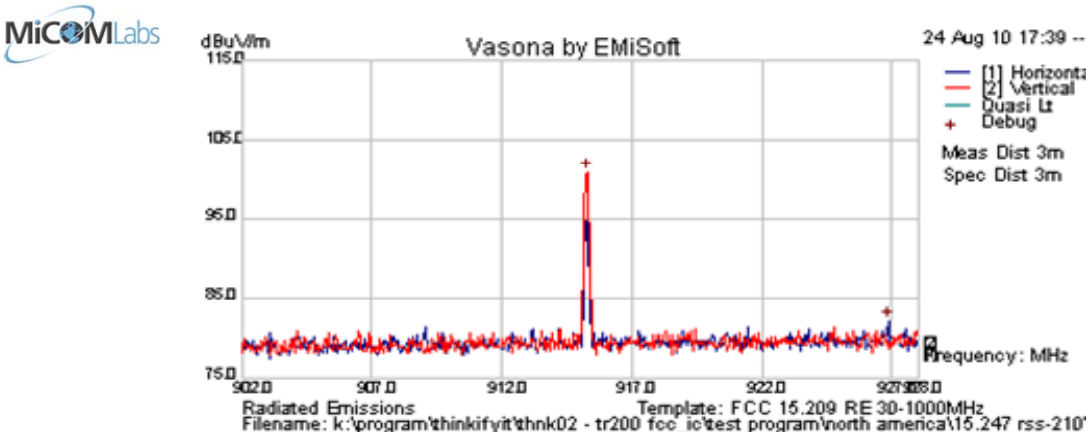


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
902.261	58.6	17.3	22.8	98.7	Peak [Scan]	V						PK

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	PK = Peak Emissions of Fundamental; NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	915.25	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	902 - 928	**Rel. Hum.(%)**	34
Power Setting	RA7	**Press. (mBars)**	998
Antenna	Stub	**Duty Cycle (%)**	100
Test Notes 1			
Test Notes 2			

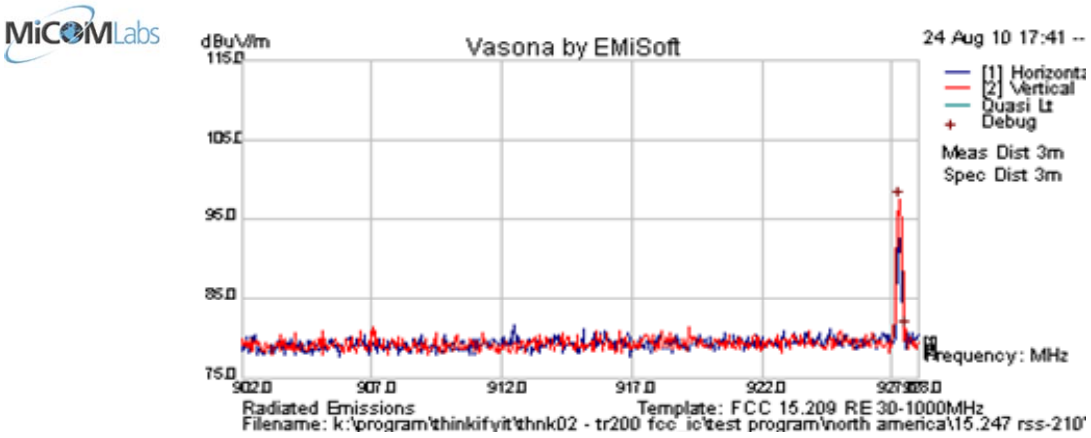


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
915.287	60.7	17.4	22.9	100.9	Peak [Scan]	V						PK

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	PK = Peak Emissions of Fundamental; NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	927.25	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	902 - 928	**Rel. Hum.(%)**	34
Power Setting	RA9	**Press. (mBars)**	998
Antenna	Stub	**Duty Cycle (%)**	100
Test Notes 1			
Test Notes 2			



Formally measured emission peaks

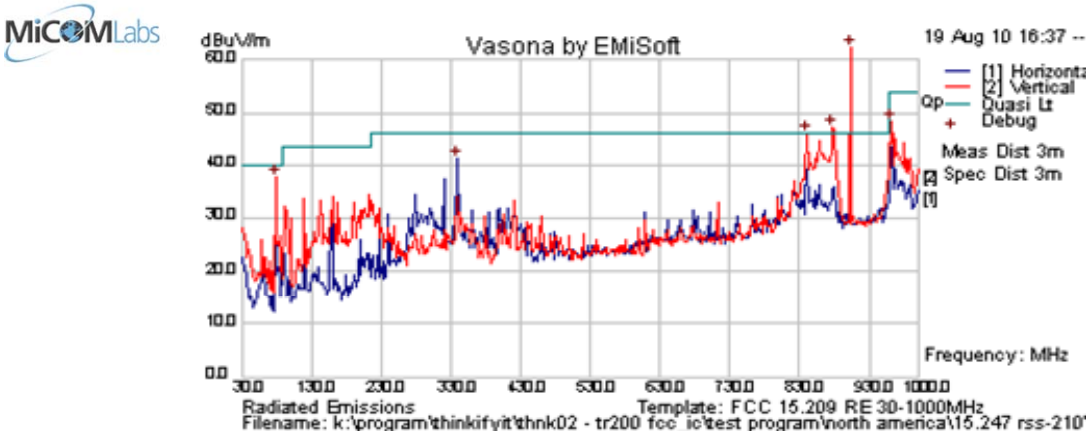
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
927.271	57.0	17.4	23.0	97.4	Peak [Scan]	V						PK

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	PK = Peak Emissions of Fundamental; NRB = Non-Restricted Band. RB = Restricted Band.

5.1.8.2. Transmitter Radiated Spurious Emissions - Antenna 1

Radiated Spurious Emissions – [30-1000MHz]

Test Freq.	902.25 MHz	**Engineer**	CSB
Variant	TR200	**Temp (ºC)**	28.5
Freq. Range	30 - 1000 Mhz	**Rel. Hum.(%)**	37
Power Setting	RA11	**Press. (mBars)**	999
Antenna	Stub	**Duty Cycle (%)**	100
Test Notes 1	Band Stop filter used to attenuate fundamental. Fundamental is show n breaking the limit.		
Test Notes 2	Computer inside chamber w ith EUT.		



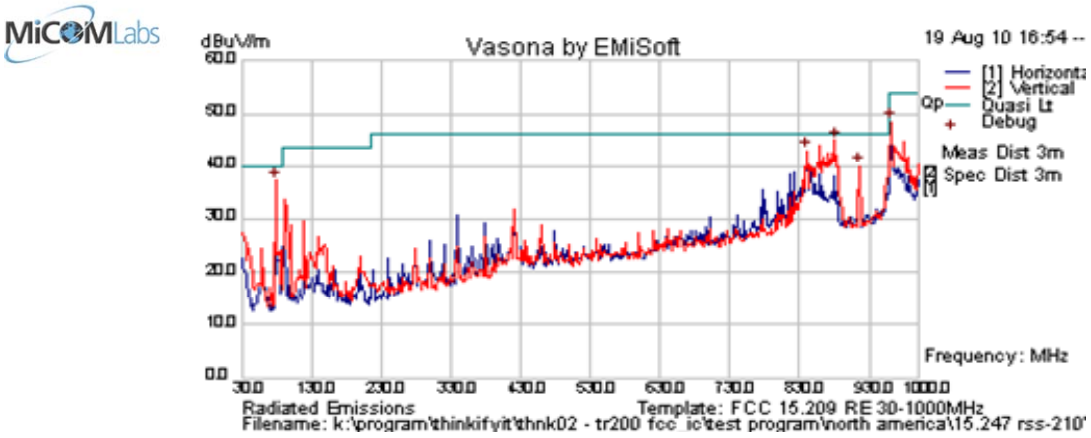
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
840.601	46.9	7.2	-7.9	46.2	Peak [Scan]	V	> 20 dB below fundamental				Pass	NRB
877.535	47.5	7.3	-7.6	47.1	Peak [Scan]	V	> 20 dB below fundamental				Pass	NRB
902.230	62.3	7.3	-7.4	62.2	Peak [Scan]	V	--	--	--	--	N/A	FUND
959.983	46.6	7.6	-6.6	47.6	Quasi Peak	V	> 20 dB below fundamental				Pass	NRB
960.001	45.8	7.6	-6.6	46.8	Peak [Scan]	V	99	208	54	-7.2	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Note: Fundamental is visible in plot.

Test Freq.	915.25 MHz	**Engineer**	CSB
Variant	TR200	**Temp (°C)**	28.5
Freq. Range	30 - 1000 Mhz	**Rel. Hum.(%)**	37
Power Setting	RA7	**Press. (mBars)**	999
Antenna	Stub	**Duty Cycle (%)**	100
Test Notes 1	Band Stop filter used to attenuate fundamental. Fundamental is show n breaking the limit.		
Test Notes 2	Computer inside chamber w ith EUT.		



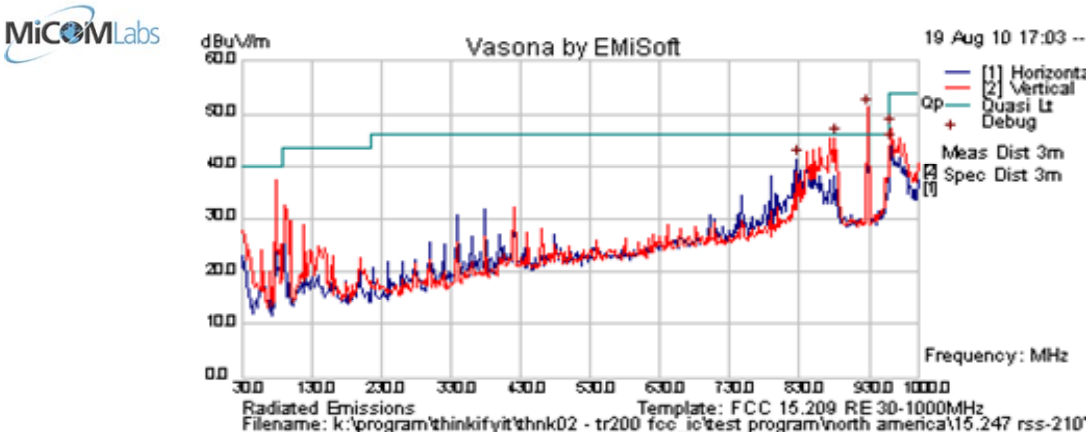
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
881.423	45.5	7.3	-7.7	45.0	Peak [Scan]	V	> 20 dB below fundamental				Pass	NRB
840.601	43.7	7.2	-7.9	43.0	Peak [Scan]	H	> 20 dB below fundamental				Pass	NRB
960.010	44.9	7.6	-6.6	45.9	Quasi Peak	V	98	193	54	-8.1	Pass	RB
915.230	40.0	7.4	-7.3	40.0	Peak [Scan]	V	--	--	--	--	N/A	FUND

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Note: Fundamental is visible in plot.

Test Freq.	927.25 MHz	**Engineer**	CSB
Variant	TR200	**Temp (°C)**	28.5
Freq. Range	30 - 1000 Mhz	**Rel. Hum.(%)**	37
Power Setting	RA9	**Press. (mBars)**	999
Antenna	Stub	**Duty Cycle (%)**	100
Test Notes 1	Band Stop filter used to attenuate fundamental. Fundamental is show n breaking the limit.		
Test Notes 2	Computer inside chamber w ith EUT.		



