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FCC Permissive Class 2 Test Report

For the

Motorola - Enterprise Mobility Solutions

DS9808RUS/DS9808RWW

FCC ID: UZ7DS9808RUS
IC: 109AN-DS9808RWW

WLL JOB# **11908-01 Rev 2**

May 31, 2011

Revised July 12, 2011

Prepared for:

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ACCREDITED TESTING

Testing Certificate AT-1448

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Prepared by:

Steven Dovell
EMC Compliance Engineer

Reviewed by:

Steven D. Koster
EMC Operations Manager

Abstract

This report has been prepared on behalf of Motorola - Enterprise Mobility Solutions to support the attached Class 2 permissive change. The Permissive Class 2 Test Report for a modular Frequency Hopping Spread Spectrum Transmitter under Part 15.247 (7/2008) of the FCC Rules and Regulations and Spectrum Management and Telecommunications Policy RSS-210 of Industry Canada. This Certification Test Report documents the test configuration and test results for the Motorola-Enterprise Mobility Solutions DS9808RUS/DS9808RWW.

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 ACLASS under Certificate AT-1448 as an independent FCC test laboratory.

The Motorola - Enterprise Mobility Solutions DS9808RUS/DS9808RWW remains in compliance with the limits for a Frequency Hopping Spread Spectrum Transmitter device under FCC Part 15.247 and Industry Canada RSS-210.

Revision History	Description of Change	Date
Rev 0	Initial Release	May 31, 2011
Rev 1	Reason for permissive change corrected on page 1. Antenna gain on page 3 table 1 corrected.	June 15,2011
Rev 2	Corrected the power output to the correct value	July 12, 2011

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1 Introduction

1.1 Reason for Class 2 Permissive Change

The following changes have been verified for continued compliance;

Reduced the internal PA Gain of R1000 in order to save DC current. This reduces the RF Output Power .

Reduced the attenuator value of RN1 from 6dB to 1dB. This increases the RF power back to the original approved conducted power level

1.2 Compliance Statement

The Motorola - Enterprise Mobility Solutions DS9808RUS/DS9808RWW remains in compliance with the limits for a modular Frequency Hopping Spread Spectrum Transmitter device under FCC Part 15.247 (10/2009) and Industry Canada RSS-210.

1.3 Test Scope

Tests for radiated and conducted (at antenna terminal) emissions were performed in the host device. All measurements were performed in accordance with FCC Public Notice DA 00-705, "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems". The measurement equipment conforms to ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation.

1.4 Contract Information

Customer:	Motorola - Enterprise Mobility Solutions 48 Leona Drive Middleboro, MA, 02346 USA
Purchase Order Number:	NP5313900
Quotation Number:	65649B

1.5 Test Dates

Testing was performed on the following date(s):	5/24/11

1.6 Test and Support Personnel

Washington Laboratories, LTD	Steven Dovell, James Ritter
Client Representative	Alan Parrish

1.7 Abbreviations

A	**A**mpere
ac	**a**lternating **c**urrent
AM	Amplitude Modulation
Amps	**Amp**ere**s**
b/s	**b**its per **s**econd
BW	**B**and**W**idth
CE	**C**onducted **E**mission
cm	**c**enti**m**eter
CW	**C**ontinuous **W**ave
dB	**d**eci**B**el
dc	**d**irect **c**urrent
EMI	**E**lectro**m**agnetic **I**nterference
EUT	**E**quipment **U**nder **T**est
FM	**F**requency **M**odulation
G	**g**iga - prefix for 10^9 multiplier
Hz	**H**ertz
IF	**I**ntermediate **F**requency
k	**k**ilo - prefix for 10^3 multiplier
LISN	**L**ine **I**mpedance **S**tabilization **N**etwork
M	**M**ega - prefix for 10^6 multiplier
m	**m**eter
µ	**m**icro - prefix for 10^{-6} multiplier
NB	**N**arrow**b**and
QP	**Q**uasi-**P**eak
RE	**R**adiated **E**missions
RF	**R**adio **F**requency
rms	**r**oot-**m**ean-**s**quare
SN	**S**erial **N**umber
S/A	**S**pectrum **A**nalyzer
V	**V**olt

2 Equipment Under Test

The Motorola-Enterprise Mobility Solutions DS9808RUS/DS9808RWW is a handheld or hands free scanner/imager. The scanner has the capability to read 1D and 2D barcodes as well as RFID tags.

Table 1: Device Summary

ITEM	DESCRIPTION
Manufacturer:	Motorola-Enterprise Mobility Solutions
FCC ID:	UZ7DS9808RUS
IC:	109AN-DS9808RWW
Model:	DS9808RUS/DS9808RWW
FCC Rule Parts:	§15.247
Industry Canada:	RSS210 Issue 8
Frequency Range:	902.75-927.25MHz
Maximum Output Power:	236.5mW (23.74dBm)
Modulation:	DB-ASK, PR-ASK
Occupied Bandwidth:	81.6kHz
Keying:	Automatic, Manual
Type of Information:	Data
Number of Channels:	50
Power Output Level	Fixed
Antenna Connector	Internal
Antenna Type	Dual Polarized Dipole(Horizontal and Vertical Components)
Antenna Gain:	-1.5dBi
Interface Cables:	RS232 & USB
Power Source & Voltage:	AC adapter (100-240VAC, 50-60Hz, 1.5A) DC 12VDC, 3.3A
Receiver spurious	88.9 µV/m at 3m
Transmitter spurious	1768 µV/m at 3m
Emissions Designator	81K6GXD

2.1 Test Configuration

The DS9808RUS/DS9808RWW was configured for test with customer supplied software to exercise functionality. The scanner was tested with an RS 232 cable.

2.2 Testing Algorithm

The DS9808RUS/DS9808RWW was programmed for FHSS operation via RFIDDemo software provided by the customer.

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

2.3 Test Location

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 ACLASS under Certificate AT-1448 as an independent FCC test laboratory.

