FCC & IC Certification Test Report

FCC & Industry Canada Certification Test Report

for

Concept Engineering Inc.

FCC ID: XVD40019

IC ID: TBD

April 15, 2010

Prepared for:
Concept Engineering Inc.
3777 Business Park Drive - Suite A
Columbus, OH, 43204

Prepared By:
Washington Laboratories, Ltd.
7560 Lindbergh Drive
Gaithersburg, Maryland 20879

Prepared By:
Washington Laboratories, Ltd.
7560 Lindbergh Drive
Gaithersburg, Maryland 20879

ACCREDITED

Testing Certificate 2675.01

FCC & Industry Canada Certification Test Report
for the
Concept Engineering Inc.
Atticat Remote Transmitter
FCC ID: XVD40019
IC ID: TBD

April 29, 2010

WLL JOB# 10770

Prepared by:

James Ritter
EMC Compliance Engineer

Reviewed by:

Steven D. Koster
EMC Operations Manager

Abstract

This report has been prepared on behalf of Concept Engineering Inc. to support the attached Application for Equipment Authorization. The test report and application are submitted for a Periodic Intentional Radiator under Part 15.231 of the FCC Rules and Regulations and Spectrum Management and Telecommunications Policy RSS-210 issue 7 of Industry Canada. This Federal Communication Commission (FCC) Certification Test Report documents the test configuration and test results for a Concept Engineering Inc. Atticat Remote Transmitter.

Testing was performed on an Open Area Test Site (OATS) of Washington Laboratories, Ltd, 7560 Lindbergh Drive, Gaithersburg, MD 20879. Site description and site attenuation data have been placed on file with the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia, MD. The Industry Canada OATS numbers are 3035A-1 and 3035A-2 for Washington Laboratories, Ltd. Site 1 and Site 2, respectively. Washington Laboratories, Ltd. has been accepted by the FCC and approved by the American Association for Laboratory Accreditation (A2LA) under Certificate 2675.01 as an independent FCC test laboratory.

The Concept Engineering Inc. Atticat Remote Transmitter complies with the limits for a Periodic Intentional Radiator device under FCC Part 15.231 and Industry Canada RSS-210issue 7.

Table of Contents

List of Tables

List of Figures

1 Introduction

1.1 Compliance Statement

The Concept Engineering Inc. Atticat Remote Transmitter complies with the limits for a Periodic Intentional Radiator device under FCC Part 15.231 and Industry Canada RSS-210 issue7.

1.2 Test Scope

Tests for radiated emissions were performed. All measurements were performed according to the 2003 version of ANSI C63.4. The measurement equipment conforms to ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation.

1.3 Contract Information

Customer:	Concept Engineering Inc. 3777 Business Park Drive - Suite A Columbus, OH, 43204
Quotation Number:	64692A

1.4 Test Dates

Testing was performed	4/15/10

1.5 Test and Support Personnel

Washington Laboratories, LTD	James Ritter, Steven Dovell
Client Representative	Chris Relyea

2 Equipment Under Test

2.1 EUT Identification & Description

The Concept Engineering Inc. Atticat Remote Transmitter is a remote control device used to turn on and off the Atticat insulation blower. The transmitter operates on 315 MHz using FSK modulation, with 33 KHz deviation, at 2400 baud. The transmitter is powered by two AAA batteries and will operate down to 1.85V. Below 1.85V, the transmitter shuts down. The transmitter draws approximately 4.5ma during transmission and 0.2 uA in standby. The antenna is an onboard helical, tuned to 315 MHz.

.

Table 1. Device Summary

ITEM	DESCRIPTION
Manufacturer:	Concept Engineering Inc.
FCC ID Number	XVD40019
Industry Canada Number	TBD
EUT Name:	Atticat Remote Transmitter
Model:	Atticat
FCC Rule Parts:	§15.231
IC Rule Parts:	RSS-210 issue 7
Frequency Range:	315MHz Fixed
Maximum Output Power:	NA
Modulation:	FSK
Occupied Bandwidth:	63.8 kHz
Keying:	Manual
Type of Information:	Control
Number of Channels:	1
Antenna Type	Integral
Interface Cables:	None
Power Source & Voltage:	3VDC (2 ‘AAA Batteries)

2.2 Test Configuration

The Atticat Remote Transmitter was tested in a stand-alone configuration.