Formally measured emission peaks

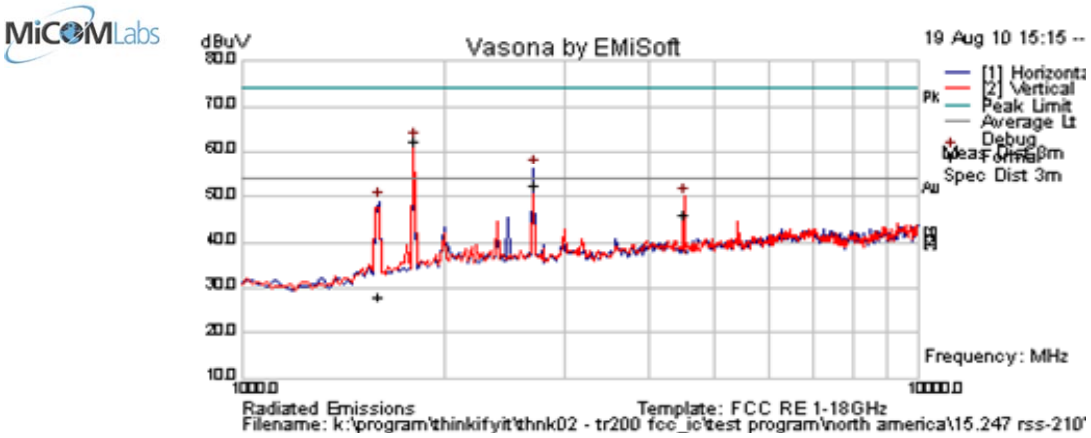
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
826.994	42.1	7.2	-7.9	41.4	Peak [Scan]	H	> 20 dB below fundamental				Pass	NRB
881.422846	46.1	7.3	-7.7	45.6	Peak [Scan]	V	> 20 dB below fundamental				Pass	NRB
927.228	51.0	7.4	-7.2	51.2	Peak [Scan]	V	--	--	--	--	N/A	FUND
959.972	46.4	7.6	-6.6	47.4	Peak [Scan]	V	> 20 dB below fundamental				Fail	NRB
960.002	43.6	7.6	-6.6	44.6	Quasi Peak	V	98	360	54	-9.4	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Note: Fundamental is visible in plot.

Radiated Spurious Emissions – [1000MHz – 10,000MHz]

Test Freq.	902.25 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	26.5
Freq. Range	1 - 10 GHz	**Rel. Hum.(%)**	38
Power Setting	RA11	**Press. (mBars)**	1000
Antenna	Stub	**Duty Cycle (%)**	100
Test Notes 1	Data Port Open; Serial Port closed; WM Cable		
Test Notes 2	Test Sample 2		

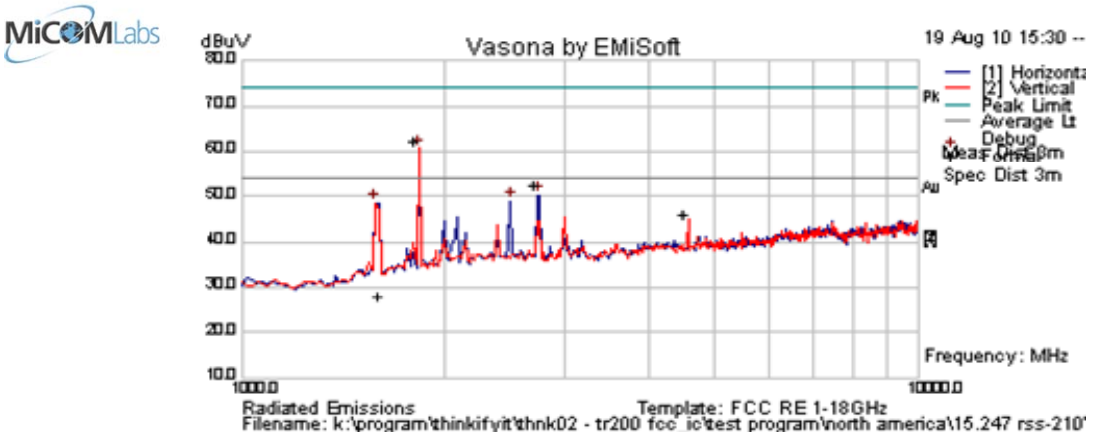


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
1600.000	39.7	2.5	-14.3	27.9	Average	H	188	270	54.0	-26.1	Pass	RB
1804.476	72.3	2.6	-12.7	62.2	Peak [Scan]	V	> 20dB below fundamental				Pass	NRB
2706.738	60.4	3.2	-11.2	52.4	Average	H	100	126	54	-1.6	Pass	RB
4511.259	51.7	4.2	-9.7	46.2	Average	V	123	9	54	-7.8	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	915.25 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	26.5
Freq. Range	1 - 10 GHz	**Rel. Hum.(%)**	38
Power Setting	RA7	**Press. (mBars)**	1000
Antenna	Stub	**Duty Cycle (%)**	100
Test Notes 1	Data Port Open; Serial Port closed; WM Cable		
Test Notes 2	Test Sample 2		

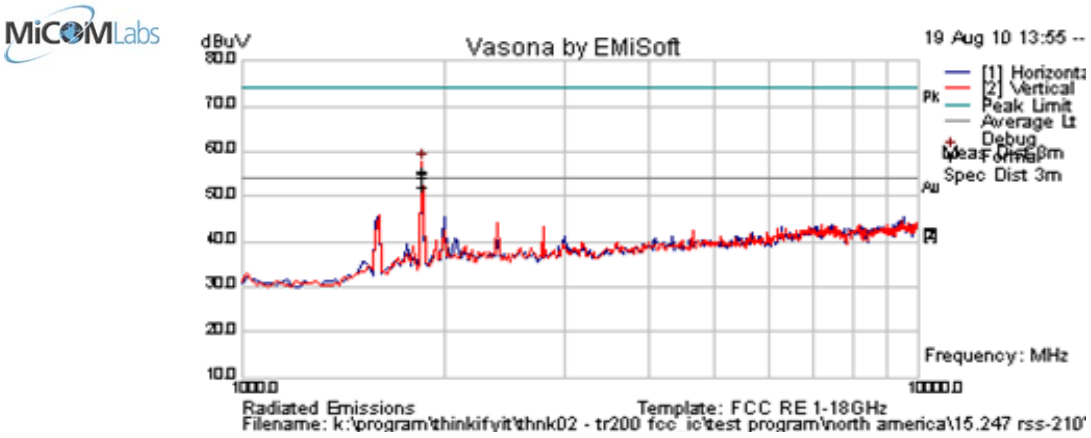


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
1600.060	40.0	2.5	-14.3	28.2	Average	V	101	273	54.0	-25.8	Pass	RB
1830.491	70.8	2.6	-12.8	60.7	Peak [Scan]	V	> 20dB below fundamental				Pass	NRB
2496.993	33.7	3.0	-11.1	25.6	Average	H	101	347	54	-28.4	Pass	RB
2745.716	61.7	3.2	-11.5	53.4	Average	H	101	314	54	-0.6	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	927.75 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	26.5
Freq. Range	1 - 10 GHz	**Rel. Hum.(%)**	38
Power Setting	RA9	**Press. (mBars)**	1000
Antenna	Stub	**Duty Cycle (%)**	100
Test Notes 1	Painted plastic Chassis, Serial Port Covered; Data Port Uncovered		
Test Notes 2	USB Cable = WM; PC in chamber during test		



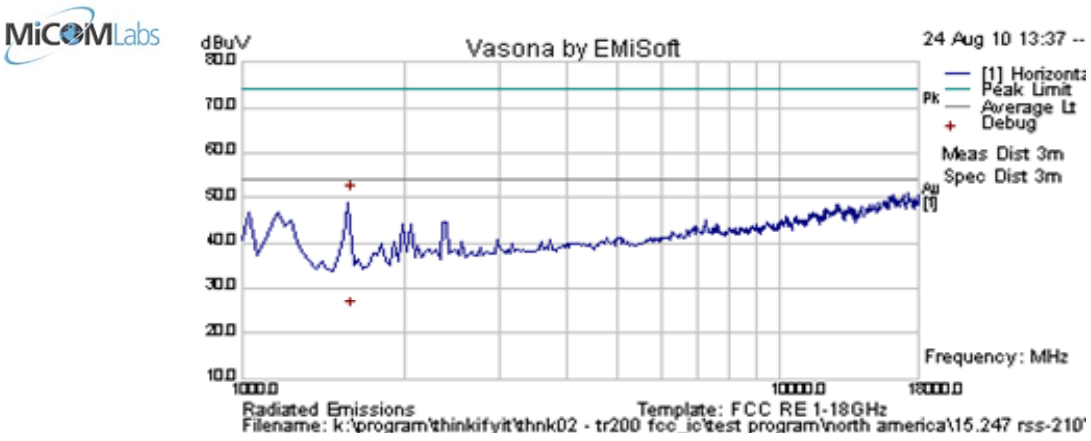
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1855.478	61.9	2.7	-12.5	52.0	Average	V	> 20dB below fundamental				Pass	NRB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

5.1.8.3. Receiver/Standby Radiated Spurious Emissions - Antenna 1

Test Freq.	N/A Digital Emissions	**Engineer**	CSB
Variant	TR200	**Temp (°C)**	27.5
Freq. Range	1 - 18 GHz	**Rel. Hum.(%)**	35
Power Setting	N/A	**Press. (mBars)**	998
Antenna	Stub	**Duty Cycle (%)**	100
Test Notes 1	Laptop in Chamber with EUT.		
Test Notes 2			



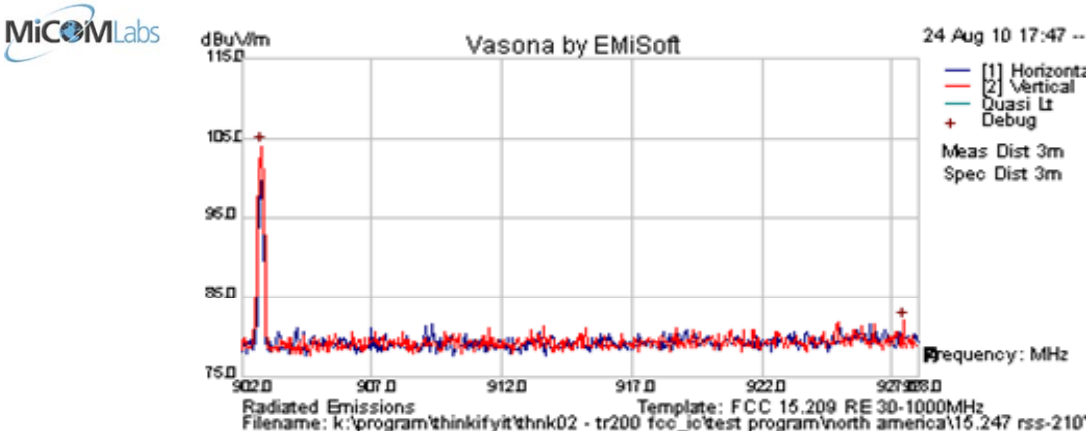
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
1597.034	62.6	2.5	-14.3	50.7	Peak	V	98	206	74.0	-23.3	Pass	
1597.034	36.8	2.5	-14.3	25.0	Average	V	98	206	54.0	-29.0	Pass	

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

5.1.8.4. Transmitter Peak Emissions - Antenna 2

Test Freq.	902.75 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	902 - 928	**Rel. Hum.(%)**	34
Power Setting	RA10	**Press. (mBars)**	998
Antenna	Patch	**Duty Cycle (%)**	100
Test Notes 1			
Test Notes 2			

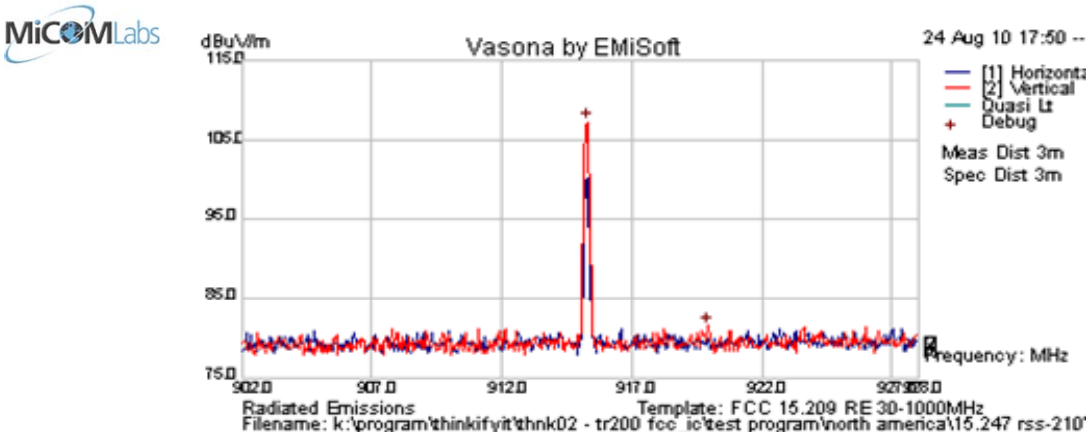


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
902.729	64.1	17.3	22.8	104.1	Peak [Scan]	V						PK