2.4 Measurements

2.4.1 References

FCC Public Notice DA 00-705, Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems

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

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

2.5 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:	**05/24/2011**
Asset #	**Manufacturer/Model**	**Description**	**Cal. Due**
382	SUNOL SCIENCES CORPORATION - JB1	ANTENNA BICONLOG	1/12/2012
69	HP - 85650A	ADAPTER QP	7/1/2011
73	HP - 8568B	ANALYZER SPECTRUM	7/1/2011
71	HP - 85685A	PRESELECTOR RF	7/1/2011
522	HP - 8449B	PRE-AMPLIFIER 1-26.5GHZ	7/27/2011
728	AGILENT - 8564EC	SPECTRUM ANALYZER 30HZ - 40GHZ	4/28/2012
280	ITC - 21C-3A1	WAVEGUIDE 3.45-11.0GHZ	3/24/2012
337	WLL - 1.2-5GHZ	FILTER BAND PASS	3/24/2012
626	ARA - DRG-118/A	ANTENNA HORN	6/3/2011

Test Name:	**Conducted Power**	Test Date:	**05/16/2011**
Asset #	**Manufacturer/Model**	**Description**	**Cal. Due**
728	AGILENT - 8564EC	SPECTRUM ANALYZER 30HZ - 40GHZ	4/28/2012

Test Name:	**Conducted Emissions Voltage**	Test Date:	**05/24/2011**
Asset #	**Manufacturer/Model**	**Description**	**Cal. Due**
125	SOLAR - 8028-50-TS-24-BNC	LISN	7/10/2011
126	SOLAR - 8028-50-TS-24-BNC	LISN	7/10/2011
69	HP - 85650A	ADAPTER QP	7/1/2011
73	HP - 8568B	ANALYZER SPECTRUM	7/1/2011

4 Test Summary

The Table Below shows the results of testing for compliance with a Frequency Hopping System in accordance with FCC Part 15.247 10:2009, RSS210 issue 8, and RSS-Gen issue 3. Full results are shown in section 5.

Table 4. Test Summary Table

FCC Rule Part	Description	Result
15.247 (b)(2)	Transmit Output Power	Pass
15.205 15.209	General Field Strength Limits (Restricted Bands & RE Limits)	Pass

5 Test Results

5.1 RF Power Output: (FCC Part §2.1046)

To measure the output power the hopping sequence was stopped while the frequency dwelled on the lowest, Center, and highest channel. The output from the transmitter was connected to an attenuator and then to the input of the RF Spectrum Analyzer. The analyzer offset was adjusted to compensate for the attenuator, cable, and other losses in the system.

Table 5: Data Channel RF Power Output

Frequency	Level	Limit	Pass/Fail
Low Channel Antenna A0: 902.75MHz	23.66	30dBm	Pass
Low Channel Antenna A1: 902.75MHz	23.74	30dBm	Pass
Center Channel Antenna A0: 914.75MHz	23.66	30dBm	Pass
Center Channel Antenna A1: 914.75MHz	23.57	30dBm	Pass
High Channel Antenna A0: 927.25MHz	23.48	30dBm	Pass
High Channel Antenna A1: 927.25MHz	23.57	30dBm	Pass

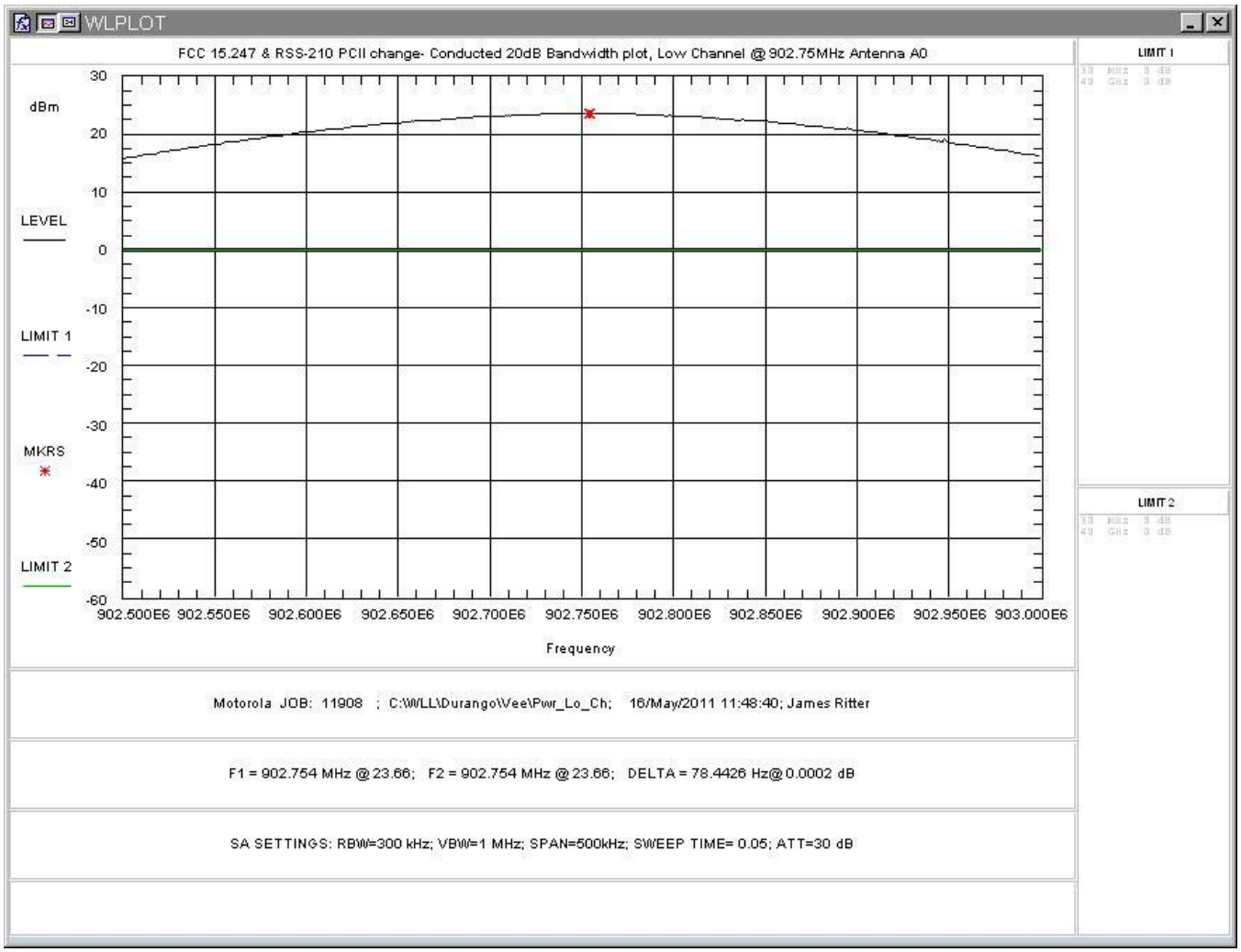


Figure 1. Channel RF Peak Power, Low Channel, Antenna A0:

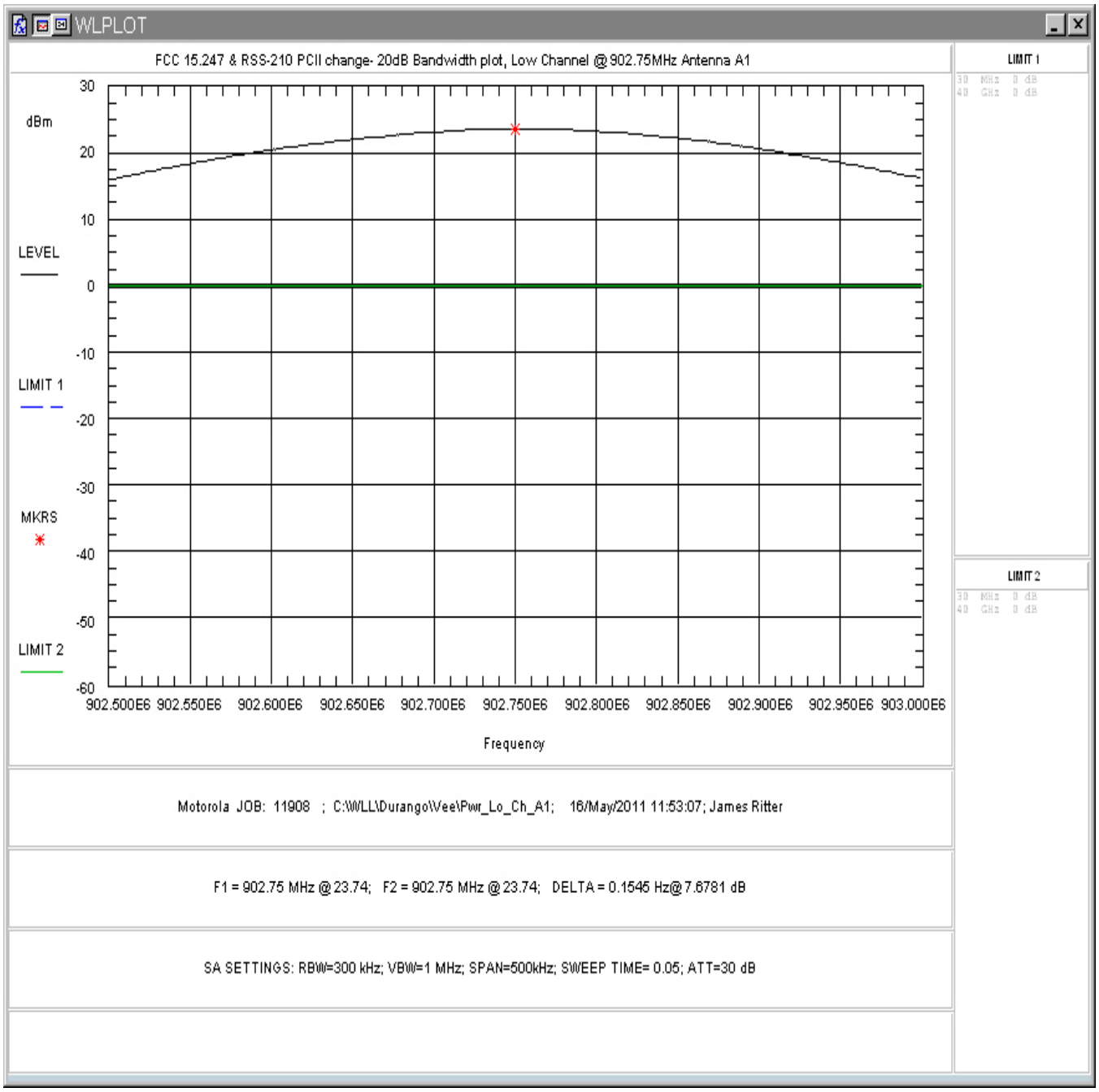


Figure 2. Channel RF Peak Power, Low Channel, Antenna A1:

