TIMCO ENGINEERING, Inc.

849 NW State Road 45
Newberry, FL 32669 USA
Ph: 888.472.2424 or 352.472.5500
Fax: 352.472.2030
Email: info@timcoengr.com
Website: www.timcoengr.com

COMPLIANCE TEST REPORT
PER FCC PART 15.247
AND IC RSS-210

Applicant	MOTOROLA MOBILITY, INC.
Address	600 NORTH U.S. HWY 45 LIBERTYVILLE ILLINOIS 60048-5343 USA
FCC ID	IHDP56MS1
IC ID	1090-P56MS1
Model Number	H2021B51014A
Product Description	i867 iDEN PHONE
Date Sample Received	10/10/2011
Dates Tested	10/26/2011
Tested By	John A. Day
Approved By	Mario R. de Aranzeta
Report Number	2331CT11TestReport i867 iDEN TX_BT.doc
Test Results	☒ PASS ☐ FAIL

ACCREDITED
Certificate # 0955-01

TABLE OF CONTENTS

ATTESTATIONS

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025:2005 requirements.

Testing Certificate # 0955-01

I attest that the necessary measurements were made, under my supervision, at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, Fl 32669

Authorized Signatory Name:

Mario de Aranzeta C.E.T.
Compliance Engineer/ Lab. Supervisor

Date: 10/26/2011

REPORT SUMMARY

Disclaimer:	The test results relate only to the items tested.
Purpose of Test:	To demonstrate that the DUT is compliant with FCC Pt 15.247 requirements for a FHSS radio. To demonstrate that the DUT is compliant with IC RSS-210 requirements for a FHSS radio.
Applicable Standards:	FCC Pt 15.247, ANSI C63.4: 2003, ANSI TIA-603: 2004, FCC Pt 15.109, RSS-210, RSS-GEN
Related Reports:	Digital Portion Verified

TEST ENVIRONMENT AND TEST SETUP

Test Facilities:	All measurements were made at one or more of the test sites of TIMCO ENGINEERING INC. located at 849 N.W. State Road 45, Newberry, FL 32669.
Laboratory Test Conditions:	Temperature: 26°C Humidity: 55%
Test Exercise:	The DUT was set in continuous transmit mode of operation.
Deviation to the Standards:	There was no deviation from the standard.
Modification to the DUT:	No modification was made.
Supporting Accessories:	None

TEST SUPPORTING EQUIPMENT

Supporting Device	Manufacturer	Model / FCC ID	Serial Number
N/A			

DUT SPECIFICATION

Applicable Standard	Part 15.247		
DUT Description	i867 iDEN PHONE		
FCC ID	IHDP56MS1		
MODEL NUMBER	H2021B51014A		
Serial Number	364VBMS008N		
Hardware	PL-1		
Software	DD8.00.13		
Operating Frequency	TX: 2.402 – 2.480 GHz	RX: Same	
DUT Power Source	☐ 110–120Vac/50– 60Hz		
	☐ DC Power		
	☒ Battery Operated		
Test Item	☐ Prototype	☒ Pre-Production	☐ Production
Type of Equipment	☐ Fixed	☐ Mobile	☒ Portable

EMC EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	Listed 5/10/10	5/10/12
AC Voltmeter	HP	400FL	2213A14499	CAL 6/12/11	6/12/13
Antenna: Active Loop	ETS-Lindgren	6502	00062529	CAL 9/23/10	9/23/12
Antenna: Passive Loop	EMC Test Systems	EMCO 6512	9706-1211	CAL. 10/1/09	10/2/11
Frequency Counter	HP	5385A	2730A03025	CAL 8/17/11	8/17/13
Hygro-Thermometer	Extech	445703	0602	CAL 6/15/11	6/15/13
Modulation Analyzer	HP	8901A	3435A06868	CAL 7/18/11	7/18/13
Digital Multimeter	Fluke	FLUKE-77	35053830	CAL 9/9/11	9/9/13
Analyzer Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CAL 11/21/09	11/21/11
Analyzer Tan Tower Quasi-Peak Adapter	HP	85650A	3303A01690	CAL 11/22/09	11/22/11
Analyzer Tan Tower RF Preselector	HP	85685A	3221A01400	CAL 11/21/09	11/21/11
Analyzer Tan Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	CAL 11/24/09	11/24/11
Temperature Chamber	Tenney Engineering	TTRC	11717-7	CHAR 4/25/10	4/25/12
Antenna	ETS	3117	41534	9/22/2010	9/22/2012
Antenna	Electro metrics	LPA-25	1122	5/04/2011	5/04/2013
Antenna	Electro metrics	BIA-25	1171	1/15/2010	1/15/2012

TEST PROCEDURES

Radiation Interference: ANSI C63.4-2003 using a spectrum analyzer, a preselector, a quasi-peak adapter, and an appropriate antenna. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100 kHz with an appropriate sweep speed and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3 MHz above 1 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worse case emissions were reported. The spectrum was searched to at least the tenth (10) harmonic of the fundamental.