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	PK = Peak Emissions of Fundamental; NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	915.25	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	902 - 928	**Rel. Hum.(%)**	34
Power Setting	RA8	**Press. (mBars)**	998
Antenna	Patch	**Duty Cycle (%)**	100
Test Notes 1			
Test Notes 2			

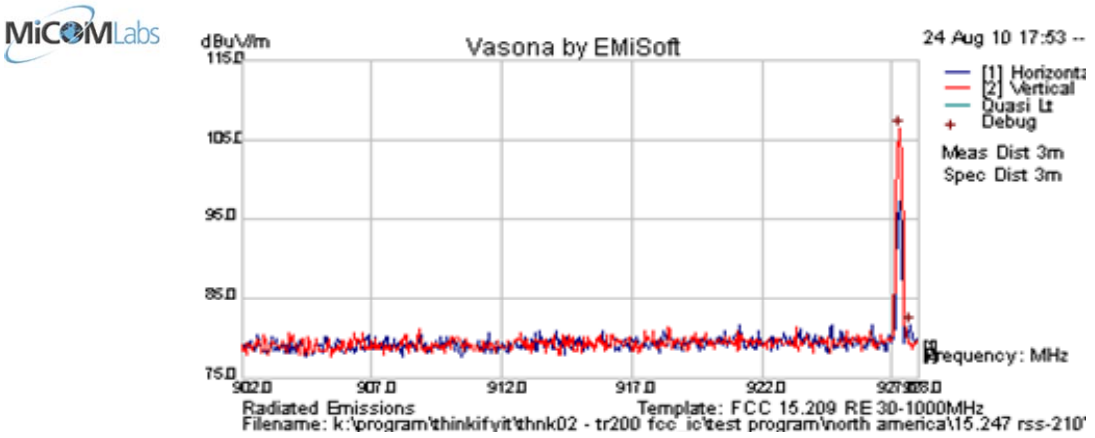


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
915.287	67.0	17.4	22.9	107.3	Peak [Scan]	V						PK

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	PK = Peak Emissions of Fundamental; NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	927.25	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	902 - 928	**Rel. Hum.(%)**	34
Power Setting	RA8	**Press. (mBars)**	998
Antenna	Patch	**Duty Cycle (%)**	100
Test Notes 1			
Test Notes 2			



Formally measured emission peaks

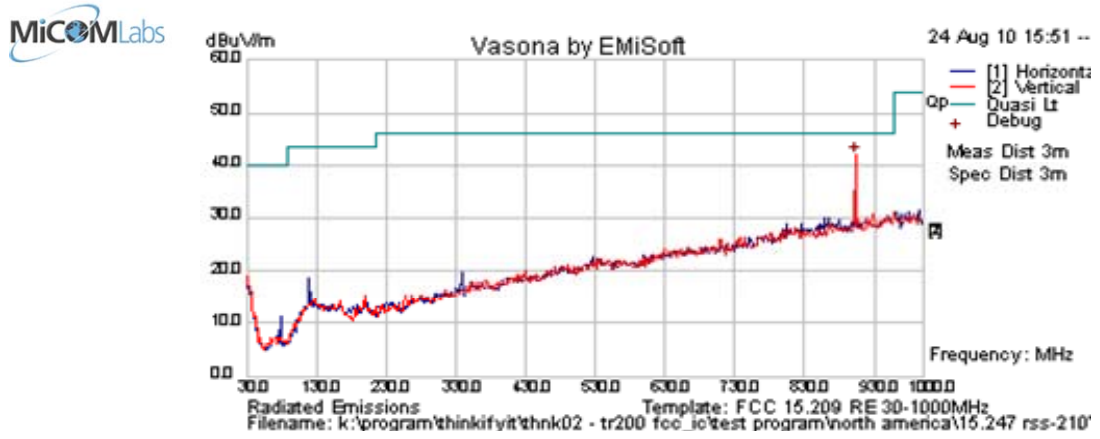
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
927.271	66.0	17.4	23.0	106.4	Peak [Scan]	V						PK

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	PK = Peak Emissions of Fundamental; NRB = Non-Restricted Band. RB = Restricted Band.

5.1.8.5. Transmitter Radiated Spurious Emissions - Antenna 2

Radiated Spurious Emissions – [30-1000MHz]

Test Freq.	902.75 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	30 - 1000 MHz	**Rel. Hum.(%)**	34
Power Setting	RA8	**Press. (mBars)**	998
Antenna	Circular Patch	**Duty Cycle (%)**	100
Test Notes 1	Band Stop Filter used to attenuate fundamental.		
Test Notes 2	Tag was utilized to verify "read" before and after test.		



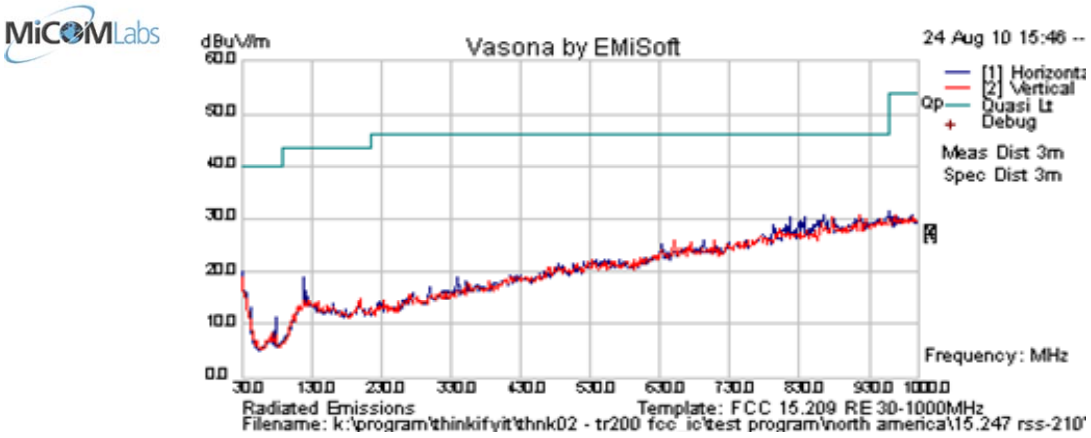
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
902.222	42.2	7.3	-7.4	42.1	Peak [Scan]	V	--	--	--	--	Pass	FUND

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Note: Fundamental is visible in plot.

Test Freq.	915.25 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	30 - 1000 MHz	**Rel. Hum.(%)**	34
Power Setting	RA8	**Press. (mBars)**	998
Antenna	Circular Patch	**Duty Cycle (%)**	100
Test Notes 1	Band Stop Filter used to attenuate fundamental.		
Test Notes 2	Tag was utilized to verify "read" before and after test.		



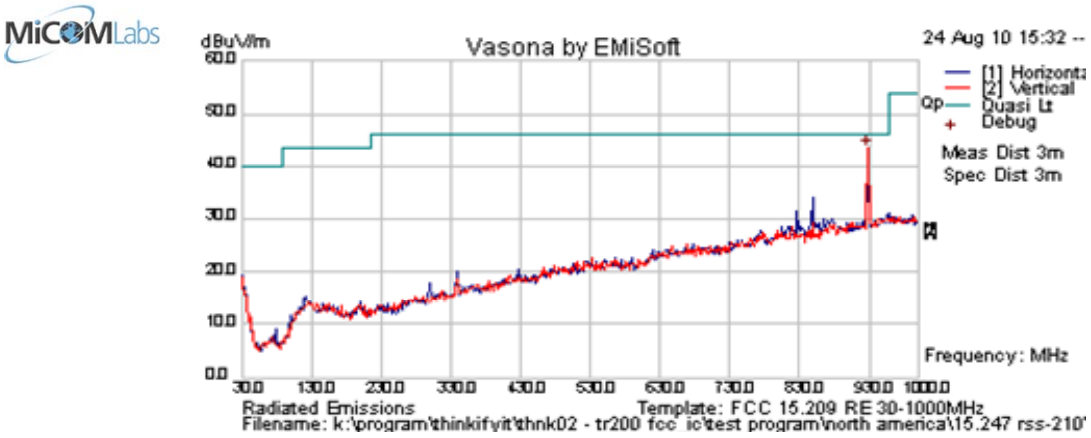
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
No Emissions within 10 dB of limit.												

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Note: Fundamental is not visible in plot.

Test Freq.	927.25 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	30 - 1000 MHz	**Rel. Hum.(%)**	34
Power Setting	RA8	**Press. (mBars)**	998
Antenna	Circular Patch	**Duty Cycle (%)**	100
Test Notes 1	Band Stop Filter used to attenuate fundamental.		
Test Notes 2	Tag was utilized to verify "read" before and after test.		



Formally measured emission peaks

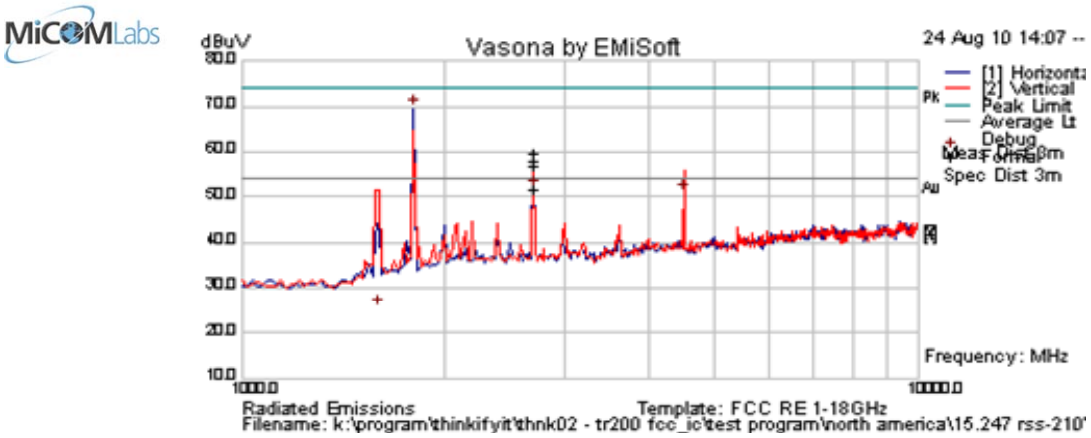
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
928.076	43.3	7.4	-7.3	43.5	Peak [Scan]	V	--	--	--	--	Pass	FUND

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Note: Fundamental is visible in plot.