2.3 Testing Algorithm

The Atticat Remote Transmitter was tested in a continuous transmits operation.

Worst case emission levels are provided in the test results data.

2.4 Test Location

All measurements herein were performed at Washington Laboratories, Ltd. test center in Gaithersburg, MD. Site description and site attenuation data have been placed on file with the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia,

MD. The Industry Canada OATS numbers are 3035A-1 and 3035A-2 for Washington Laboratories, Ltd. Site 1 and Site 2, respectively. Washington Laboratories, Ltd. has been accepted by the FCC and approved by the American Association for Laboratory Accreditation (A2LA) under Certificate 2675.01 as an independent FCC test laboratory.

2.5 Measurements

2.5.1 References

ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation

ANSI C63.4 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

Land Mobile FM or PM Communications Equipment Measurement and Performance Standards (ANSI/TIA/EIA-603-93)

2.6 Measurement Uncertainty

All results reported herein relate only to the equipment tested. The basis for uncertainty calculation uses ANSI/NCSL Z540-2-1997 with a type B evaluation of the standard uncertainty. Elements contributing to the standard uncertainty are combined using the method described in Equation 1 to arrive at the total standard uncertainty. The standard uncertainty is multiplied by the coverage factor to determine the expanded uncertainty which is generally accepted for use in commercial, industrial, and regulatory applications and when health and safety are concerned (see Equation 2). A coverage factor was selected to yield a 95% confidence in the uncertainty estimation.

Equation 1: Standard Uncertainty

$$u_c = \pm\sqrt{\frac{a^2}{div_a{}^2} + \frac{b^2}{div_b{}^2} + \frac{c^2}{div_c{}^2} + ...}$$

where u_c = standard uncertainty

a, b, c,.. = individual uncertainty elements

$div_{a, b, c}$ = the individual uncertainty element divisor based on the probability distribution

divisor = 1.732 for rectangular distribution

divisor = 2 for normal distribution

divisor = 1.414 for trapezoid distribution

Equation 2: Expanded Uncertainty

$$U = ku_c$$

where U = expanded uncertainty

k = coverage factor

$k \leq 2$ for 95% coverage (ANSI/NCSL Z540-2 Annex G)

u_c = standard uncertainty

The measurement uncertainty complies with the maximum allowed uncertainty from CISPR 16-4-2. Measurement uncertainty is not used to adjust the measurements to determine compliance. The expanded uncertainty values for the various scopes in the WLL accreditation are provided in Table 2 below.

Table 2: Expanded Uncertainty List

Scope	Standard(s)	Expanded Uncertainty
Conducted Emissions	CISPR11, CISPR22, CISPR14, FCC Part 15	2.63 dB
Radiated Emissions	CISPR11, CISPR22, CISPR14, FCC Part 15	4.55 dB

.

3 Test Equipment

Table 3 shows a list of the test equipment used for measurements along with the calibration information.

Table 3: Test Equipment List

Test Name:	**Radiated Emissions**	Test Date:	**4/15/110**
Asset #	**Manufacturer/Model**	**Description**	**Cal. Due**
69	HP, 85650A	Adapter, QP	06/28/2010
73	HP, 8568B	Analyzer, Spectrum	06/28/2010
71	HP, 85685A	Preselector, RF	06/28/2010
644	Sunol Science JB1 925-833-9936	BiConalog Antenna	12/29/2010
4	ARA, DRG-118/A	Antenna, DRG, 1-18GHz	02/06/2011
618	HP 8563A	Analyzer, Spectrum	06/01/2010
66	HP, 8449B	Pre-Amplifier, RF. 1-26.5GHz	07/21/2010

4 Test Results

4.1 Transmission Cessation from Time-of-Release

FCC Part 15.231 states that a periodic intentional radiator shall cease transmission within a five second period from release of automatic or manual keying of operation.