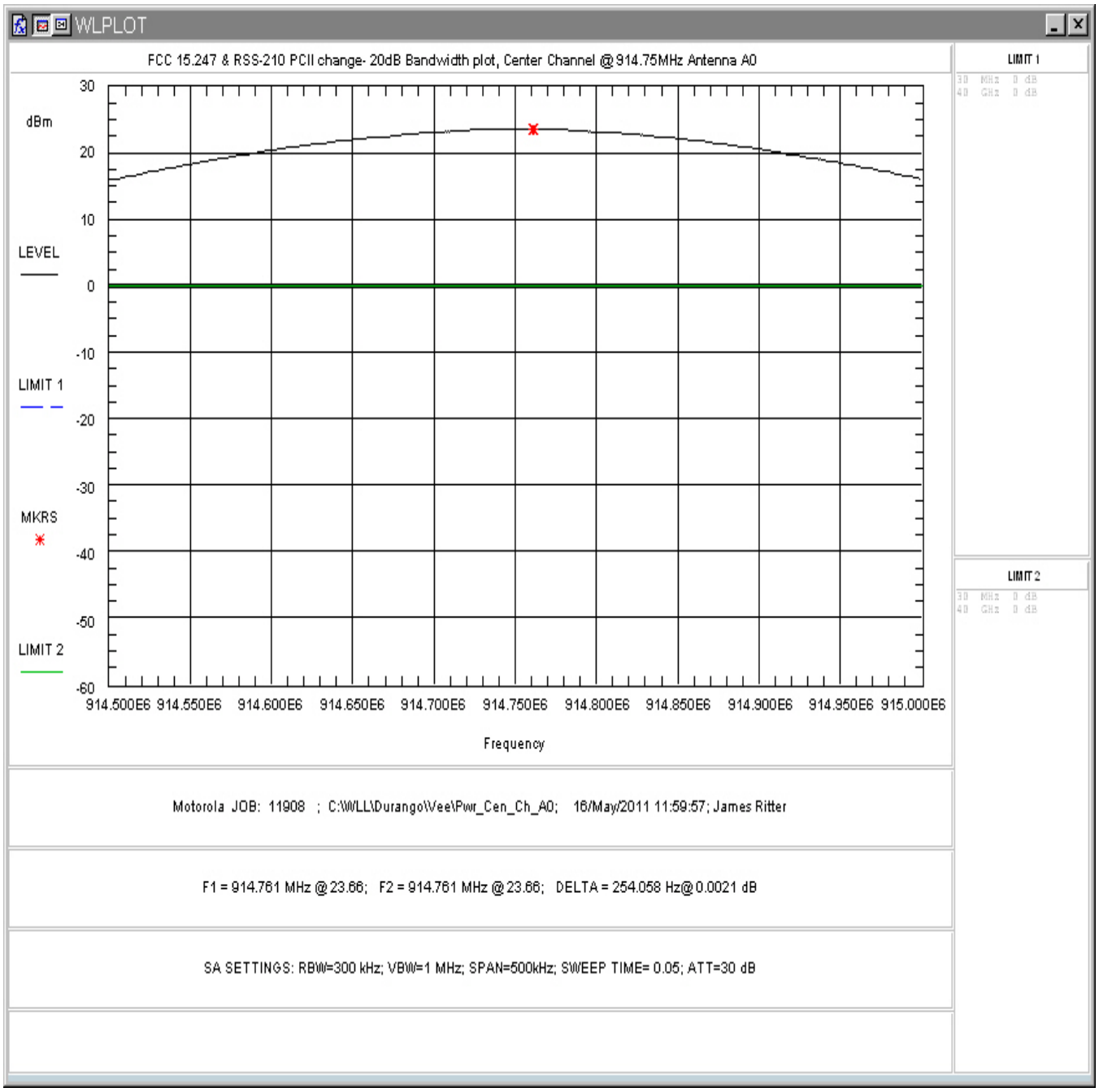


Figure 3. Channel RF Peak Power, Center Channel, Antenna A0:

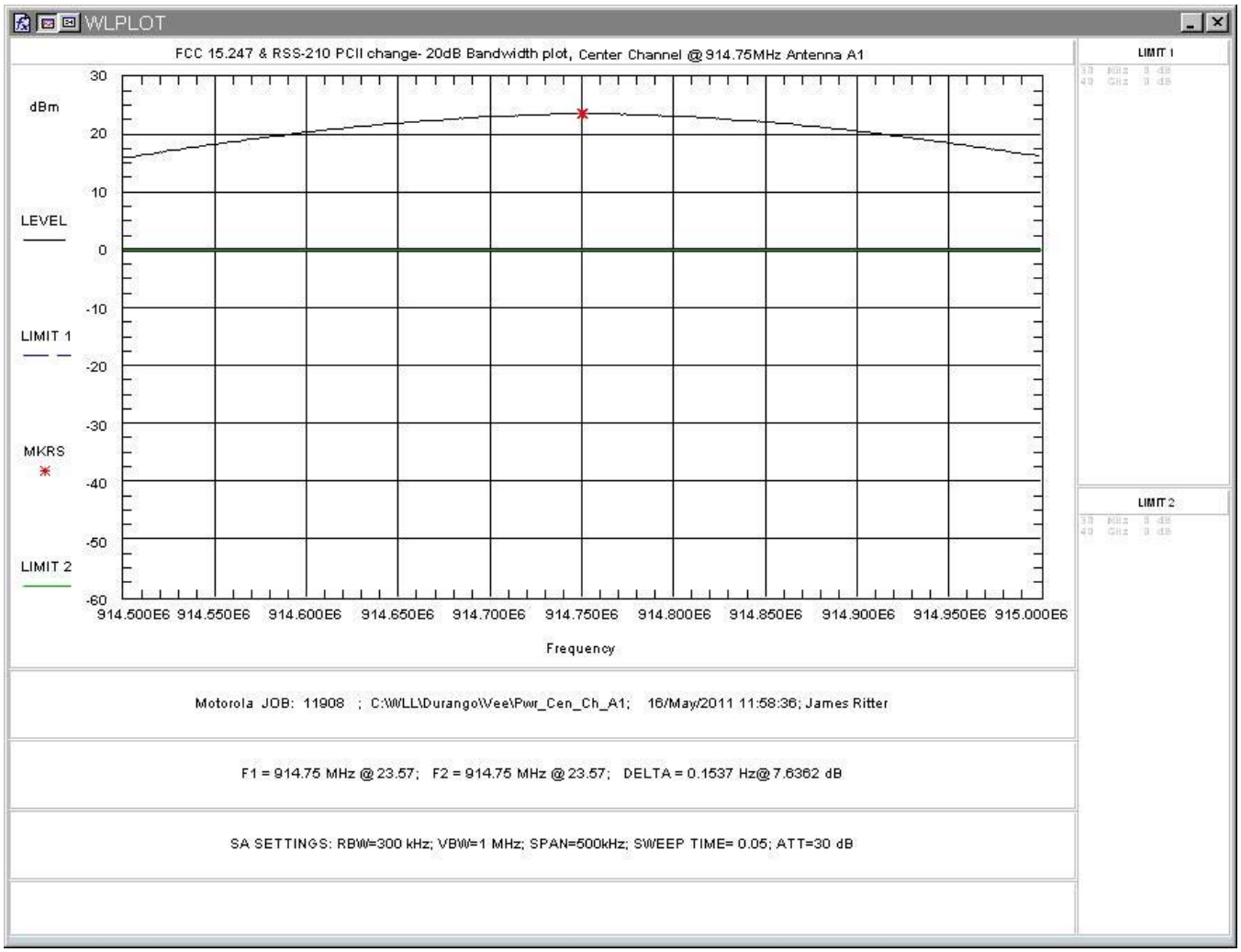


Figure 4. Channel RF Peak Power, Center Channel, Antenna A1:

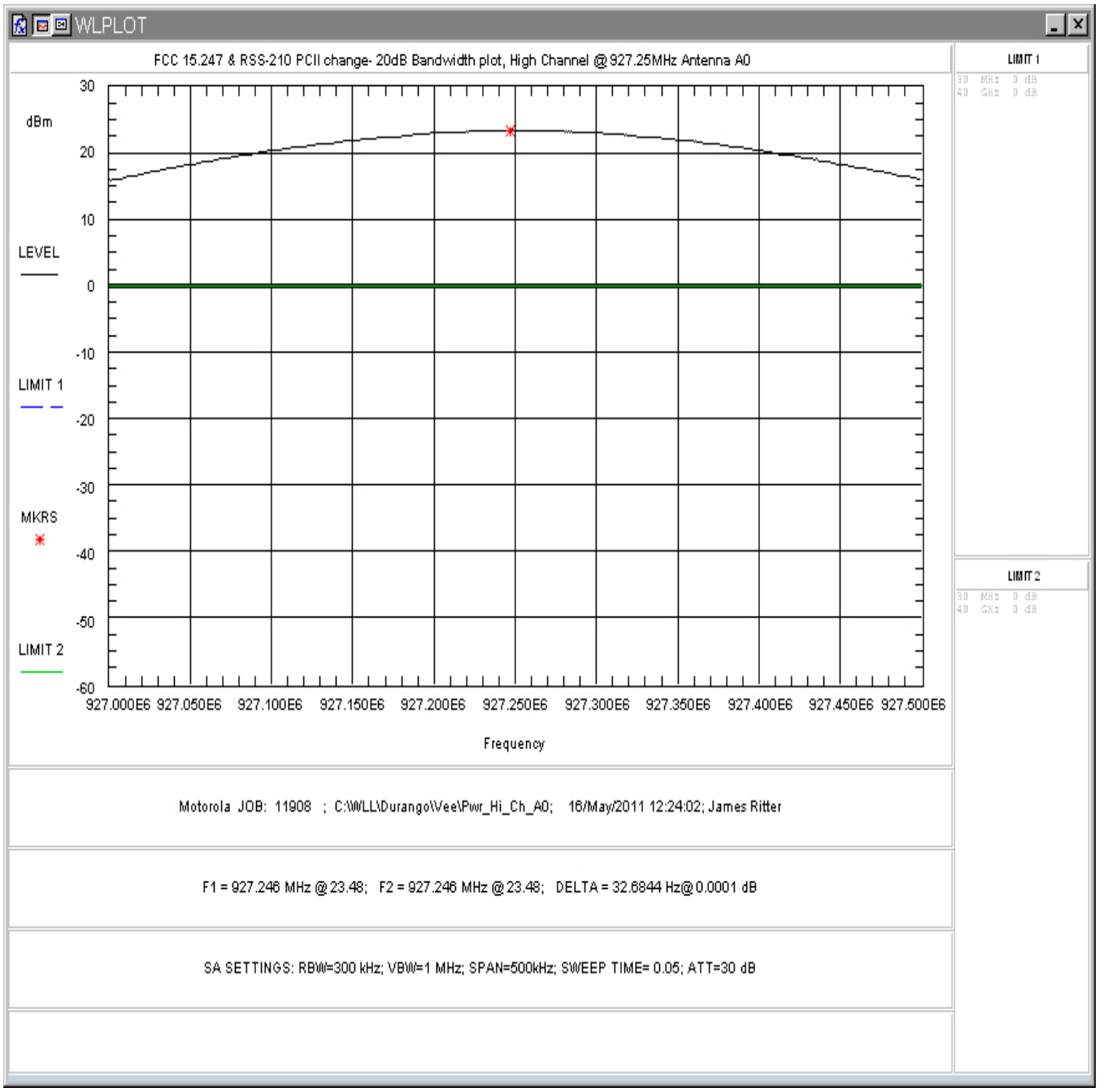


Figure 5. Channel RF Peak Power, High Channel, Antenna A0:

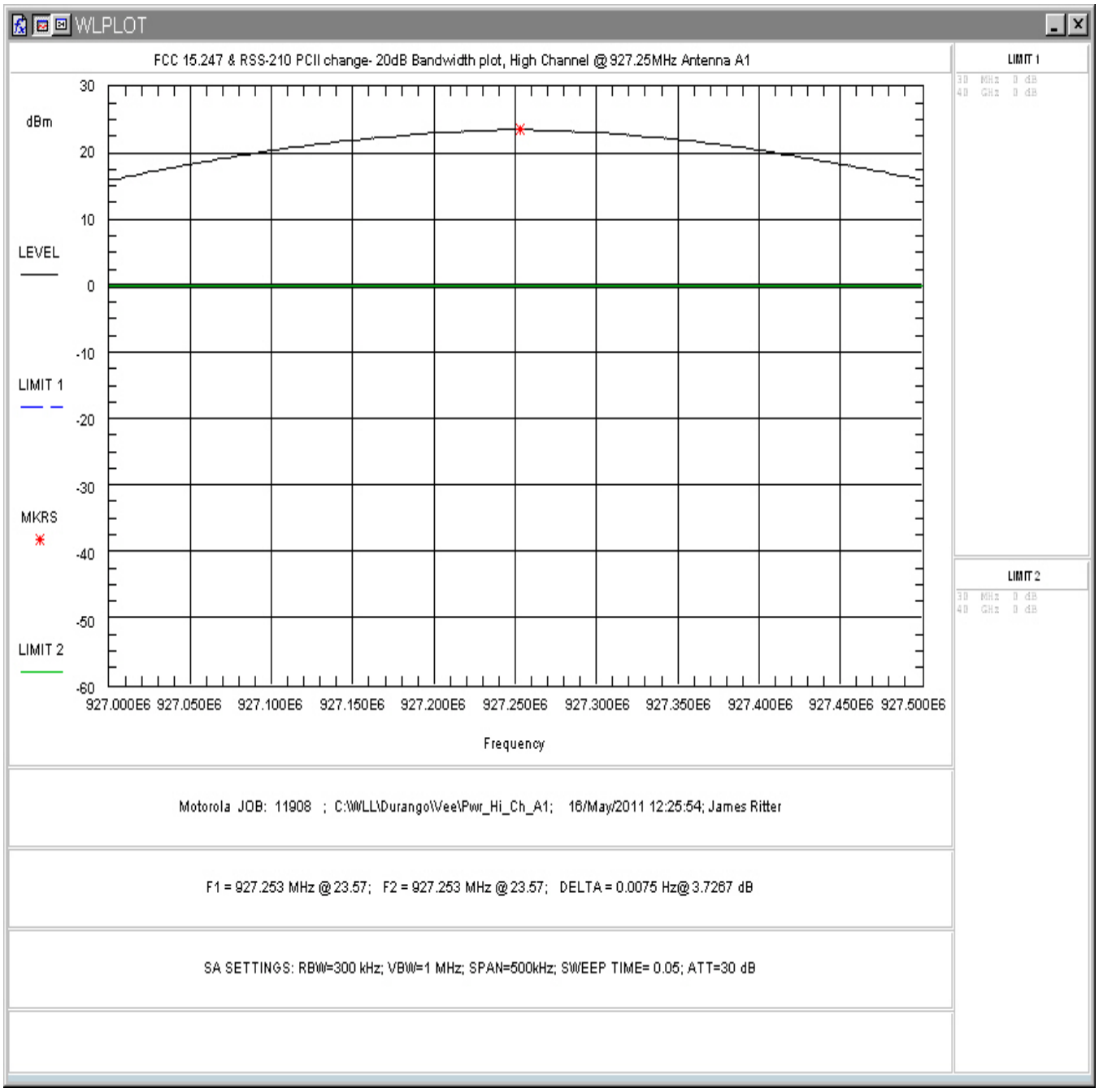


Figure 6. Channel RF Peak Power, High Channel, Antenna A1:

5.2 Radiated Spurious Emissions: (FCC Part §2.1053)

The EUT must comply with the requirements for radiated spurious emissions that fall within the restricted bands. These emissions must meet the limits specified in §15.209 and §15.35(b) for peak measurements.

5.2.1 Test Procedure

The EUT was placed on a 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. The EUT was tested in 3 orthogonals and both internal antennas activated, with the worst case readings provided. 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	120kHz	>100 kHz
>1000 MHz	1 MHz	10 Hz (Avg.) 1MHz (Peak)

5.2.2 Areas of concern

None

Table 6: Radiated Emission Test Data, Low Frequency Data (<1GHz)

(emissions were common to all tested channels,
the frequencies listed are the highest emitted restricted bands)

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)
74.60	V	180.00	1.00	14.80	9.4	16.2	100.0	-15.8
75.12	V	170.00	1.00	14.20	9.5	15.2	100.0	-16.3
111.36	V	180.00	1.00	24.60	14.4	88.9	150.0	-4.5
115.88	V	180.00	1.00	18.40	15.2	48.0	150.0	-9.9
132.24	V	125.00	1.00	7.00	15.7	13.6	150.0	-20.8
150.46	V	5.00	1.00	12.80	14.8	23.9	150.0	-16.0
156.74	V	80.00	1.00	16.10	14.8	34.9	150.0	-12.7
165.86	V	90.00	1.00	14.90	14.8	30.6	150.0	-13.8
169.93	V	95.00	1.00	12.50	14.7	22.8	150.0	-16.4
75.19	H	90.00	2.18	12.30	9.5	12.3	100.0	-18.2
113.49	H	270.00	1.16	21.00	14.6	60.3	150.0	-7.9
132.96	H	15.00	1.20	6.20	15.5	12.1	150.0	-21.9
156.53	H	90.00	1.17	8.80	14.7	15.0	150.0	-20.0
163.18	H	345.00	1.89	11.30	14.9	20.3	150.0	-17.4
169.93	H	270.00	265.00	8.20	14.7	13.9	150.0	-20.7
240.07	H	270.00	1.51	10.70	14.9	19.1	200.0	-20.4

Table 7: Radiated Emission Test Data, High Frequency Data (>1GHz)

(Restricted Bands)

(Worst case readings are with EUT standing)

Low Channel-902.75MHz

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
2708.25	V	0.00	1.00	44.82	-0.9	156.4	5000.0	-30.1	Peak
4513.75	V	0.00	1.00	44.83	6.3	361.0	5000.0	-22.8	Peak
5416.50	V	260.00	1.00	43.83	9.5	461.3	5000.0	-20.7	Peak
8124.75	V	280.00	1.00	45.17	14.7	981.8	5000.0	-14.1	Peak
9027.50	V	0.00	1.00	45.20	18.3	1492.7	5000.0	-10.5	Peak
2708.25	V	0.00	1.00	33.30	-0.9	41.5	500.0	-21.6	Average
4513.75	V	0.00	1.00	33.30	6.3	95.7	500.0	-14.4	Average
5416.50	V	260.00	1.00	32.10	9.5	119.5	500.0	-12.4	Average
8124.75	V	280.00	1.00	32.80	14.7	236.3	500.0	-6.5	Average
9027.50	V	0.00	1.00	32.60	18.3	349.9	500.0	-3.1	Average
2708.25	H	275.00	1.00	45.00	-0.9	159.6	5000.0	-29.9	Peak
4513.75	H	260.00	1.00	44.67	6.3	354.5	5000.0	-23.0	Peak
5416.50	H	265.00	1.00	44.83	9.5	517.6	5000.0	-19.7	Peak
8124.75	H	270.00	1.00	46.33	14.7	1122.0	5000.0	-13.0	Peak
9027.50	H	0.00	1.00	46.67	18.3	1768.0	5000.0	-9.0	Peak
2708.25	H	275.00	1.00	33.00	-0.9	40.1	500.0	-21.9	Average
4513.75	H	260.00	1.00	32.20	6.3	84.3	500.0	-15.5	Average
5416.50	H	265.00	1.00	31.67	9.5	113.8	500.0	-12.9	Average
8124.75	H	270.00	1.00	32.90	14.7	239.1	500.0	-6.4	Average
9027.50	H	0.00	1.00	32.80	18.3	358.1	500.0	-2.9	Average