Radiated Spurious Emissions – [1000MHz – 10,000MHz]

Test Freq.	902.75	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29
Freq. Range	1 - 10 GHz	**Rel. Hum.(%)**	33
Power Setting	RA10	**Press. (mBars)**	98
Antenna	Circular Patch	**Duty Cycle (%)**	100
Test Notes 1	Laptop conputer in chamber with EUT.		
Test Notes 2			

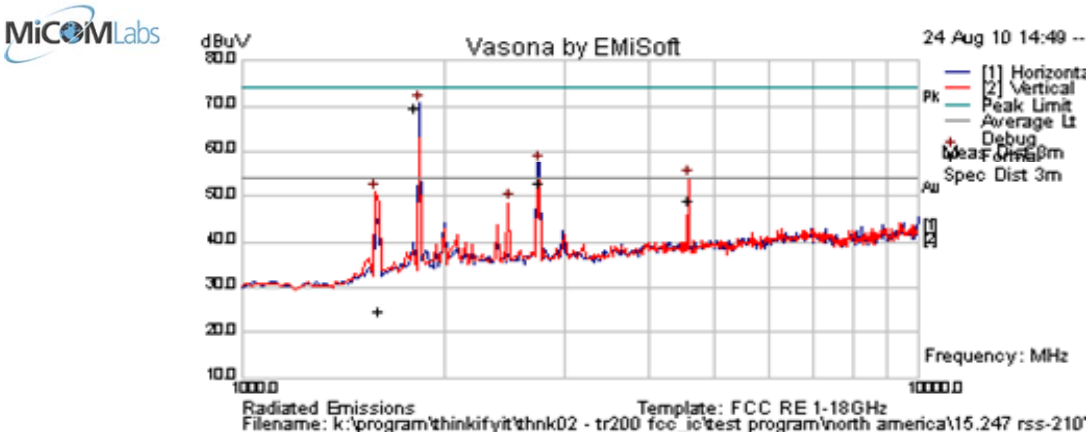


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
1599.208	37.4	2.5	-14.3	25.6	Average	V	98	199	54.0	-28.4	Pass	RB
1795.892	79.8	2.6	-12.8	69.6	Peak [Scan]	H	> 20dB below carrier				Pass	NRB
2708.257	59.7	3.2	-11.2	51.7	Average	H	99	54	54	-2.3	Pass	RB
4513.765	56.1	4.2	-9.7	50.7	Average	V	98	199	54	-3.3	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	915.25	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29
Freq. Range	1 - 10 GHz	**Rel. Hum.(%)**	33
Power Setting	RA8	**Press. (mBars)**	98
Antenna	Circular Patch	**Duty Cycle (%)**	100
Test Notes 1	Laptop conputer in chamber w ith EUT.		
Test Notes 2			

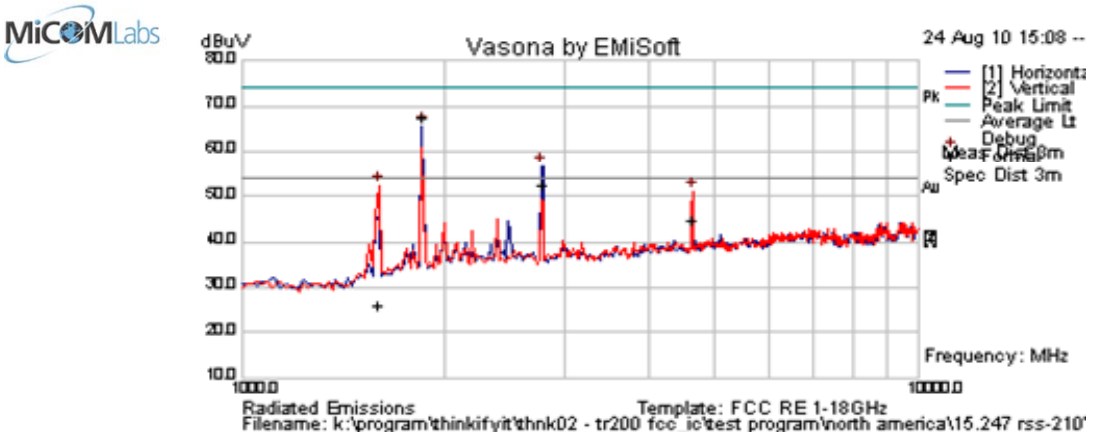


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
1596.643	36.4	2.5	-14.3	24.6	Average	V	98	184	54.0	-29.4	Pass	RB
1795.892	79.8	2.6	-12.8	69.6	Peak [Scan]	H	> 20dB below carrier				Pass	NRB
2745.697	61.4	3.2	-11.5	53.1	Average	H	98	244	54	-0.9	Pass	RB
4576.209	55.1	4.2	-10.1	49.2	Average	V	98	184	54	-4.8	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	927.25	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29
Freq. Range	1 - 10 GHz	**Rel. Hum.(%)**	33
Power Setting	RA8	**Press. (mBars)**	98
Antenna	Circular Patch	**Duty Cycle (%)**	100
Test Notes 1	Laptop conputer in chamber with EUT.		
Test Notes 2			



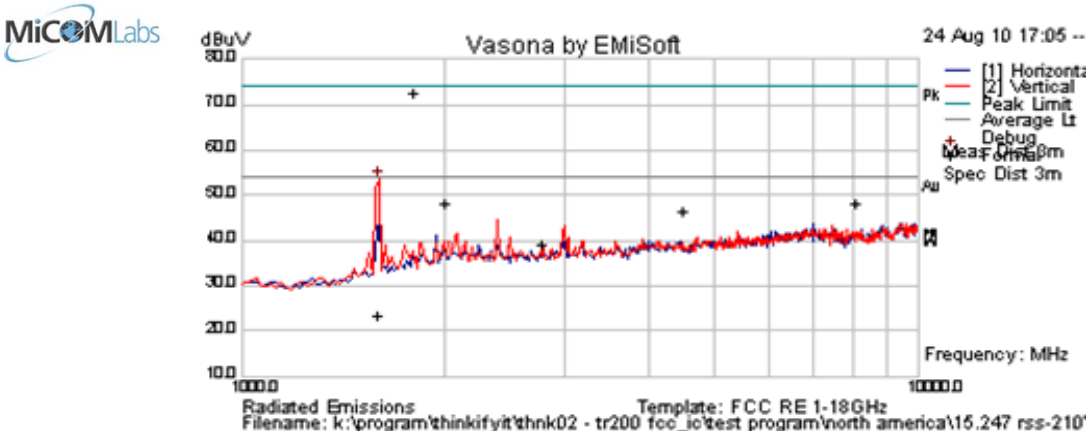
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
1595.191	37.9	2.5	-14.3	26.0	Average	V	98	212	54.0	-28.0	Pass	RB
1847.69539	77.6	2.7	-12.6	67.6	Peak [Scan]	H	> 20dB below carrier				Pass	NRB
2781.661	61.0	3.2	-11.6	52.6	Average	H	98	244	54	-1.4	Pass	RB
4636.209	50.3	4.3	-9.9	44.7	Average	H	98	212	54	-9.3	Pass	RB

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

5.1.8.6. Receiver/Standby Radiated Spurious Emissions - Antenna 2

Test Freq.	N/A	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29
Freq. Range	1 - 10 GHz	**Rel. Hum.(%)**	33
Power Setting	RA10	**Press. (mBars)**	98
Antenna	Circular Patch	**Duty Cycle (%)**	100
Test Notes 1	Laptop conputer in chamber w ith EUT.		
Test Notes 2			



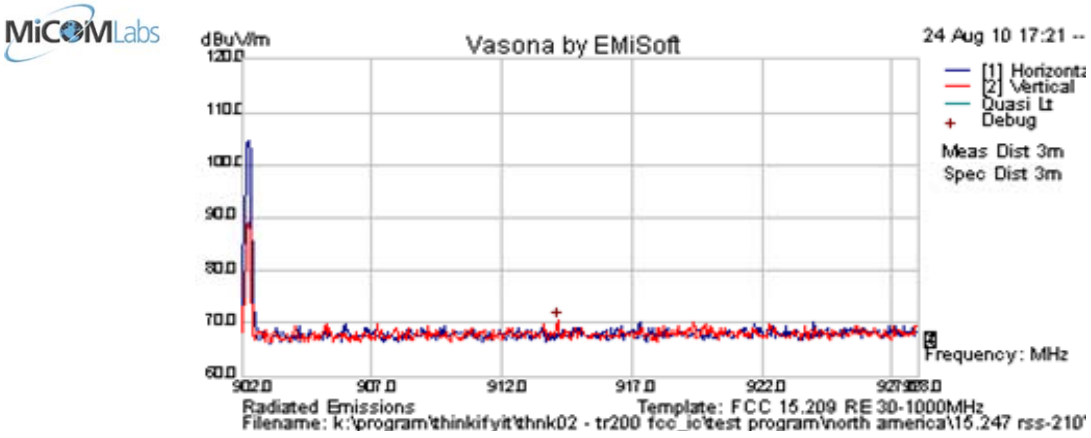
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1596.232	38.2	2.5	-14.3	26.3	Average	V	98	245	54.0	-27.7	Pass	Laptop

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

5.1.8.7. Transmitter Peak Emissions - Antenna 3

Test Freq.	902.75 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	902 - 928	**Rel. Hum.(%)**	34
Power Setting	RA10	**Press. (mBars)**	998
Antenna	Loop	**Duty Cycle (%)**	100
Test Notes 1			
Test Notes 2			

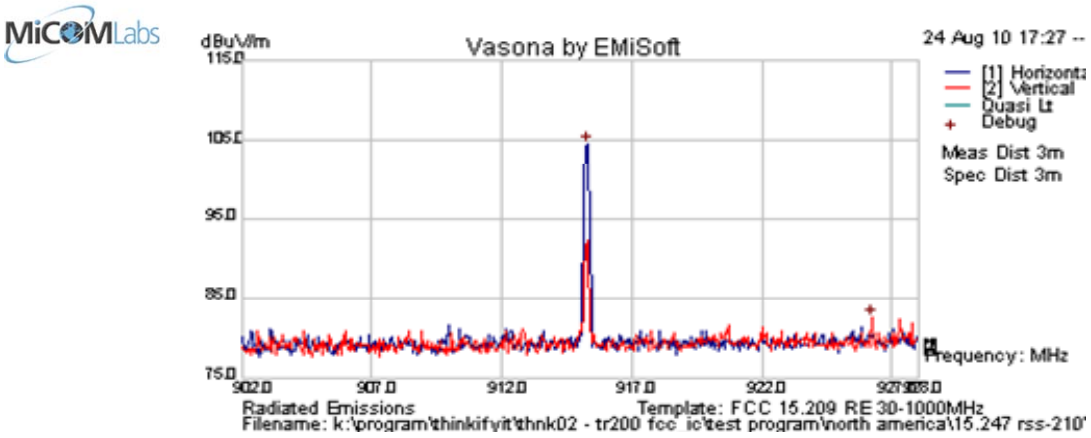


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
902.229	64.4	17.3	22.7	104.4	Peak [Scan]	H						PK

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	PK = Peak Emissions of Fundamental; NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	915.25	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	902 - 928	**Rel. Hum.(%)**	34
Power Setting	RA9	**Press. (mBars)**	998
Antenna	Loop	**Duty Cycle (%)**	100
Test Notes 1			
Test Notes 2			

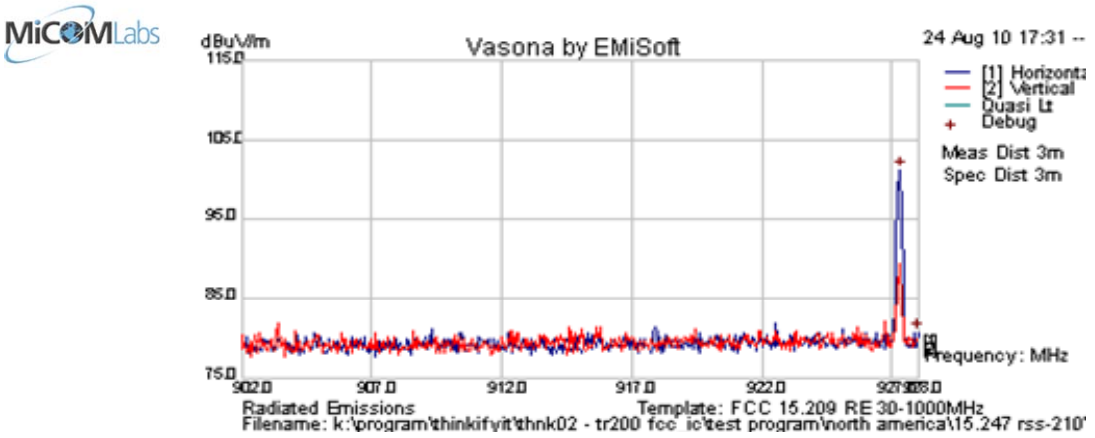


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
915.287	64.2	17.4	22.9	104.5	Peak [Scan]	H						PK

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	PK = Peak Emissions of Fundamental; NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	927.25	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	902 - 928	**Rel. Hum.(%)**	34
Power Setting	RA8	**Press. (mBars)**	998
Antenna	Loop	**Duty Cycle (%)**	100
Test Notes 1			
Test Notes 2			



Formally measured emission peaks

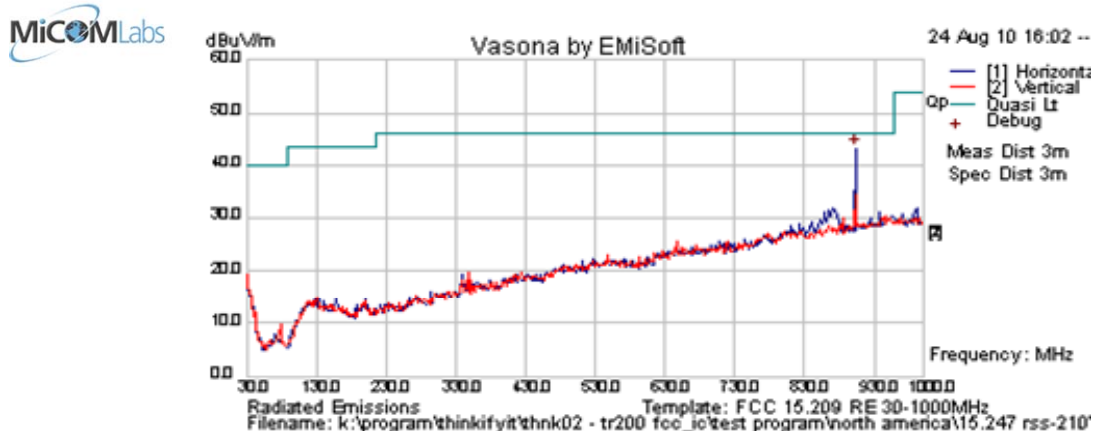
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
927.323	60.8	17.4	23.0	101.2	Peak [Scan]	H						PK

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	PK = Peak Emissions of Fundamental; NRB = Non-Restricted Band. RB = Restricted Band.