Testing was conducted to verify that the Atticat Remote Transmitter stopped transmitting within the required time period. A 6 second sweep was made, initiated by a momentary transmit pushbutton, and the time to transmission end was measured. Figure 1 shows the indicated time period from un-keying the device until cessation of transmission. The EUT complies with the requirements for this section.

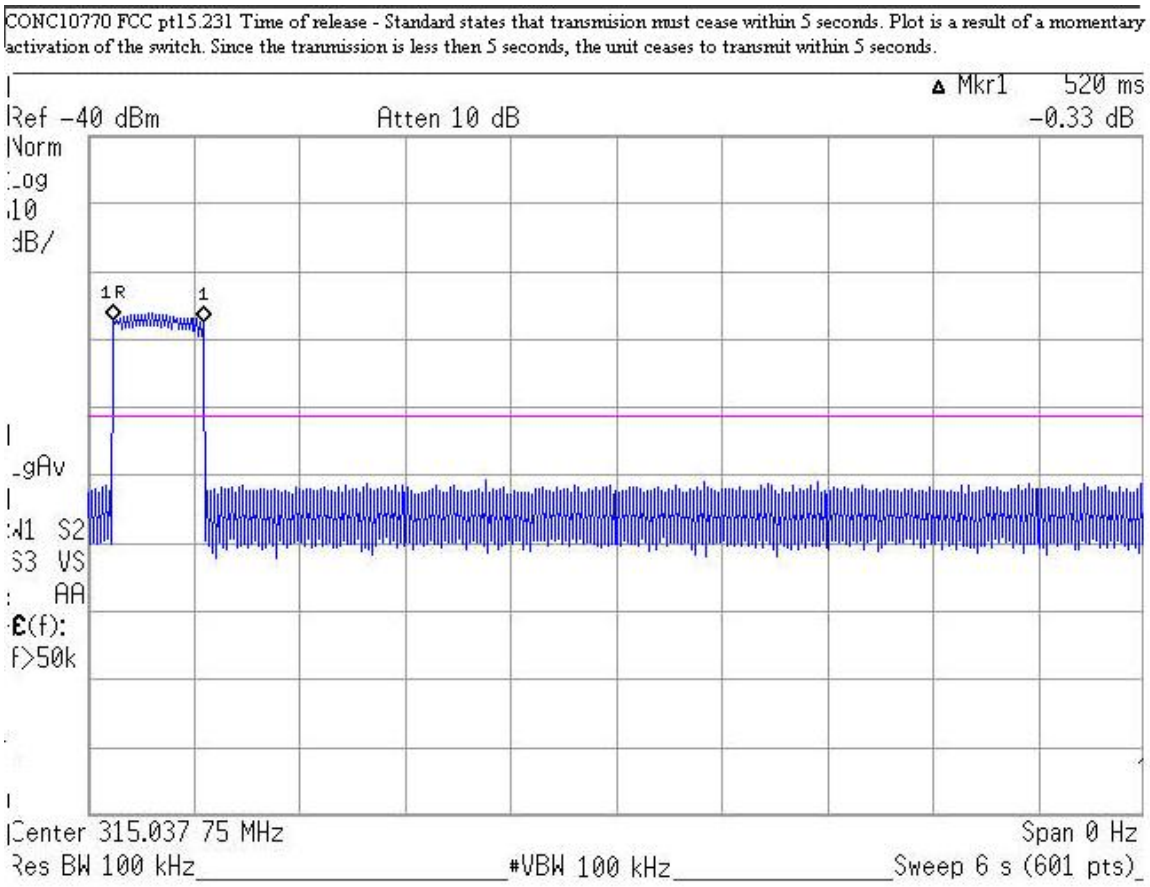

Figure 1. Time Period: Release to Termination of Transmission

4.2 Occupied Bandwidth: (FCC Part §2.1049)

Occupied bandwidth was performed by coupling the output of the EUT to the input of a spectrum analyzer via an RF antenna. The EUT has 1 fixed channel at 315MHz