Center Data Channel – 914.75MHz

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
2744.25	V	125.00	1.00	45.33	-0.7	169.7	5000.0	-29.4	Peak
4573.75	V	355.00	1.00	42.50	6.3	274.2	5000.0	-25.2	Peak
7318.00	V	350.00	1.00	42.83	16.0	869.5	5000.0	-15.2	Peak
8232.75	V	90.00	1.00	42.83	14.7	753.9	5000.0	-16.4	Peak
9147.50	V	125.00	1.00	43.33	19.6	1399.1	5000.0	-11.1	Peak
2744.25	V	125.00	1.00	32.50	-0.7	38.7	500.0	-22.2	Average
4573.75	V	355.00	1.00	29.83	6.3	63.8	500.0	-17.9	Average
7318.00	V	350.00	1.00	30.17	16.0	202.4	500.0	-7.9	Average
8232.75	V	90.00	1.00	30.30	14.7	178.2	500.0	-9.0	Average
9147.50	V	125.00	1.00	30.50	19.6	319.4	500.0	-3.9	Average
2744.25	H	180.00	1.00	44.83	-0.7	160.2	5000.0	-29.9	Peak
4573.75	H	355.00	1.00	42.17	6.3	264.0	5000.0	-25.5	Peak
7318.00	H	15.00	1.00	42.33	16.0	820.9	5000.0	-15.7	Peak
8232.75	H	10.00	1.00	43.17	14.7	784.0	5000.0	-16.1	Peak
9147.50	H	0.00	1.00	42.33	19.6	1246.9	5000.0	-12.1	Peak
2744.25	H	180.00	1.00	32.33	-0.7	38.0	500.0	-22.4	Average
4573.75	H	355.00	1.00	29.83	6.3	63.8	500.0	-17.9	Average
7318.00	H	15.00	1.00	30.00	16.0	198.5	500.0	-8.0	Average
8232.75	H	10.00	1.00	30.50	14.7	182.3	500.0	-8.8	Average
9147.50	H	0.00	1.00	30.50	19.6	319.4	500.0	-3.9	Average

High Channel-927.25MHz

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
2781.75	V	90.00	1.00	45.83	-0.5	184.1	5000.0	-28.7	Peak
3709.00	V	270.00	1.00	44.50	5.0	298.5	5000.0	-24.5	Peak
4636.25	V	85.00	1.00	42.20	6.6	276.5	5000.0	-25.1	Peak
7418.00	V	10.00	1.00	43.33	16.1	940.5	5000.0	-14.5	Peak
8345.25	V	0.00	1.00	42.20	14.8	710.6	5000.0	-16.9	Peak
2781.75	V	90.00	1.00	32.80	-0.5	41.1	500.0	-21.7	Average
3709.00	V	270.00	1.00	31.83	5.0	69.4	500.0	-17.1	Average
4636.25	V	85.00	1.00	30.00	6.6	67.9	500.0	-17.3	Average
7418.00	V	10.00	1.00	30.67	16.1	219.0	500.0	-7.2	Average
8345.25	V	0.00	1.00	30.30	14.8	180.6	500.0	-8.8	Average
2781.75	H	0.00	1.00	45.70	-0.5	181.4	5000.0	-28.8	Peak
3709.00	H	260.00	1.00	45.17	5.0	322.5	5000.0	-23.8	Peak
4636.25	H	180.00	1.00	43.00	6.6	303.2	5000.0	-24.3	Peak
7418.00	H	270.00	1.00	42.00	16.1	807.0	5000.0	-15.8	Peak
8345.25	H	0.00	1.00	42.50	14.8	735.6	5000.0	-16.6	Peak
2781.75	H	0.00	1.00	33.00	-0.5	42.0	500.0	-21.5	Average
3709.00	H	260.00	1.00	31.67	5.0	68.2	500.0	-17.3	Average
4636.25	H	180.00	1.00	31.00	6.6	76.2	500.0	-16.3	Average
7418.00	H	270.00	1.00	30.50	16.1	214.7	500.0	-7.3	Average
8345.25	H	0.00	1.00	30.50	14.8	184.8	500.0	-8.6	Average

5.3 AC Conducted Emissions (FCC Pt.15.207)

NEUTRAL

Frequency (MHz)	Level QP (dBµV)	Level AVG (dBµV)	Cable Loss (dB)	LISN Corr (dB)	Level QP Corr (dBµV)	Level Corr Avg (dBµV)	Limit QP (dBµV)	Limit AVG (dBµV)	Margin QP (dB)	Margin AVG (dB)
0.150	38.0	38.0	10.3	0.5	48.8	48.8	66.0	56.0	-17.2	-7.2
0.460	29.2	29.2	10.2	0.4	39.8	39.8	56.7	46.7	-16.9	-6.9
3.671	18.1	18.1	10.7	0.4	29.2	29.2	56.0	46.0	-26.8	-16.8
12.750	19.1	19.1	11.2	1.0	31.3	31.3	60.0	50.0	-28.7	-18.7
17.400	20.8	20.8	11.4	1.5	33.7	33.7	60.0	50.0	-26.3	-16.3
18.420	21.2	21.2	11.4	1.5	34.2	34.2	60.0	50.0	-25.8	-15.8