Formula Of Conversion Factors: The field strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the preselector was accounted for in the spectrum analyzer meter reading.

Example:			
Freq (MHz)	Meter Reading	+ ACF	+ CL = FS
33	20 dBuV	+ 10.36 dB	+ 0.5 = 30.86 dBuV/m @ 3m

Power Line Conducted Interference: The procedure used was ANSI C63.4-2003 using a 50uH LISN. Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed. The spectrum was scanned from 0.15 to 30 MHz.

Occupied Bandwidth: A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was printed. The vertical scale is set to -10 dBm per division.

ANSI C63.4-2003 10.1 Measurement Procedures: The DUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The DUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes. Emissions attenuated more than 20 dB below the permissible value are not reported.

RADIATION INTERFERENCE

Rules Part No.: 15.247, 15.209

Requirements:

Frequency	Limits
Part 15.209	
9 to 490 kHz	2400/F (kHz) µV/m @ 300 meters
490 to 1705 kHz	24000/F (kHz) µV/m @ 30 meters
1705 kHz to 30 MHz	29.54 dBµV/m @ 30 meters
30 – 88	40.0 dBµV/m @ 3 meters
80 – 216	43.5 dBµV/m @ 3 meters
216 – 960	46.0 dBµV/m @ 3 meters
Above 960	54.0 dBµV/m @ 3 meters
Part 15.247	
Fundamental 902 – 928 MHz	127.37 dBµV/m @ 3 meters
Fundamental 2.4 – 2.4835 MHz	127.37 dBµV/m @ 3 meters
Harmonics	54.0 dBµV/m @ 3 meters

Test Data: Peak unless noted otherwise

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
2,402.0	2,402.00	53.5	H	3.18	32.48	89.16	38.22
2,402.0	2,402.00	59.6	V	3.18	32.48	95.26	32.12
2,402.0	4,804.00	-2.1	V	4.90	33.96	36.76	17.24
2,402.0	4,804.00	-1.8	H	4.90	33.96	37.06	16.94
2,402.0	7,206.00	4.8	V	5.72	35.66	46.18	7.82
2,402.0	7,206.00	5.3	H	5.72	35.66	46.68	7.32
2,402.0	9,608.00	2.2	H	6.78	36.81	45.79	8.21
2,402.0	9,608.00	2.7	V	6.78	36.81	46.29	7.71
2,402.0	12,010.00	1.5	H	7.81	38.91	48.22	5.78
2,402.0	12,010.00	2.1	V	7.81	38.91	48.82	5.18
2,441.0	2,441.00	52.1	H	3.21	32.53	87.84	39.54
2,441.0	2,441.00	58.9	V	3.21	32.53	94.64	32.74
2,441.0	4,882.00	-0.6	H	4.94	33.98	38.32	15.68
2,441.0	4,882.00	-0.2	V	4.94	33.98	38.72	15.28
2,441.0	7,323.00	5.3	V	5.79	35.64	46.73	7.27
2,441.0	7,323.00	6.0	H	5.79	35.64	47.43	6.57
2,441.0	9,754.00	1.5	V	6.83	36.95	45.28	8.72
2,441.0	9,764.00	1.2	H	6.83	36.96	44.99	9.01
2,441.0	12,205.00	2.8	V	7.94	39.06	49.80	4.20
2,441.0	12,205.00	2.9	H	7.94	39.06	49.90	4.10

TEST DATA CONT'D.