FCC Part 15.231 states that the 20 dB bandwidth of the modulated carrier shall be as follows:

Frequency Range (MHz)	Occupied Bandwidth Limit
70-900 MHz	0.25%
>900 MHz	0.5%

At full modulation, the occupied bandwidth was measured as shown:

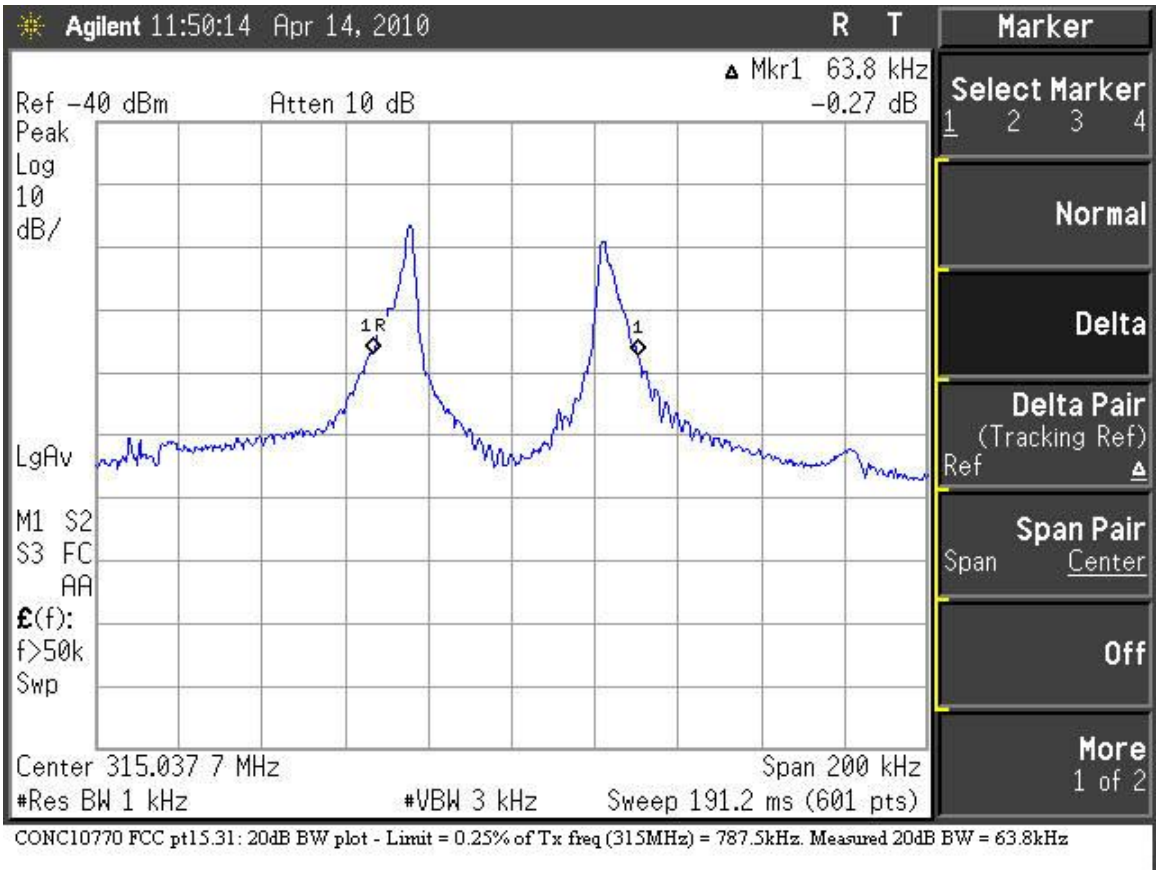

Figure 2. Occupied Bandwidth, Low Channel

Table 4 provides a summary of the Occupied Bandwidth Results.

Table 4. Occupied Bandwidth Results

Frequency	Bandwidth	Limit	Pass/Fail
315 MHz	63.8kHz	787.5kHz	Pass

4.3 Radiated Spurious Emissions

The EUT must comply with requirements for radiated spurious emissions per the limits given in §15.231(a). In addition, any emissions appearing in the restricted bands listed in §15.205 must comply with the general emission limits of 15.209.