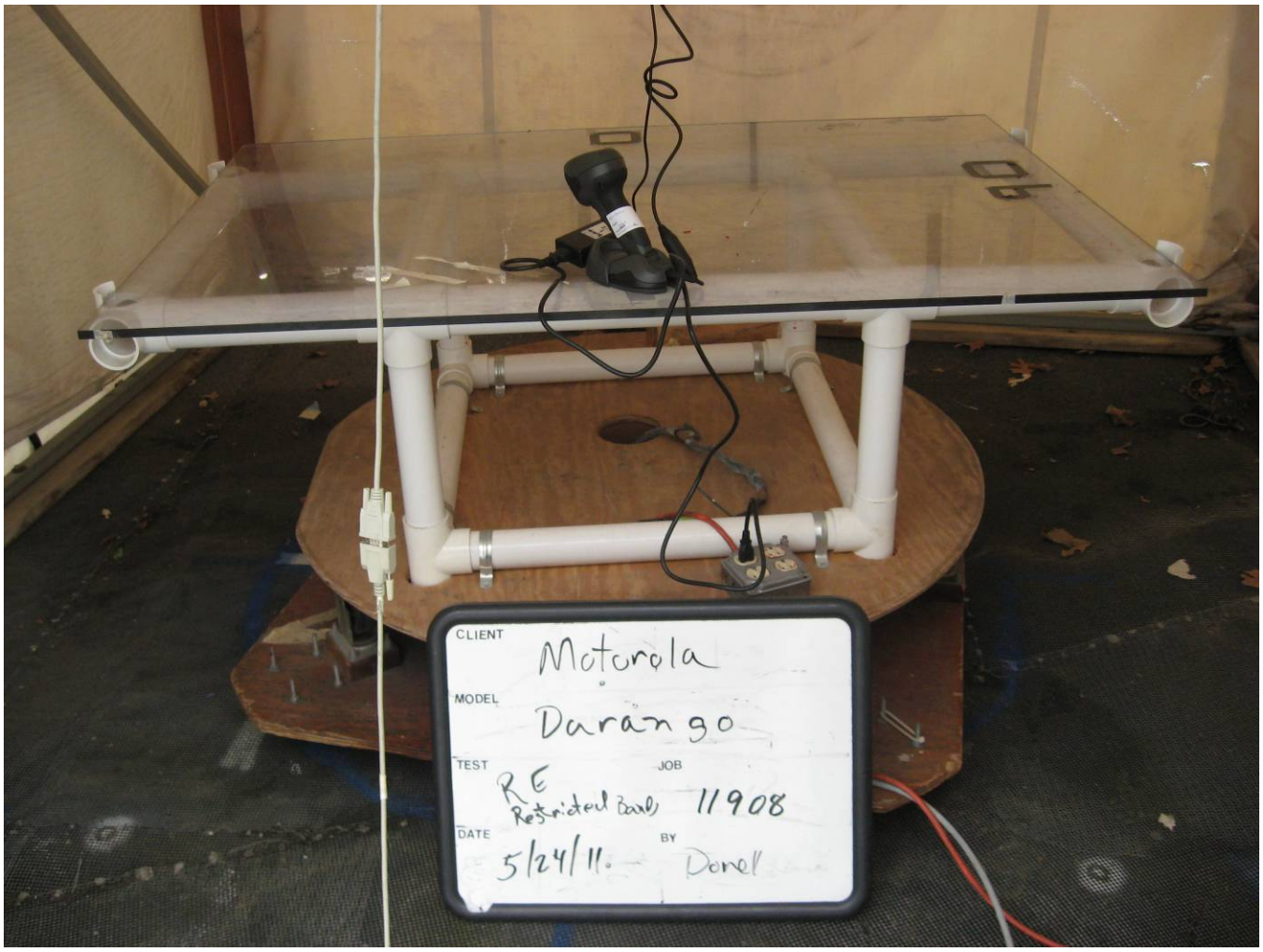
PHASE

Frequency (MHz)	Level QP (dBµV)	Level AVG (dBµV)	Cable Loss (dB)	LISN Corr (dB)	Level QP Corr (dBµV)	Level Corr Avg (dBµV)	Limit QP (dBµV)	Limit AVG (dBµV)	Margin QP (dB)	Margin AVG (dB)
0.155	36.3	36.3	10.3	0.7	47.3	47.3	65.7	55.7	-18.4	-8.4
0.465	29.3	29.3	10.2	0.4	39.9	39.9	56.6	46.6	-16.7	-6.7
3.351	18.9	18.9	10.7	0.5	30.1	30.1	56.0	46.0	-25.9	-15.9
13.790	19.7	19.7	11.2	1.7	32.6	32.6	60.0	50.0	-27.4	-17.4
19.460	20.9	20.9	11.5	2.3	34.7	34.7	60.0	50.0	-25.3	-15.3
28.750	19.9	19.9	11.9	4.3	36.2	36.2	60.0	50.0	-23.8	-13.8

5.4 Receiver Radiated Emissions

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)
74.60	V	180.00	1.00	14.80	9.4	16.2	100.0	-15.8
75.12	V	170.00	1.00	14.20	9.5	15.2	100.0	-16.3
111.36	V	180.00	1.00	24.60	14.4	88.9	150.0	-4.5
115.88	V	180.00	1.00	18.40	15.2	48.0	150.0	-9.9
132.24	V	125.00	1.00	7.00	15.7	13.6	150.0	-20.8
150.46	V	5.00	1.00	12.80	14.8	23.9	150.0	-16.0
156.74	V	80.00	1.00	16.10	14.8	34.9	150.0	-12.7
165.86	V	90.00	1.00	14.90	14.8	30.6	150.0	-13.8
169.93	V	95.00	1.00	12.50	14.7	22.8	150.0	-16.4
75.19	H	90.00	2.18	12.30	9.5	12.3	100.0	-18.2
113.49	H	270.00	1.16	21.00	14.6	60.3	150.0	-7.9
132.96	H	15.00	1.20	6.20	15.5	12.1	150.0	-21.9
156.53	H	90.00	1.17	8.80	14.7	15.0	150.0	-20.0
163.18	H	345.00	1.89	11.30	14.9	20.3	150.0	-17.4
169.93	H	270.00	265.00	8.20	14.7	13.9	150.0	-20.7
240.07	H	270.00	1.51	10.70	14.9	19.1	200.0	-20.4

Photograph 1: Radiated Emissions Test Setup – Front



Photograph 2: Radiated Emissions Test Setup - Rear

Photograph 3: Conducted Emissions Test Setup - Front

Photograph 4: Conducted Emissions Test Setup - Side