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBµV	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dBµV/m	Margin dB
2,480.0	2,480.00	50.7	H	3.24	32.58	86.52	40.86
2,480.0	2,480.00	58.8	V	3.24	32.58	94.62	32.76
2,480.0	4,960.00	0.4	V	4.98	33.99	39.37	14.63
2,480.0	4,960.00	1.9	H	4.98	33.99	40.87	13.13
2,480.0	7,440.00	5.2	V	5.86	35.61	46.67	7.33
2,480.0	7,440.00	5.9	H	5.86	35.61	47.37	6.63
2,480.0	9,920.00	1.9	H	6.88	37.12	45.90	8.10
2,480.0	9,920.00	3.0	V	6.88	37.12	47.00	7.00
2,480.0	12,400.00	2.8	V	8.08	39.22	50.10	3.90
2,480.0	12,400.00	3.3	H	8.08	39.22	50.60	3.40

Emissions were checked to the tenth harmonic. Emissions were check from 9 kHz or the lowest frequency used. Emissions not shown were > 20 dB below the limit.

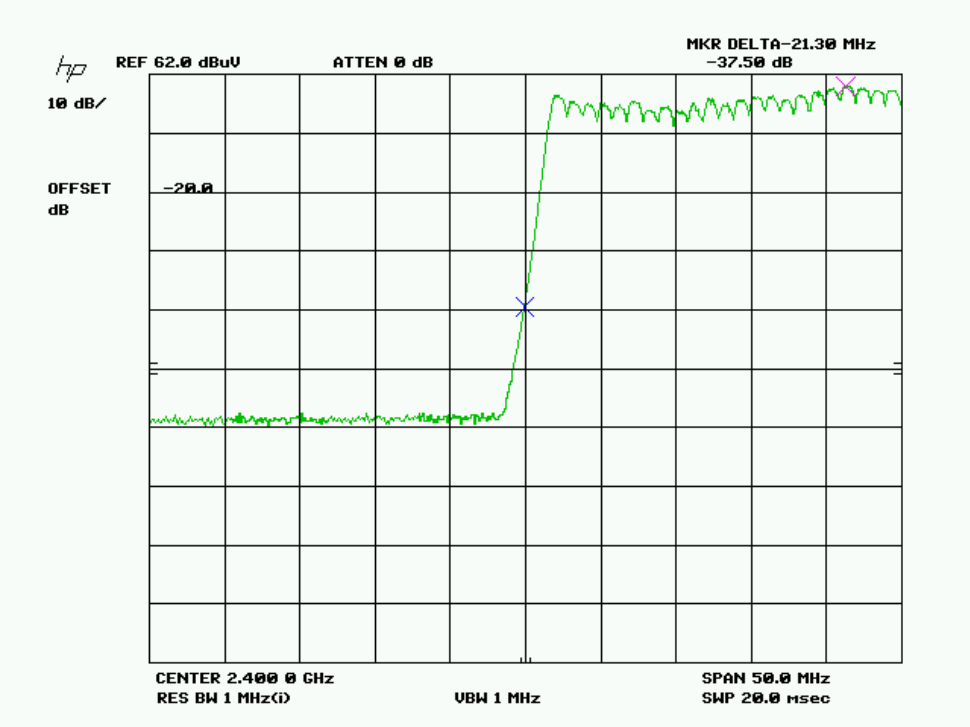
BAND EDGE COMPLIANCE

Rules Part No.: FCC Pt 15.247 (d), RSS-210

Requirements: Restricted bands 54 dBµV/m. Otherwise 20 dBc.

