



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

FCC PART 15.247 TEST REPORT
DIGITAL SPREAD SPECTRUM

Applicant	MOTOROLA, INC.
Address	600 NORTH U.S. HWY 45
	LIBERTYVILLE ILLINOIS 60048-5343 USA
FCC ID	IHDP56LN1
IC	1090-P56LN1
Model Number	H76XAH6JR4AN
Product Description	i706 OAK KNOLL
Date Sample Received	6/7/2010
Date Tested	6/18/2010
Tested By	Nam Nguyen
Approved By	Mario de Aranzeta
Report Number	1301DT10TestReport.doc
Test Results	☒ PASS ☐ FAIL

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**



Testing Certificate # 0955-01

TABLE OF CONTENT

ATTESTATIONS	3
REPORT SUMMARY	4
TEST ENVIRONMENT AND TEST SETUP.....	4
TEST SUPPORTING EQUIPMENT	4
DUT SPECIFICATION.....	5
EMC EQUIPMENT LIST	6
TEST PROCEDURES	7
RADIATION INTERFERENCE	8
POWER LINE CONDUCTED INTERFERENCE	10

APPLICANT: MOTOROLA, INC.
 MODEL: H76XAH6JR4AN
 FCC ID: IHDP56LN1, IC: 109O-P56LN1
 REPORT: Z:\M\MOTOROLA IL AB\1301DT10\1301DT10TestReport.doc

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 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: 6/28/2010

APPLICANT: MOTOROLA, INC.
MODEL: H76XAH6JR4AN
FCC ID: IHDP56LN1, IC: 1090-P56LN1
REPORT: Z:\M\MOTOROLA IL AB\1301DT10\1301DT10TestReport.doc

REPORT SUMMARY

Disclaimer:	The test results relate only to the items tested.
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			

APPLICANT: MOTOROLA, INC.
 MODEL: H76XAH6JR4AN
 FCC ID: IHDP56LN1, IC: 1090-P56LN1
 REPORT: Z:\M\MOTOROLA IL AB\1301DT10\1301DT10TestReport.doc

DUT SPECIFICATION

Applicable Standard	Part 15.247		
DUT Description	i706		
FCC ID	IHDP56LN1		
MODEL NUMBER	H76XAH6JR4AN		
Serial Number	364VLGN3TD		
Hardware	P2-1		
Software	DCB.00.25		
Operating Frequency	TX: 2.402 – 2.480 GHz	RX: Same	
DUT Power Source	☒ 110–120Vac/50– 60Hz		
	☐ DC Power		
	☐ Battery Operated Exclusively		
Test Item	☐ Prototype	☒ Pre-Production	☐ Production
Type of Equipment	☐ Fixed	☐ Mobile	☒ Portable
Antenna Connector	None		

APPLICANT: MOTOROLA, INC.
 MODEL: H76XAH6JR4AN
 FCC ID: IHDP56LN1, IC: 1090-P56LN1
 REPORT: Z:\M\MOTOROLA IL AB\1301DT10\1301DT10TestReport.doc

EMC EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
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
Analyzer Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CAL 11/21/09	11/21/11
Coaxial Cable #64	Semflex Inc.	60637	Timco #64	CHAR 3/30/09	3/30/11
Antenna: Dipole Kit	Electro-Metrics	TDA-30/1-4	152	CAL 3/3/09	3/3/12
Antenna: Dipole Kit	Electro-Metrics	TDA-30/1-4	153	CHAR 4/5/09	4/5/12
Hygro-Thermometer	Extech	445703	0602	CAL 1/30/09	1/30/11
Modulation Analyzer	HP	8901A	3435A06868	CAL 5/9/09	5/9/11
Digital Multimeter	Fluke	FLUKE-77-3	79510405	CAL 5/14/09	5/14/11

APPLICANT: MOTOROLA, INC.
 MODEL: H76XAH6JR4AN
 FCC ID: IHDP56LN1, IC: 1090-P56LN1
 REPORT: Z:\M\MOTOROLA IL AB\1301DT10\1301DT10TestReport.doc

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 plus the coax loss. 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.