4.3.1 Test Procedure

The EUT was placed on motorized turntable for radiated testing on a 3-meter open field test site. The emissions from the EUT were measured continuously at every azimuth by rotating the turntable. Receiving antennas were mounted on an antenna mast to determine the height of maximum emissions. The height of the antenna was varied between 1 and 4 meters. Both the horizontal and vertical field components were measured.

The emissions were measured using the following resolution bandwidths:

Frequency Range	**Resolution Bandwidth**	**Video Bandwidth**
30MHz-1000 MHz	100kHz	>100kHz
>1000 MHz	1 MHz	1MHz (peak) 10Hz (Avg)

Emissions were measured to the 10th harmonic of the transmit frequency. The Atticat Remote Transmitter was tested in three orthogonal planes. Worst case emission levels are reported.

The following is a sample calculation used in the data tables for calculating the final field strength of spurious emissions and comparing these levels to the specified limits.

Sample Calculation:

Spectrum Analyzer Voltage (SA Level):	V dBμV (Peak)
Antenna Factor (Ant Corr):	AFdB/m
Cable Loss Correction (Cable Corr):	CCdB
Amplifier Gain:	GdB
Electric Field (Corr Level):	EdBμV/m = VdBμV + AFdB/m + CCdB + DCCdB - GdB

Table 5. Radiated Emissions Test Data, 315 MHz, Unit On side

Frequency (MHz)	Polarity H/V	Azimuth (Degree)	Ant. Height (m)	SA Level (dBuV)	Corr Factors (dB)	Corr. Level (uV/m)	Limit (uV/m)	Margin (dB)	Comments
315.00	V	345.00	1.00	42.70	17.2	993.6	60416.7	-35.7	Peak
630.00	V	180.00	1.52	24.80	24.1	277.3	6041.7	-26.8	Peak (amb)
945.00	V	0.00	1.66	-3.50	28.2	17.1	6041.7	-51.0	Peak (amb)
1260.00	V	180.00	2.20	45.80	-8.9	70.2	6041.7	-38.7	Peak (amb)
1575.00	V	90.00	2.38	45.00	-7.4	75.9	5000.0	-36.4	Peak
1890.00	V	0.00	2.30	40.20	-5.0	57.4	6041.7	-40.4	Peak (amb)
2205.00	V	0.00	2.30	42.80	-3.7	90.5	5000.0	-34.8	Peak (amb)
2520.00	V	0.00	2.30	42.80	-2.8	99.6	6041.7	-35.7	Peak (amb)
2835.00	V	0.00	2.30	43.83	-2.1	121.6	5000.0	-32.3	Peak (amb)
3150.00	V	0.00	2.30	41.33	-1.6	97.4	6041.7	-35.8	Peak (amb)
315.00	V	345.00	1.00	40.20	17.2	745.1	6041.7	-18.2	AVG
630.00	V	180.00	1.52	19.60	24.1	152.4	604.2	-12.0	AVG
945.00	V	0.00	1.66	-7.90	28.2	10.3	604.2	-35.4	Avg (amb)
1260.00	V	180.00	2.20	39.70	-8.9	34.8	604.2	-24.8	Avg (amb)
1575.00	V	90.00	2.38	33.80	-7.4	20.9	500.0	-27.6	Avg (amb)
1890.00	V	0.00	2.30	30.80	-5.0	19.5	604.2	-29.8	Avg (amb)
2205.00	V	0.00	2.30	32.50	-3.7	27.6	500.0	-25.1	Avg (amb)
2520.00	V	0.00	2.30	32.50	-2.8	30.4	604.2	-26.0	Avg (amb)
2835.00	V	0.00	2.30	32.20	-2.1	31.9	500.0	-23.9	Avg (amb)
3150.00	V	0.00	2.30	31.50	-1.6	31.4	604.2	-25.7	Avg (amb)
315.00	H	345.00	1.00	48.60	17.2	1959.7	60416.7	-29.8	Peak
630.00	H	270.00	1.73	26.40	24.1	333.4	6041.7	-25.2	Peak (amb)
945.00	H	160.00	1.63	3.10	28.2	36.5	6041.7	-44.4	Peak
1260.00	H	250.00	2.69	46.30	-8.9	74.3	6041.7	-38.2	Peak
1575.00	H	45.00	2.56	43.00	-7.4	60.3	5000.0	-38.4	Peak (amb)
1890.00	H	0.00	2.56	43.60	-5.0	84.9	6041.7	-37.0	Peak (amb)
2205.00	H	0.00	2.56	42.20	-3.7	84.4	5000.0	-35.4	Peak (amb)
2520.00	H	0.00	2.56	42.00	-2.8	90.9	6041.7	-36.5	Peak (amb)
2835.00	H	0.00	2.56	42.00	-2.1	98.5	5000.0	-34.1	Peak (amb)
3150.00	H	0.00	2.56	41.30	-1.6	97.1	6041.7	-35.9	Peak (amb)
315.00	H	345.00	1.00	47.60	17.2	1746.6	6041.7	-10.8	AVG
630.00	H	270.00	1.73	11.30	24.1	58.6	604.2	-20.3	Avg (amb)
945.00	H	0.00	1.64	-3.80	28.2	16.5	604.2	-31.3	Avg
1260.00	H	250.00	2.69	37.20	-8.9	26.1	604.2	-27.3	Avg
1575.00	H	45.00	2.56	36.70	-7.4	29.2	500.0	-24.7	AVG (amb)
1890.00	H	0.00	2.56	31.80	-5.0	21.8	604.2	-28.8	Avg (amb)