5.1.8.8. Transmitter Radiated Spurious Emissions - Antenna 3

Radiated Spurious Emissions – [30-1000MHz]

Test Freq.	902.75 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	30 - 1000 MHz	**Rel. Hum.(%)**	34
Power Setting	RA8	**Press. (mBars)**	998
Antenna	Loop	**Duty Cycle (%)**	100
Test Notes 1	Band Stop Filter used to attenuate fundamental.		
Test Notes 2	Tag was utilized to verify "read" before and after test.		



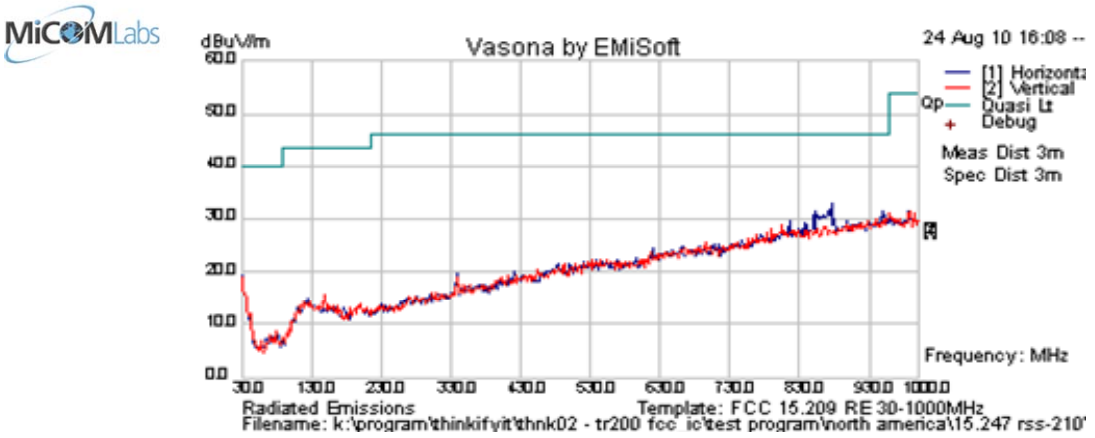
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
902.222	43.4	7.3	-7.4	43.4	Peak [Scan]	H	--	--	--	--	Pass	FUND

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Note: Fundamental is visible in plot.

Test Freq.	915.25 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	30 - 1000 MHz	**Rel. Hum.(%)**	34
Power Setting	RA8	**Press. (mBars)**	998
Antenna	Loop	**Duty Cycle (%)**	100
Test Notes 1	Band Stop Filter used to attenuate fundamental.		
Test Notes 2	Tag was utilized to verify "read" before and after test.		



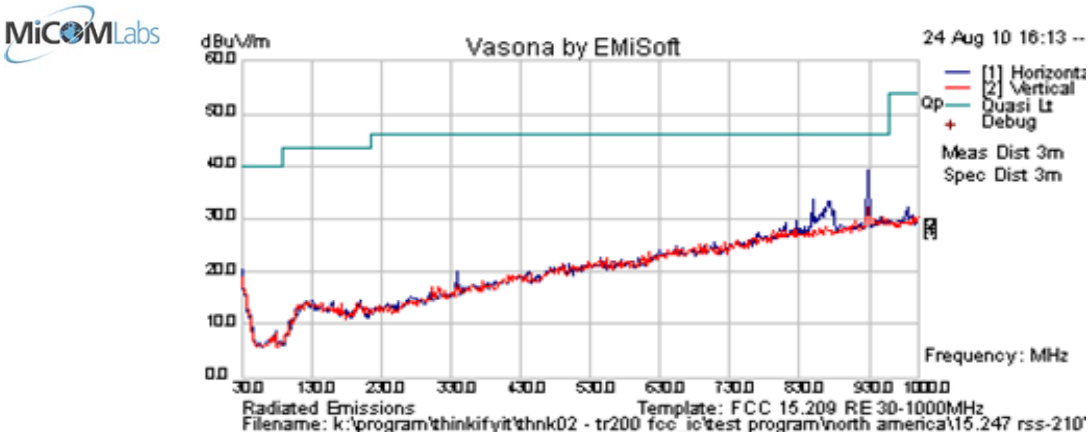
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
No Emissions within 10 dB of limit.												

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Note: Fundamental is not visible in plot.

Test Freq.	927.25 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	30 - 1000 MHz	**Rel. Hum.(%)**	34
Power Setting	RA8	**Press. (mBars)**	998
Antenna	Loop	**Duty Cycle (%)**	100
Test Notes 1	Band Stop Filter used to attenuate fundamental.		
Test Notes 2	Tag was utilized to verify "read" before and after test.		



Formally measured emission peaks

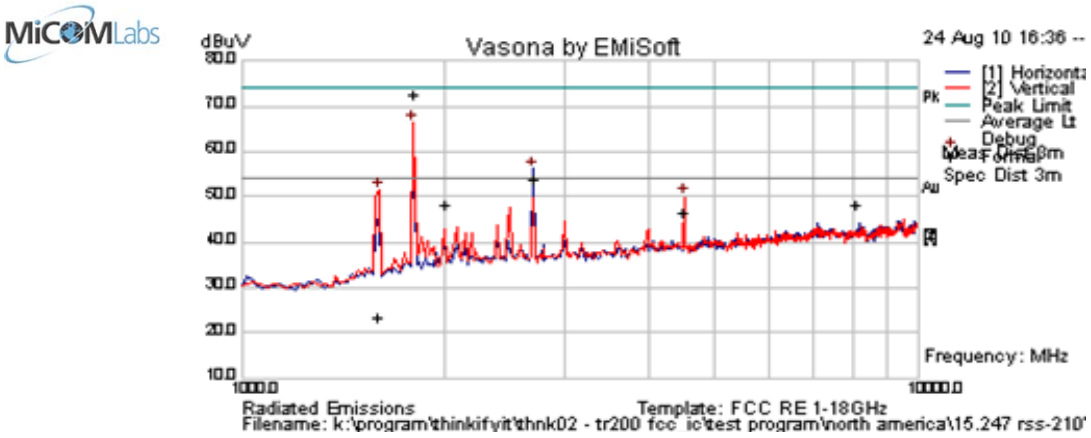
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
No Emissions within 10 dB of limit.												

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Note: Fundamental is visible in plot.

Radiated Spurious Emissions – [1000MHz – 10,000MHz]

Test Freq.	902.75 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	1000 - 10000 MHz	**Rel. Hum.(%)**	34
Power Setting	RA10	**Press. (mBars)**	998
Antenna	Loop	**Duty Cycle (%)**	100
Test Notes 1	High Pass Filter used to attenuate fundamental.		
Test Notes 2	Tag was utilized to verify "read" before and after test.		

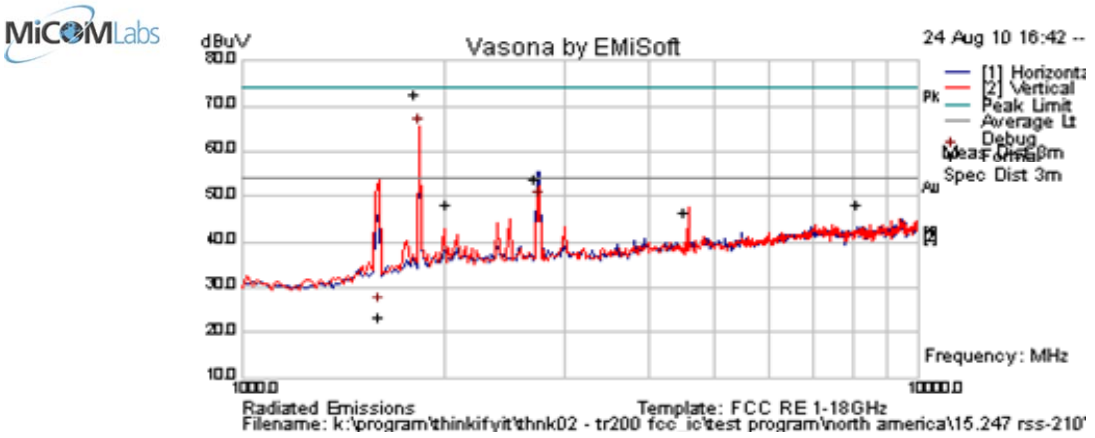


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
1595.191	35.3	2.5	-14.3	23.4	Average	V	98	0	54.0	-30.6	Pass	RB
1805.473	82.8	2.6	-12.7	72.7	Peak [Scan]	V	> 20dB below carrier				Pass	NRB
1998.958	56.6	2.8	-11.2	48.2	Peak [Scan]	V	> 20dB below carrier				Pass	NRB
2708.179	61.7	3.2	-11.2	53.7	Average	H	96	319	54	-0.3	Pass	RB
4513.718	52.1	4.2	-9.7	46.6	Average	V	98	22	54	-7.4	Pass	RB

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	915.25 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	1000 - 10000 MHz	**Rel. Hum.(%)**	34
Power Setting	RA9	**Press. (mBars)**	998
Antenna	Loop	**Duty Cycle (%)**	100
Test Notes 1	High Pass Filter used to attenuate fundamental.		
Test Notes 2	Tag was utilized to verify "read" before and after test.		

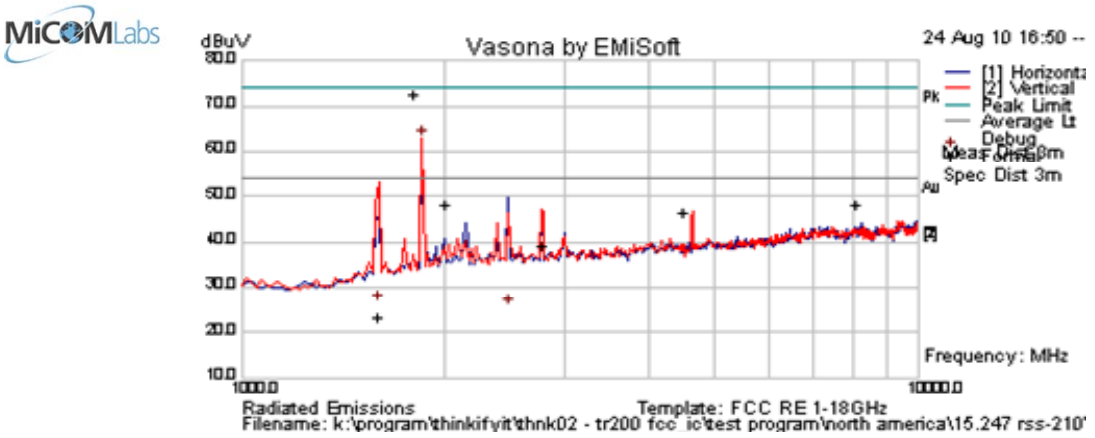


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
1593.086	37.7	2.5	-14.4	25.8	Average	V	98	333	54.0	-28.2	Pass	RB
1829.65932	75.6	2.6	-12.8	65.4	Peak [Scan]	V	> 20dB below carrier				Pass	NRB
2745.729	57.6	3.2	-11.5	49.2	Average	H	98	333	54	-4.8	Pass	RB

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	927.25 MHz	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	1000 - 10000 MHz	**Rel. Hum.(%)**	34
Power Setting	RA8	**Press. (mBars)**	998
Antenna	Loop	**Duty Cycle (%)**	100
Test Notes 1	High Pass Filter used to attenuate fundamental.		
Test Notes 2	Tag was utilized to verify "read" before and after test.		