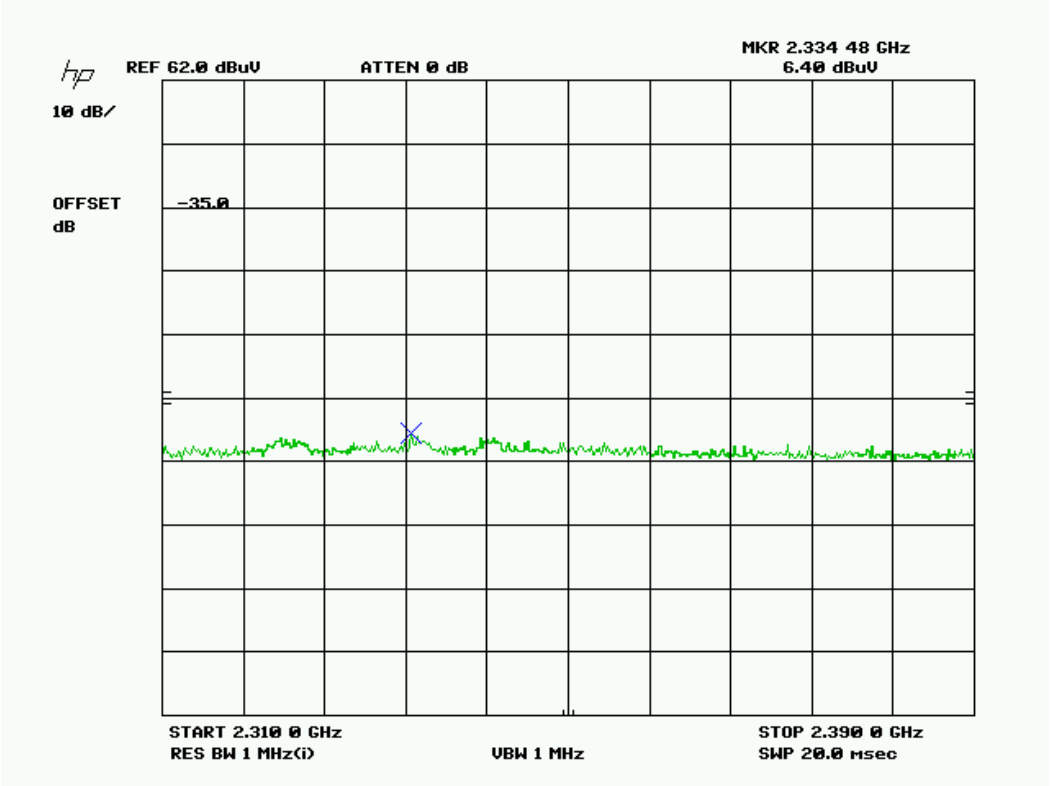
Test Data:

Lower band edge - peak



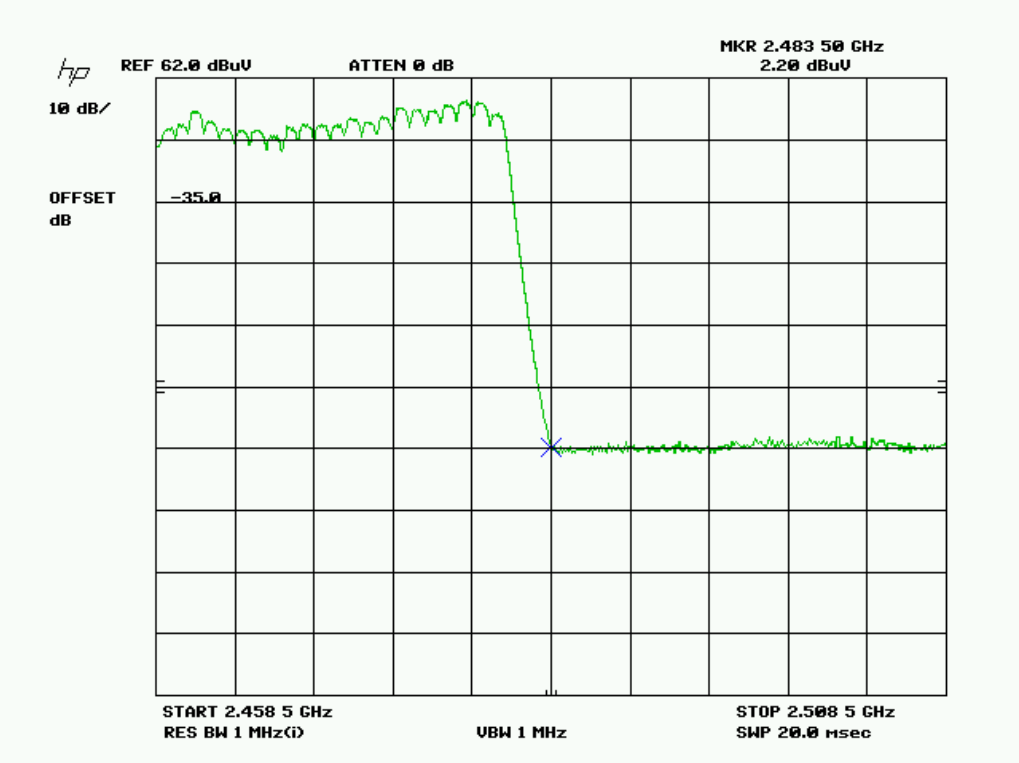
37.5 dBc

Lower non-adjacent restricted band



Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
2,402.0	2,334.48	6.4	V	3.13	32.40	41.93	12.07

Upper Bandedge - peak



Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
2,480.0	2,483.50	2.2	V	3.24	32.58	38.02	15.98