Frequency (MHz)	Polarity H/V	Azimuth (Degree)	Ant. Height (m)	SA Level (dBuV)	Corr Factors (dB)	Corr. Level (uV/m)	Limit (uV/m)	Margin (dB)	Comments
2205.00	H	0.00	2.56	32.00	-3.7	26.1	500.0	-25.6	Avg (amb)
2520.00	H	0.00	2.56	32.00	-2.8	28.7	604.2	-26.5	Avg (amb)
2835.00	H	0.00	2.56	31.80	-2.1	30.4	500.0	-24.3	Avg (amb)
3150.00	H	0.00	2.56	31.00	-1.6	29.7	604.2	-26.2	Avg (amb)

Table 6. Radiated Emissions Test Data, 315 MHz, Unit Flat

Frequency (MHz)	Polarity H/V	Azimuth (Degree)	Ant. Height (m)	SA Level (dBuV)	Corr Factors (dB)	Corr. Level (uV/m)	Limit (uV/m)	Margin (dB)	Comments
315.00	V	125.00	1.00	41.10	17.2	826.4	60416.7	-37.3	Peak
630.00	V	90.00	1.00	14.70	24.1	86.7	6041.7	-36.9	Peak
945.00	V	90.00	1.20	-1.20	28.2	22.3	6041.7	-48.7	Peak
1260.00	V	0.00	2.20	43.10	-8.9	51.4	6041.7	-41.4	Peak (amb)
1575.00	V	90.00	2.38	45.00	-7.4	75.9	5000.0	-36.4	Peak
1890.00	V	0.00	2.30	40.20	-5.0	57.4	6041.7	-40.4	Peak (amb)
2205.00	V	0.00	2.30	42.80	-3.7	90.5	5000.0	-34.8	Peak (amb)
2520.00	V	0.00	2.30	42.80	-2.8	99.6	6041.7	-35.7	Peak (amb)
2835.00	V	0.00	2.30	43.83	-2.1	121.6	5000.0	-32.3	Peak (amb)
3150.00	V	0.00	2.30	41.33	-1.6	97.4	6041.7	-35.8	Peak (amb)
315.00	V	125.00	1.00	39.70	17.2	703.4	6041.7	-18.7	AVG
630.00	V	90.00	1.00	8.40	24.1	42.0	604.2	-23.2	AVG
945.00	V	90.00	0.00	-8.20	28.2	9.9	604.2	-35.7	Avg
1260.00	V	0.00	2.20	34.00	-8.9	18.0	604.2	-30.5	Avg (amb)
1575.00	V	90.00	2.38	33.80	-7.4	20.9	500.0	-27.6	Avg
1890.00	V	0.00	2.30	30.80	-5.0	19.5	604.2	-29.8	Avg (amb)