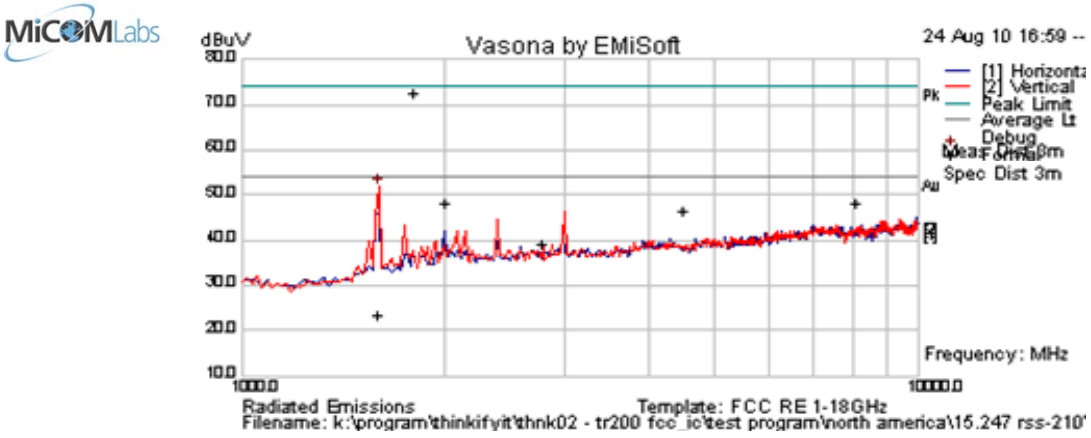
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
1847.695	72.9	2.7	-12.6	62.9	Peak [Scan]	V	> 20dB below carrier				Pass	NRB
1596.232	38.2	2.5	-14.3	26.3	Average	V	98	245	54.0	-27.7	Pass	RB
2492.184	33.5	3.0	-11.1	25.4	Average	H	98	245	54	-28.6	Pass	RB

Legend: TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
NRB = Non-Restricted Band. RB = Restricted Band.

5.1.8.9. Receiver/Standby Radiated Spurious Emissions - Antenna 3

Test Freq.	N/A STBY	**Engineer**	SB
Variant	TR200	**Temp (°C)**	29.5
Freq. Range	1000 - 10000 MHz	**Rel. Hum.(%)**	34
Power Setting	N/A	**Press. (mBars)**	998
Antenna	Loop	**Duty Cycle (%)**	100
Test Notes 1	Laptop on test table near EUT.		
Test Notes 2			



Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1596.232	38.2	2.5	-14.3	26.3	Average	V	98	245	54.0	-27.7	Pass	Laptop

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

FCC, Part 15 Subpart C §15.247(d)
Industry Canada RSS-210 §A8.5

Specification

FCC Part 15 Subpart C §15.247(d)

Industry Canada §A8.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

Laboratory Measurement Uncertainty for Radiated Emissions

Measurement uncertainty	+5.6/ -4.5 dB

Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-03 'Measurement of Radiated Emissions'	0287, 0335, 0338, 0158, 0134, 0304, 0311, 0315, 0310, 0312

5.1.9. Radiated Spurious Emissions – Digital Emissions

Standard Reference

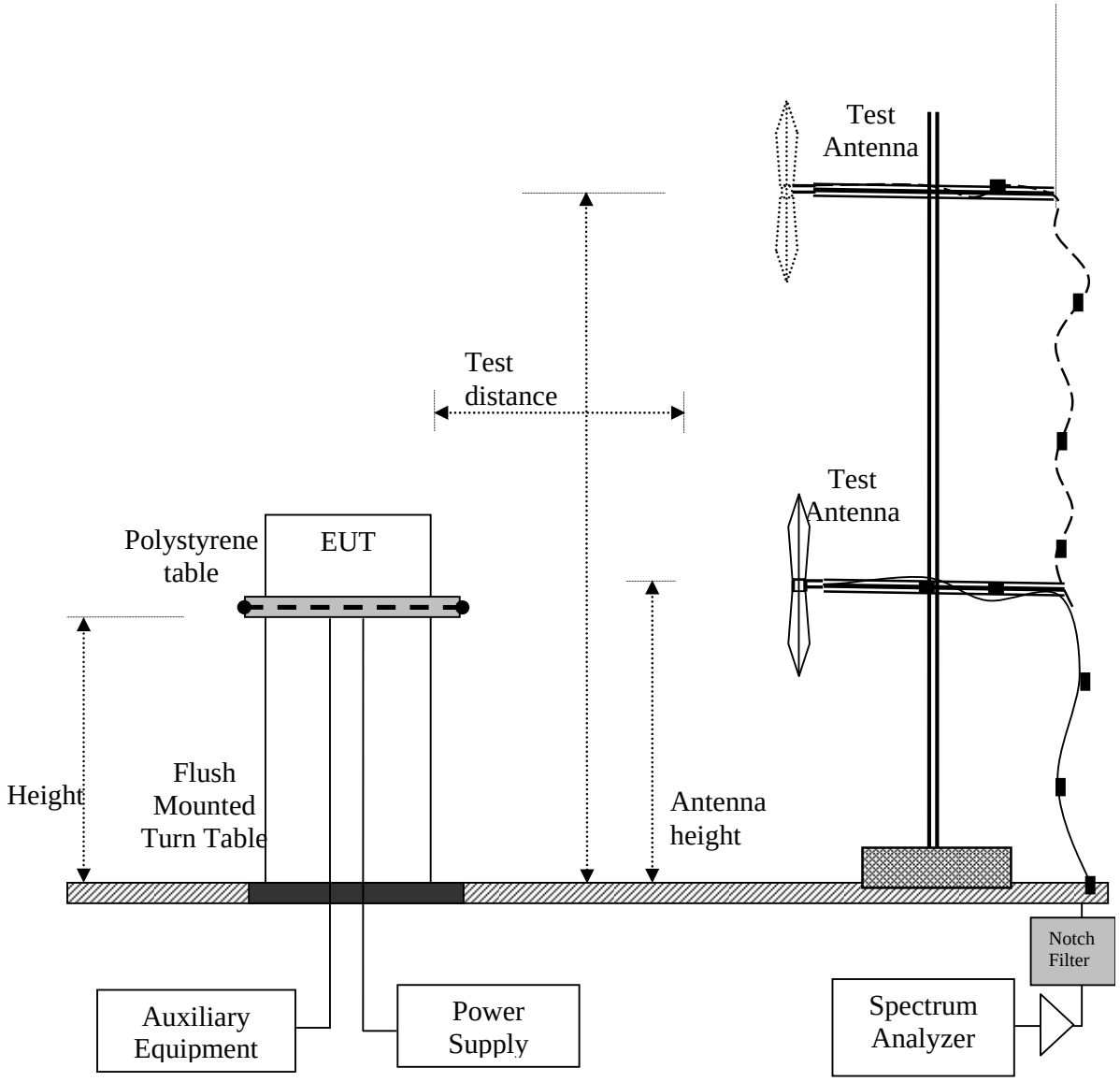
FCC, Part 15 Subpart B §15.109
Industry Canada ICES-003 §5

Test Procedure

Testing was performed in a 3-meter semi-anechoic chamber. Preliminary radiated emissions were measured on every azimuth and with the receiving antenna in both horizontal and vertical polarizations. Preliminary emissions were recorded with in Spectrum Analyzer mode, using a maximum peak detector while in peak hold mode.

Emissions nearest the limits were chosen for maximization and formal measurement using a CISPR Compliant receiver. Emissions from 30 MHz – 1000 MHz are measured utilizing a CISPR compliant quasi-peak detector with a tuned receiver, using a bandwidth of 120 kHz. Emissions above 1000 MHz are measured utilizing a CISPR compliant average detector with a tuned receiver, using a bandwidth of 1 MHz. Only the highest emissions relative to the limit are listed.

Test Measurement Set up



Measurement set up for Radiated Emission Test

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

FS = R + AF + CORR – FO

FS = Field Strength
R = Measured Spectrum analyzer Input Amplitude
AF = Antenna Factor

CORR = Correction Factor = CL – AG + NFL

CL = Cable Loss
AG = Amplifier Gain
FO = Distance Falloff Factor
NFL = Notch Filter Loss or Waveguide Loss

Field Strength Calculation Example:

Given receiver input reading of 51.5 dBμV; Antenna Factor of 8.5 dB; Cable Loss of 1.3 dB; Falloff Factor of 0 dB, an Amplifier Gain of 26 dB and Notch Filter Loss of 1 dB. The Field Strength of the measured emission is:

FS = 51.5 + 8.5 + 1.3 - 26.0 +1 = 36.3 dBμV/m

Conversion between dBμV/m (or dBμV) and μV/m (or μV) are done as:

Level (dBμV/m) = 20 * Log (level (μV/m))

40 dBμV/m = 100 μV/m
48 dBμV/m = 250 μV/m

Specification

Radiated Spurious Emissions – Digital Apparatus

FCC, Part 15 Subpart B §15.109
A representative type or model of each digital apparatus shall be tested in accordance with the measurement methods described in FCC Part 15; Subpart A - General and FCC Subpart B – Unintentional Radiators.

Industry Canada ICES-003
A representative type or model of each digital apparatus shall be tested in accordance with the measurement method described in the publication referred to in Section 7.1 [Canadian Standards Association Standard CAN/CSA-CEI/IEC CISPR 22:02, "Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment."].

FCC, Part 15 Subpart B §15.109 Spurious Emissions Limits

Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values.

Frequency (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance (meters)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Field Strength of radiated emissions for a Class A digital device are as follows.

Frequency (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance (meters)
30-88	100	49.5	3
88-216	150	54.0	3
216-960	200	57.0	3
Above 960	500	60.0	3

ICES-003 §5 Spurious Emissions Limits

Class A Digital Device: The field intensity of radio noise emissions that are radiated from a Class A digital apparatus shall not exceed the limits specified in Table 5 of the publication referred to in Section 7.1, within the indicated frequency range.

Frequency range MHz	Quasi-peak limits dB(µV/m) @ 10m	Quasi-peak limits dB(µV/m) @ 3m
30 to 230	40	50.5
230 to 1 000	47	57.5
Note 1	The lower limit shall apply at the transition frequency.	
Note 2	Additional provisions may be required for cases where interference occurs	

Class B Digital Device: The field intensity of radio noise emissions that are radiated from a Class B digital apparatus shall not exceed the limits specified in Table 6 of the publication referred to in Section 7.1, within the indicated frequency range.