POWER LINE CONDUCTED INTERFERENCE

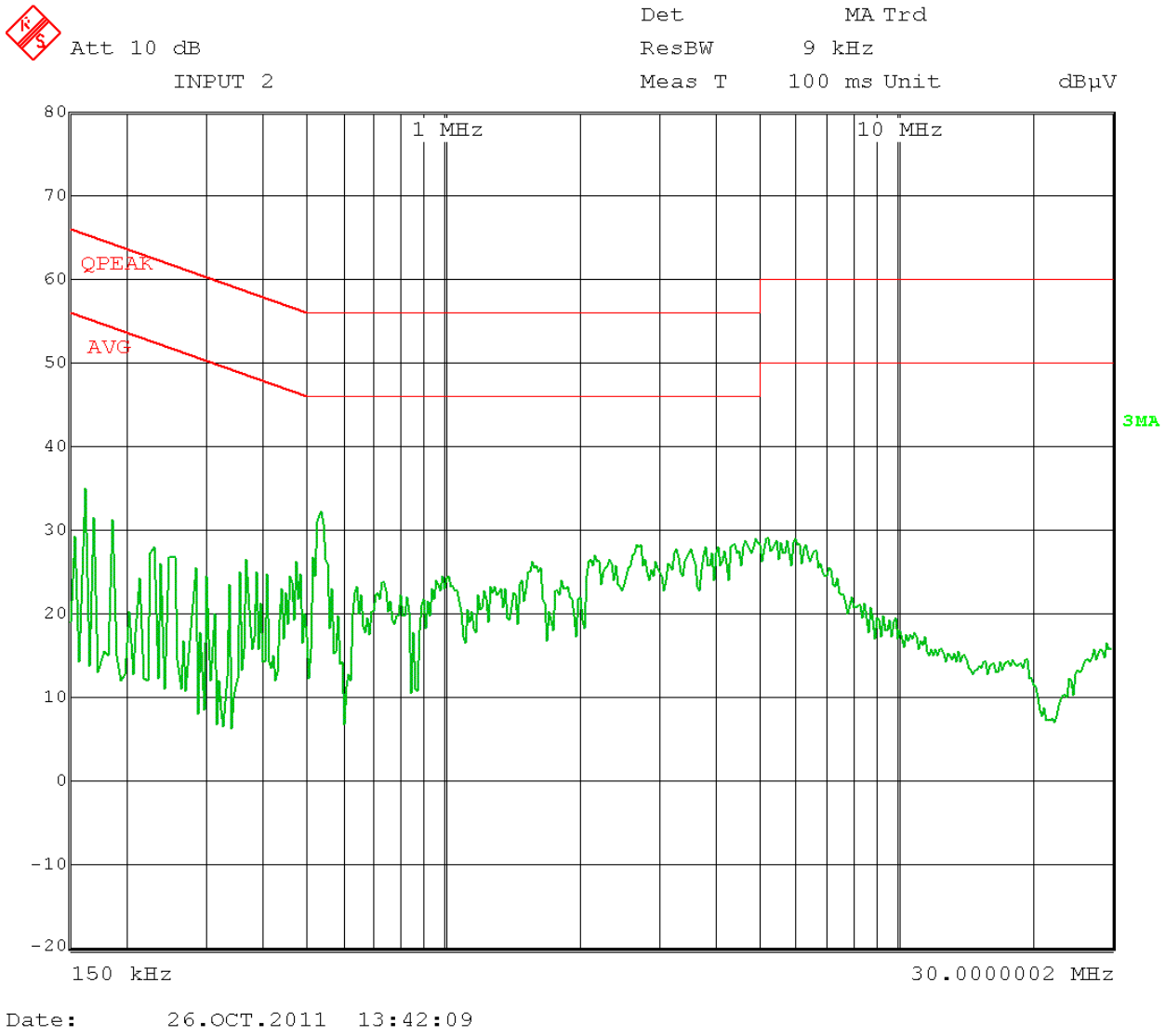
Rules Part No.: 15.207

Requirements:

Frequency (MHz)	Quasi Peak Limits (dBµV)	Average Limits (dBµV)
0.15 – 0.5	66 – 56	56 – 46
0.5 – 5.0	56	46
5.0 – 30	60	50

Test Data: The attached graphs represent the emissions read for power line conducted for this device. Both lines were observed.

ADAPTOR CHARGING, TX ON
BLUETOOTH -- HOPPING
POWERLINE CONDUCTED EMISSIONS – LINE 1



POWERLINE CONDUCTED EMISSIONS – LINE 2