2205.00	V	0.00	2.30	32.50	-3.7	27.6	500.0	-25.1	Avg (amb)
2520.00	V	0.00	2.30	32.50	-2.8	30.4	604.2	-26.0	Avg (amb)
2835.00	V	0.00	2.30	32.20	-2.1	31.9	500.0	-23.9	Avg (amb)
3150.00	V	0.00	2.30	31.50	-1.6	31.4	604.2	-25.7	Avg (amb)
315.00	H	200.00	1.00	49.50	17.2	2173.7	60416.7	-28.9	Peak
630.00	H	180.00	1.54	23.50	24.1	238.7	6041.7	-28.1	Peak (amb)
945.00	H	180.00	1.38	5.30	28.2	47.0	6041.7	-42.2	Peak
1260.00	H	90.00	2.56	46.30	-8.9	74.3	6041.7	-38.2	Peak
1575.00	H	45.00	2.56	43.00	-7.4	60.3	5000.0	-38.4	Peak (amb)
1890.00	H	0.00	2.56	43.60	-5.0	84.9	6041.7	-37.0	Peak (amb)
2205.00	H	0.00	2.56	42.20	-3.7	84.4	5000.0	-35.4	Peak (amb)
2520.00	H	0.00	2.56	42.00	-2.8	90.9	6041.7	-36.5	Peak (amb)

Frequency (MHz)	Polarity H/V	Azimuth (Degree)	Ant. Height (m)	SA Level (dBuV)	Corr Factors (dB)	Corr. Level (uV/m)	Limit (uV/m)	Margin (dB)	Comments
2835.00	H	0.00	2.56	42.00	-2.1	98.5	5000.0	-34.1	Peak (amb)
3150.00	H	0.00	2.56	41.30	-1.6	97.1	6041.7	-35.9	Peak (amb)
315.00	H	200.00	1.00	49.00	17.2	2052.1	6041.7	-9.4	AVG
630.00	H	180.00	1.54	20.30	24.1	165.2	604.2	-11.3	Avg (amb)
945.00	H	180.00	1.38	-0.60	28.2	23.9	604.2	-28.1	Avg
1260.00	H	90.00	2.56	35.60	-8.9	21.7	604.2	-28.9	Avg
1575.00	H	45.00	2.56	36.70	-7.4	29.2	500.0	-24.7	Avg (amb)
1890.00	H	0.00	2.56	31.80	-5.0	21.8	604.2	-28.8	Avg (amb)
2205.00	H	0.00	2.56	32.00	-3.7	26.1	500.0	-25.6	Avg (amb)
2520.00	H	0.00	2.56	32.00	-2.8	28.7	604.2	-26.5	Avg (amb)
2835.00	H	0.00	2.56	31.80	-2.1	30.4	500.0	-24.3	Avg (amb)
3150.00	H	0.00	2.56	31.00	-1.6	29.7	604.2	-26.2	Avg (amb)