Frequency range MHz	Quasi-peak limits dB(µV/m) @ 10m	Quasi-peak limits dB(µV/m) @ 3m
30 to 230	30	40.5
230 to 1 000	37	47.5
Note 1	The lower limit shall apply at the transition frequency.	
Note 2	Additional provisions may be required for cases where interference occurs	

Laboratory Measurement Uncertainty for Spectrum Measurement

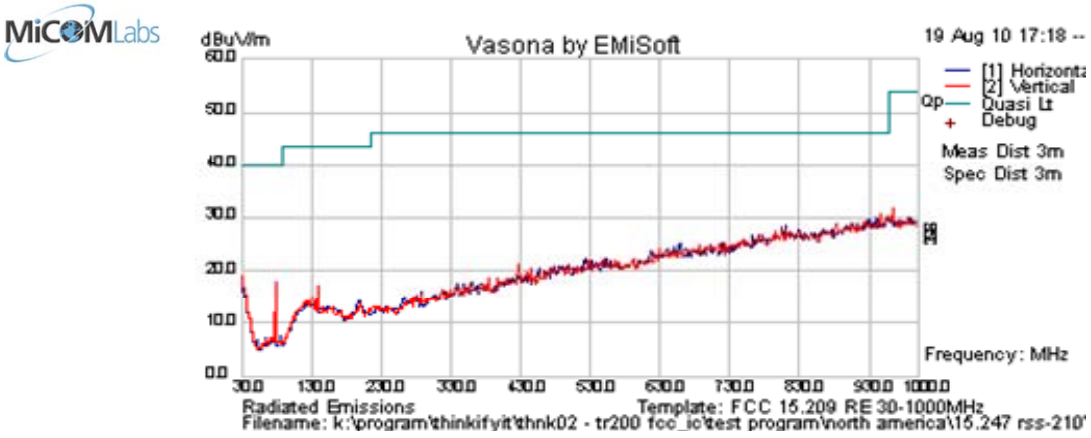
Measurement Uncertainty	+5.6/ -4.5 dB

Traceability

Method	Test Equipment Used
Work instruction WI-03	0088, 0158, 0134, 0304, 0311, 0315, 0310, 0312

5.1.9.1. Radiated Digital Emissions

Test Freq.	N/A (Digital Emissions)	**Engineer**	CSB
Variant	TR200	**Temp (°C)**	28
Freq. Range	30 - 1000 Mhz	**Rel. Hum.(%)**	36
Power Setting	RA11	**Press. (mBars)**	999
Antenna	Stub	**Duty Cycle (%)**	100
Test Notes 1	Laptop computer was removed, and the EUT was powered via a 5V supply (via USB cable)		
Test Notes 2			

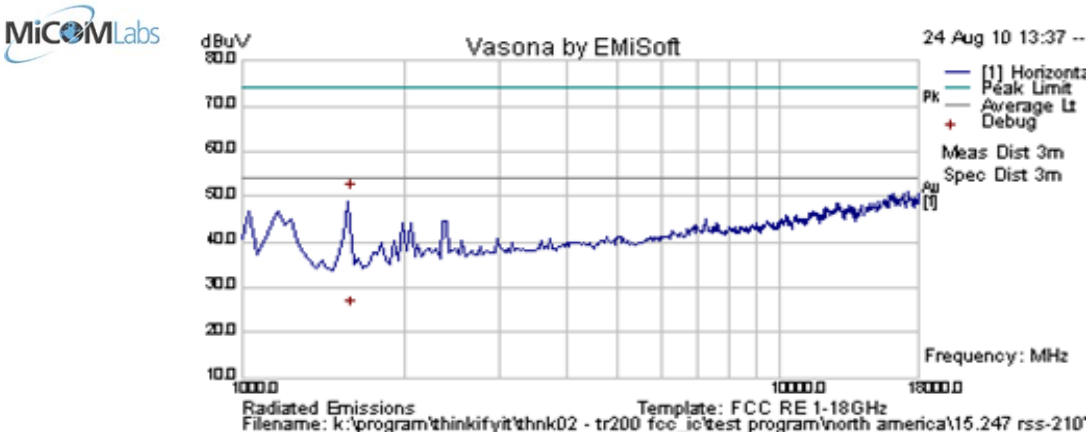


Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
No emissions within 10 dB of the limit.												

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

Test Freq.	N/A Digital Emissions	**Engineer**	CSB
Variant	TR200	**Temp (°C)**	27.5
Freq. Range	1 - 18 GHz	**Rel. Hum.(%)**	35
Power Setting	N/A	**Press. (mBars)**	998
Antenna	Stub	**Duty Cycle (%)**	100
Test Notes 1	Laptop in Chamber with EUT.		
Test Notes 2			



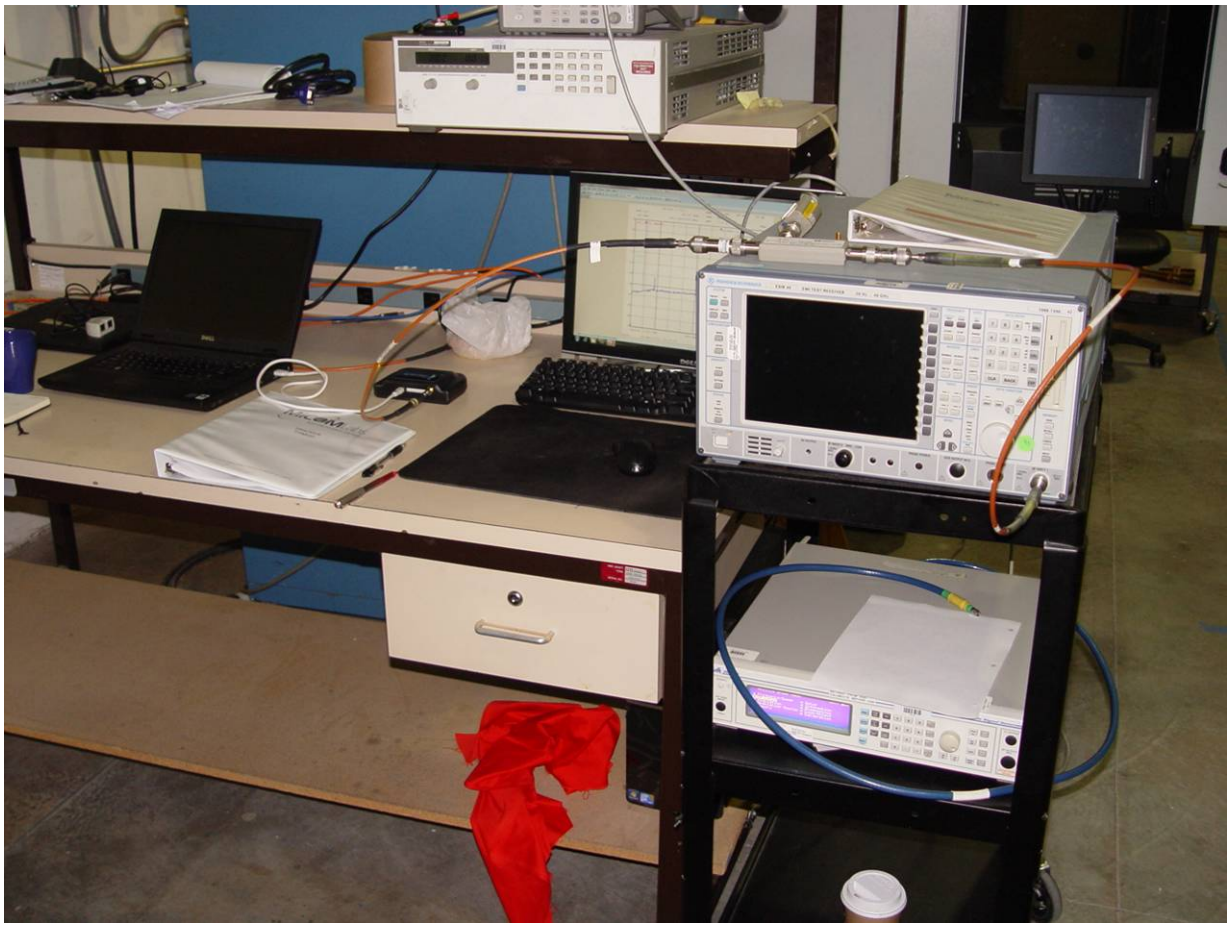
Formally measured emission peaks

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
1597.034	62.6	2.5	-14.3	50.7	Peak	V	98	206	74.0	-23.3	Pass	
1597.034	36.8	2.5	-14.3	25.0	Average	V	98	206	54.0	-29.0	Pass	

Legend:	TX = Transmitter Emissions; DIG = Digital Emissions; FUND = Fundamental; WB = Wideband Emission
	NRB = Non-Restricted Band. RB = Restricted Band.

6. PHOTOGRAPHS

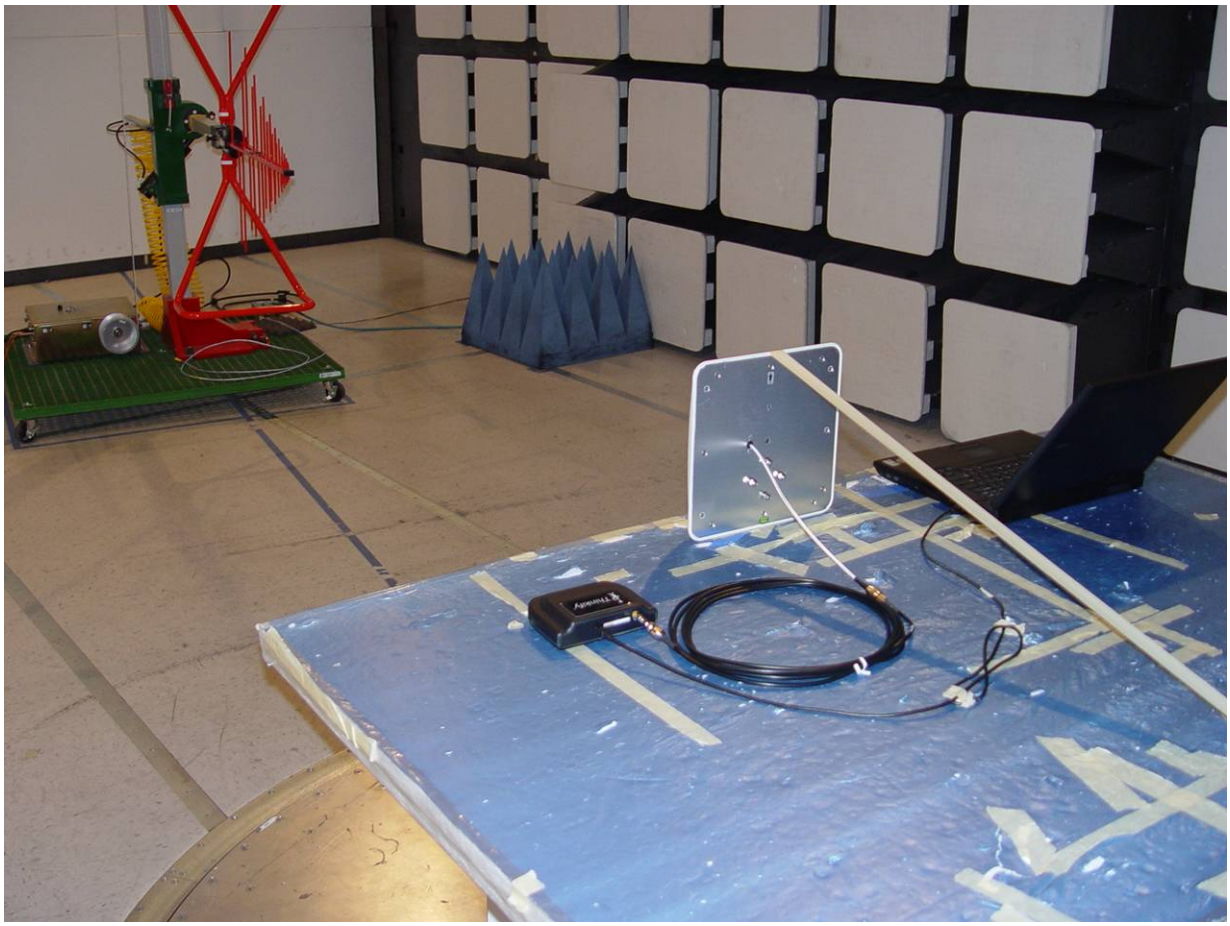
6.1. General Measurement Test Set-Up



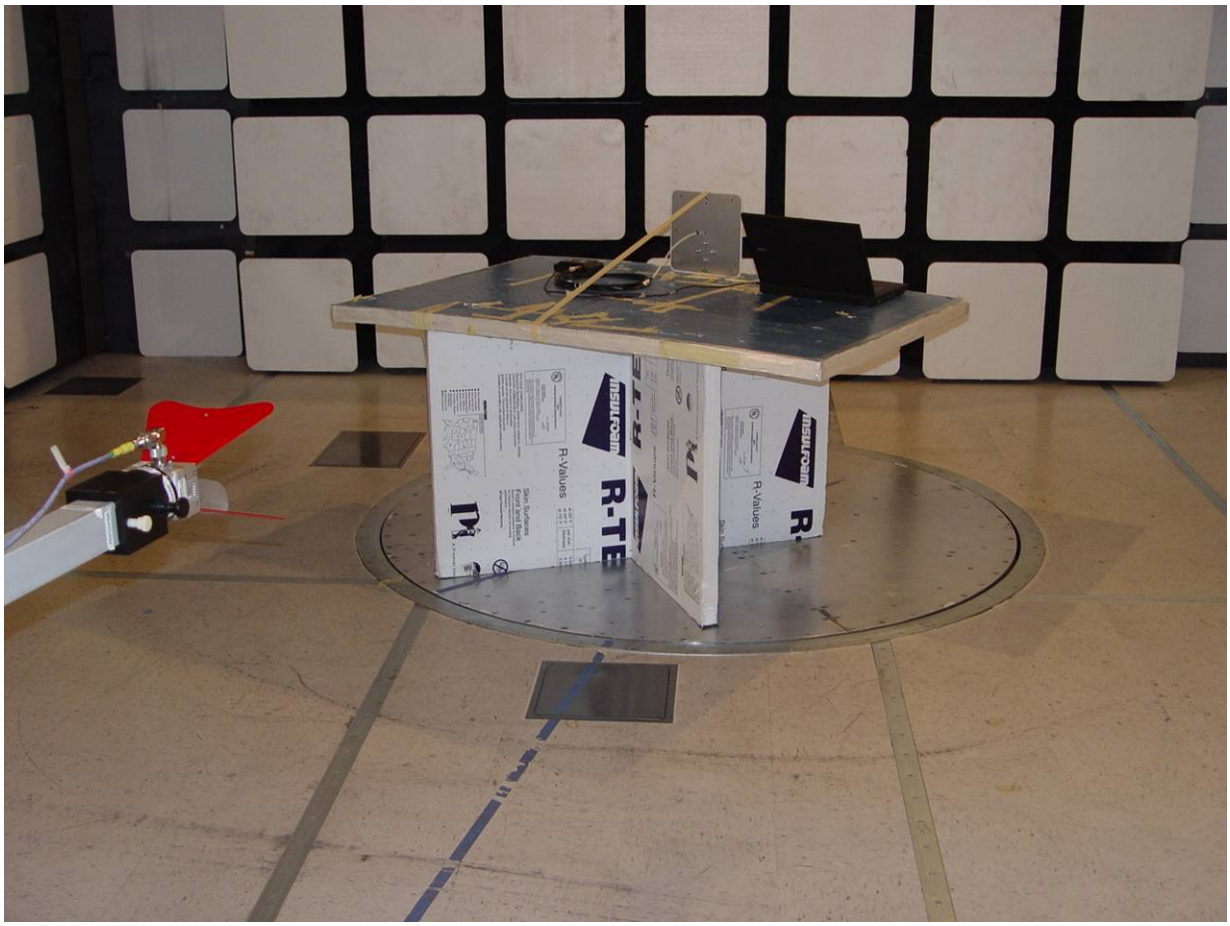
6.2. Radiated Emissions <1 GHz - Antenna 1

6.3. Radiated Emissions >1 GHz - Antenna 1

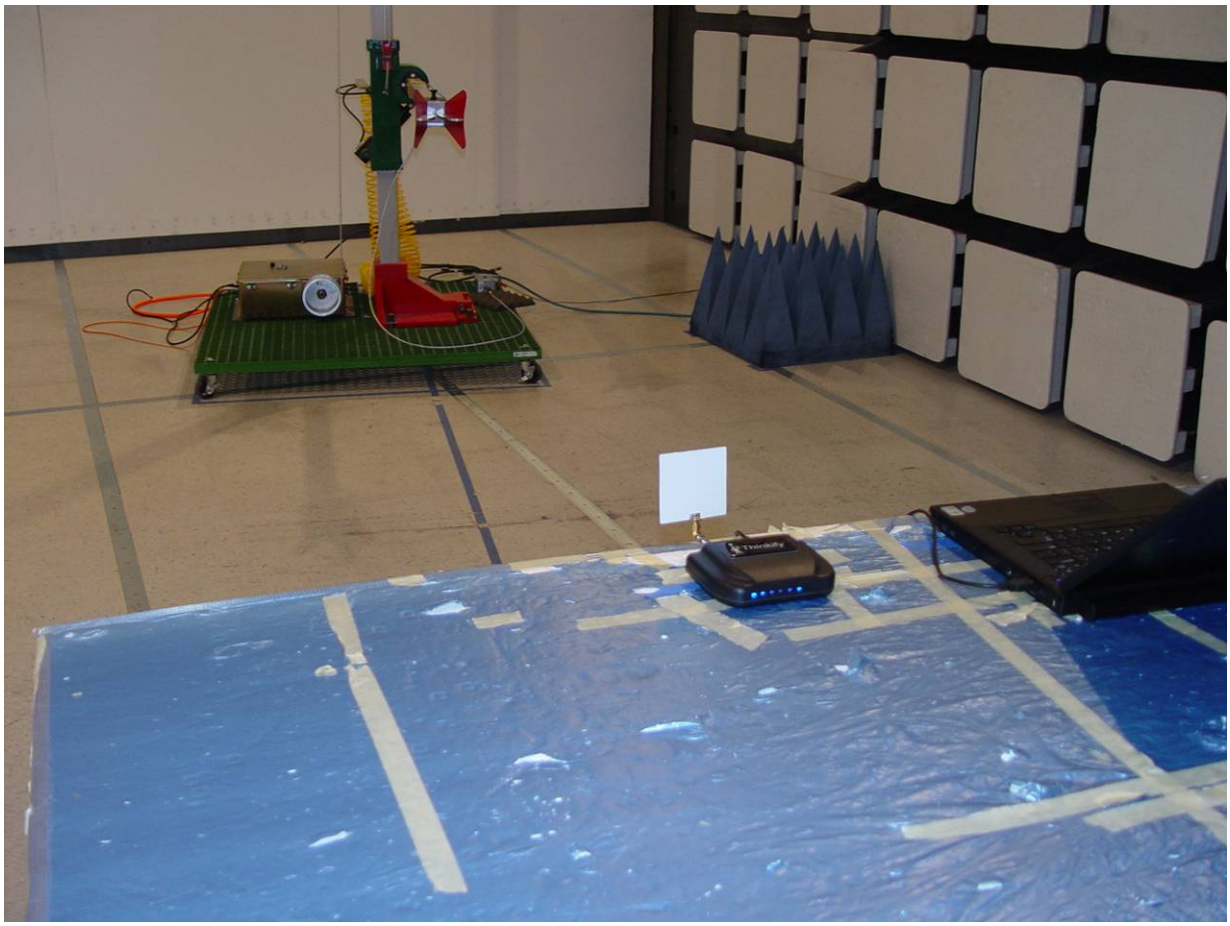
6.4. Radiated Emissions <1 GHz - Antenna 2



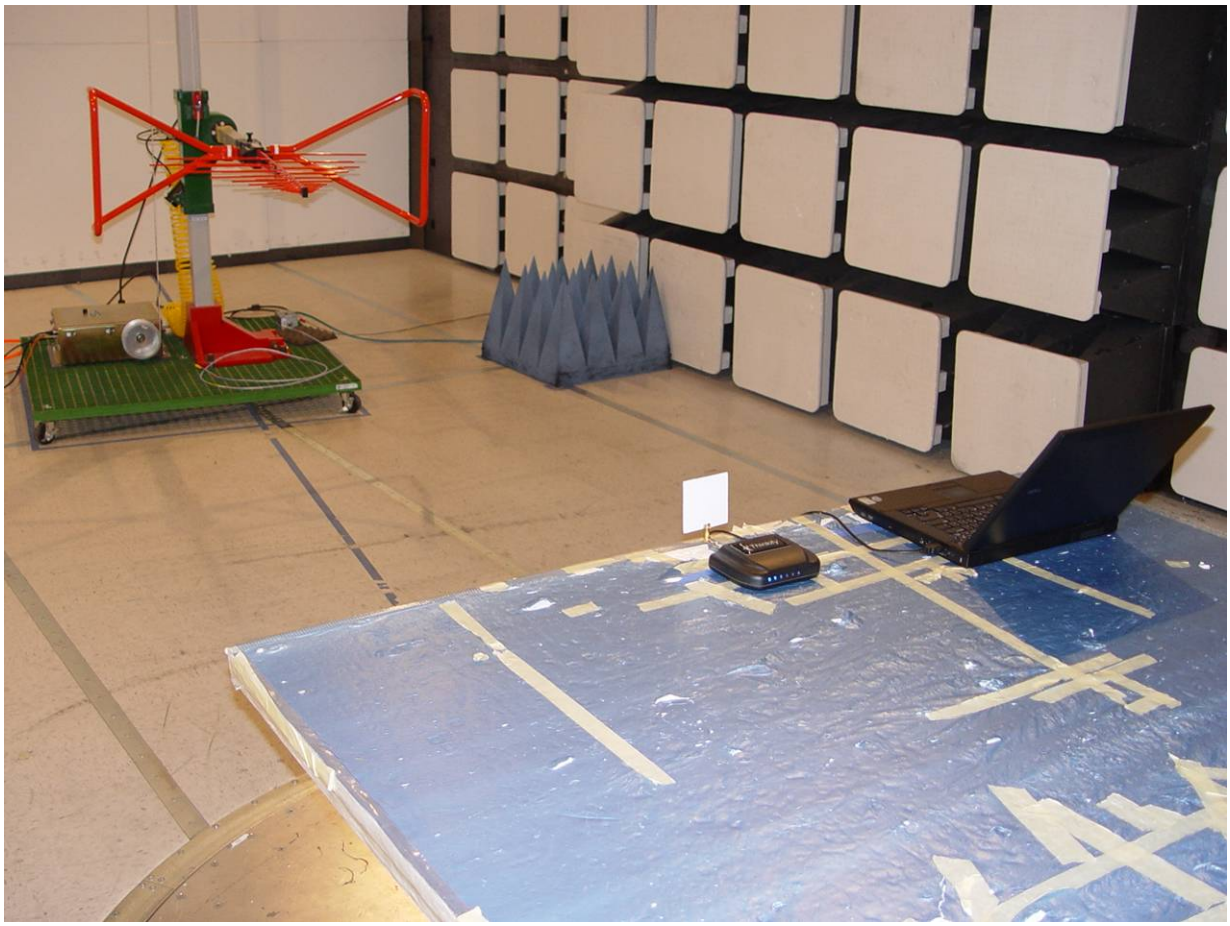
6.5. Radiated Emissions >1 GHz - Antenna 2



6.6. Radiated Emissions >1 GHz - Antenna 3



6.7. Radiated Emissions <1 GHz - Antenna 3



7. TEST EQUIPMENT DETAILS

Asset #	Instrument	Manufacturer	Part #	Serial #
0070	Power Meter	Hewlett Packard	437B	3125U11552
0116	Power Sensor	Hewlett Packard	8485A	3318A19694
0117	Power Sensor	Hewlett Packard	8487D	3318A00371
0158	Barometer /Thermometer	Control Co.	4196	E2844
0184	Pulse Limiter	Rhode & Schwarz	ESH3Z2	357.8810.52
0190	LISN	Rhode & Schwarz	ESH3Z5	836679/006
0223	Power Meter	Hewlett Packard	HP EPM-442A	US37480256
0251	K-Cable	Megaphase	Sucoflex 104	Unknown
0252	K-Cable	Megaphase	Sucoflex 104	Unknown
0253	K-Cable	Megaphase	Sucoflex 104	Unknown
0256	K-Cable	Megaphase	Sucoflex 104	Unknown
0271	Amplifier	1 to 26.5 GHz	MiCOM	--
0287	EMI Receiver	Rhode & Schwarz	ESIB 40	100201
0293	BNC Cable	Megaphase	1689 1GVT4	15F50B001
0307	BNC Cable	Megaphase	1689 1GVT4	15F50B002
0310	2m SMA Cable	Micro-Coax	UFA210A-0-0787-3G03G0	209089-001
0312	3m SMA Cable	Micro-Coax	UFA210A-1-1181-3G0300	209092-001
0313	Coupler	Hewlett Packard	86205A	3140A01285
0314	30 dB N-Type Attenuator	ARRA	N944-30	1623
0335	Horn Antenna	The Electro-Mechanics Company	3117	00066580
0337	Amplifier	30 MHz – 3 GHz	MiCOM	--
0338	Antenna (30M-3GHz)	Sunol Sciences	JB3	A052907
0341	902-928 MHz Notch Filter	EWT	EWT-14-0199	H1
0363	Switch	MiCOM Labs	--	--

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