Table 7. Radiated Emissions Test Data, 315 MHz, Unit Upright

Frequency (MHz)	Polarity H/V	Azimuth (Degree)	Ant. Height (m)	SA Level (dBuV)	Corr Factors (dB)	Corr. Level (uV/m)	Limit (uV/m)	Margin (dB)	Comments
315.00	V	350.00	1.48	48.80	17.2	2005.4	60416.7	-29.6	Peak
630.00	V	0.00	1.50	20.20	24.1	163.3	6041.7	-31.4	Peak (amb)
945.00	V	200.00	1.78	4.00	28.2	40.5	6041.7	-43.5	Peak
1260.00	V	270.00	2.10	47.00	-8.9	80.5	6041.7	-37.5	Peak (amb)
1575.00	V	90.00	2.38	45.00	-7.4	75.9	5000.0	-36.4	Peak
1890.00	V	0.00	2.30	40.20	-5.0	57.4	6041.7	-40.4	Peak (amb)
2205.00	V	0.00	2.30	42.80	-3.7	90.5	5000.0	-34.8	Peak (amb)
2520.00	V	0.00	2.30	42.80	-2.8	99.6	6041.7	-35.7	Peak (amb)
2835.00	V	0.00	2.30	43.83	-2.1	121.6	5000.0	-32.3	Peak (amb)
3150.00	V	0.00	2.30	41.33	-1.6	97.4	6041.7	-35.8	Peak (amb)
315.00	V	350.00	1.48	47.30	17.2	1687.3	6041.7	-11.1	AVG
630.00	V	0.00	1.50	10.30	24.1	52.2	604.2	-21.3	Avg (amb)
945.00	V	200.00	1.78	-1.50	28.2	21.5	604.2	-29.0	AVG
1260.00	V	270.00	2.10	41.00	-8.9	40.4	604.2	-23.5	Avg (amb)
1575.00	V	90.00	2.38	33.80	-7.4	20.9	500.0	-27.6	Avg
1890.00	V	0.00	2.30	30.80	-5.0	19.5	604.2	-29.8	Avg (amb)
2205.00	V	0.00	2.30	32.50	-3.7	27.6	500.0	-25.1	Avg (amb)
2520.00	V	0.00	2.30	32.50	-2.8	30.4	604.2	-26.0	Avg (amb)
2835.00	V	0.00	2.30	32.20	-2.1	31.9	500.0	-23.9	Avg (amb)
3150.00	V	0.00	2.30	31.50	-1.6	31.4	604.2	-25.7	Avg (amb)

315.00	H	125.00	1.00	39.00	17.2	648.9	60416.7	-39.4	Peak
630.00	H	0.00	1.26	20.30	24.1	165.2	6041.7	-31.3	Peak (amb)
945.00	H	0.00	1.64	-2.30	28.2	19.6	6041.7	-49.8	Peak
1260.00	H	0.00	2.65	45.00	-8.9	64.0	6041.7	-39.5	Peak
1575.00	H	45.00	2.56	43.00	-7.4	60.3	5000.0	-38.4	Peak (amb)
1890.00	H	0.00	2.56	43.60	-5.0	84.9	6041.7	-37.0	Peak (amb)
2205.00	H	0.00	2.56	42.20	-3.7	84.4	5000.0	-35.4	Peak (amb)
2520.00	H	0.00	2.56	42.00	-2.8	90.9	6041.7	-36.5	Peak (amb)
2835.00	H	0.00	2.56	42.00	-2.1	98.5	5000.0	-34.1	Peak (amb)
3150.00	H	0.00	2.56	41.30	-1.6	97.1	6041.7	-35.9	Peak (amb)
315.00	H	125.00	1.00	37.60	17.2	552.3	6041.7	-20.8	AVG
630.00	H	0.00	1.26	17.40	24.1	118.3	604.2	-14.2	Avg (amb)
945.00	H	0.00	1.64	-6.10	28.2	12.7	604.2	-33.6	Avg
1260.00	H	0.00	2.65	34.30	-8.9	18.7	604.2	-30.2	Avg
1575.00	H	45.00	2.56	36.70	-7.4	29.2	500.0	-24.7	Avg (amb)
1890.00	H	0.00	2.56	31.80	-5.0	21.8	604.2	-28.8	Avg (amb)
2205.00	H	0.00	2.56	32.00	-3.7	26.1	500.0	-25.6	Avg (amb)
2520.00	H	0.00	2.56	32.00	-2.8	28.7	604.2	-26.5	Avg (amb)
2835.00	H	0.00	2.56	31.80	-2.1	30.4	500.0	-24.3	Avg (amb)
3150.00	H	0.00	2.56	31.00	-1.6	29.7	604.2	-26.2	Avg (amb)