APPLICANT: MOTOROLA, INC.
MODEL: H76XAH6JR4AN
FCC ID: IHDP56LN1, IC: 1090-P56LN1
REPORT: Z:\M\MOTOROLA IL AB\1301DT10\1301DT10TestReport.doc

RADIATION INTERFERENCE

Rules Part No.: 15.247, 15.209

Requirements:

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

Test Data:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dB μ V	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dB μ V/m	Margin dB
2,402.00	2,402.00	65.2	H	3.18	32.25	100.63	26.75
2,402.00	2,402.00	66.3	V	3.18	32.25	101.73	25.65
2,402.00	4,804.00	7.1	V	4.9	34.1	46.1	7.9
2,402.00	4,804.00	7.9	H	4.9	34.1	46.9	7.1
2,402.00	7,206.00	7.4	H	5.72	36.04	49.16	4.84
2,402.00	7,206.00	7.6	V	5.72	36.04	49.36	4.64
2,402.00	9,608.00	7	V	6.78	36.71	50.49	3.51
2,402.00	9,608.00	8.1	H	6.78	36.71	51.59	2.41
2,402.00	12,010.00	4.8	V	7.81	38.71	51.32	2.68
2,402.00	12,010.00	7	H	7.81	38.71	53.52	0.48
2,441.00	2,441.00	66.5	H	3.21	32.35	102.06	25.32
2,441.00	2,441.00	68.8	V	3.21	32.35	104.36	23.02
2,441.00	4,882.00	8.1	H	4.94	34.1	47.14	6.86
2,441.00	4,882.00	8.6	V	4.94	34.1	47.64	6.36
2,441.00	7,323.00	7.5	H	5.79	36.06	49.35	4.65
2,441.00	7,323.00	7.9	V	5.79	36.06	49.75	4.25

APPLICANT: MOTOROLA, INC.
 MODEL: H76XAH6JR4AN
 FCC ID: IHDP56LN1, IC: 1090-P56LN1
 REPORT: Z:\M\MOTOROLA IL AB\1301DT10\1301DT10TestReport.doc

TEST DATA CONTD.

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
2,441.00	9,764.00	6.5	H	6.83	36.86	50.19	3.81
2,441.00	9,764.00	6.8	V	6.83	36.86	50.49	3.51
2,441.00	12,205.00	4.8	H	7.94	38.86	51.6	2.4
2,441.00	12,205.00	5.6	V	7.94	38.86	52.4	1.6
2,481.00	2,481.00	67	H	3.24	32.45	102.69	24.69
2,481.00	2,481.00	68.6	V	3.24	32.45	104.29	23.09
2,481.00	4,962.00	6.2	V	4.98	34.1	45.28	8.72
2,481.00	4,962.00	7	H	4.98	34.1	46.08	7.92
2,481.00	7,443.00	8.3	V	5.87	36.09	50.26	3.74
2,481.00	7,443.00	8.5	H	5.87	36.09	50.46	3.54
2,481.00	9,924.00	6.1	V	6.88	37.02	50	4
2,481.00	9,924.00	6.8	H	6.88	37.02	50.7	3.3
2,481.00	12,405.00	4.1	V	8.08	39.02	51.2	2.8
2,481.00	12,405.00	5.5	H	8.08	39.02	52.6	1.4

APPLICANT: MOTOROLA, INC.
 MODEL: H76XAH6JR4AN
 FCC ID: IHDP56LN1, IC: 1090-P56LN1
 REPORT: Z:\M\MOTOROLA IL AB\1301DT10\1301DT10TestReport.doc

POWER LINE CONDUCTED INTERFERENCE

Rules Part No.: Part 15.207

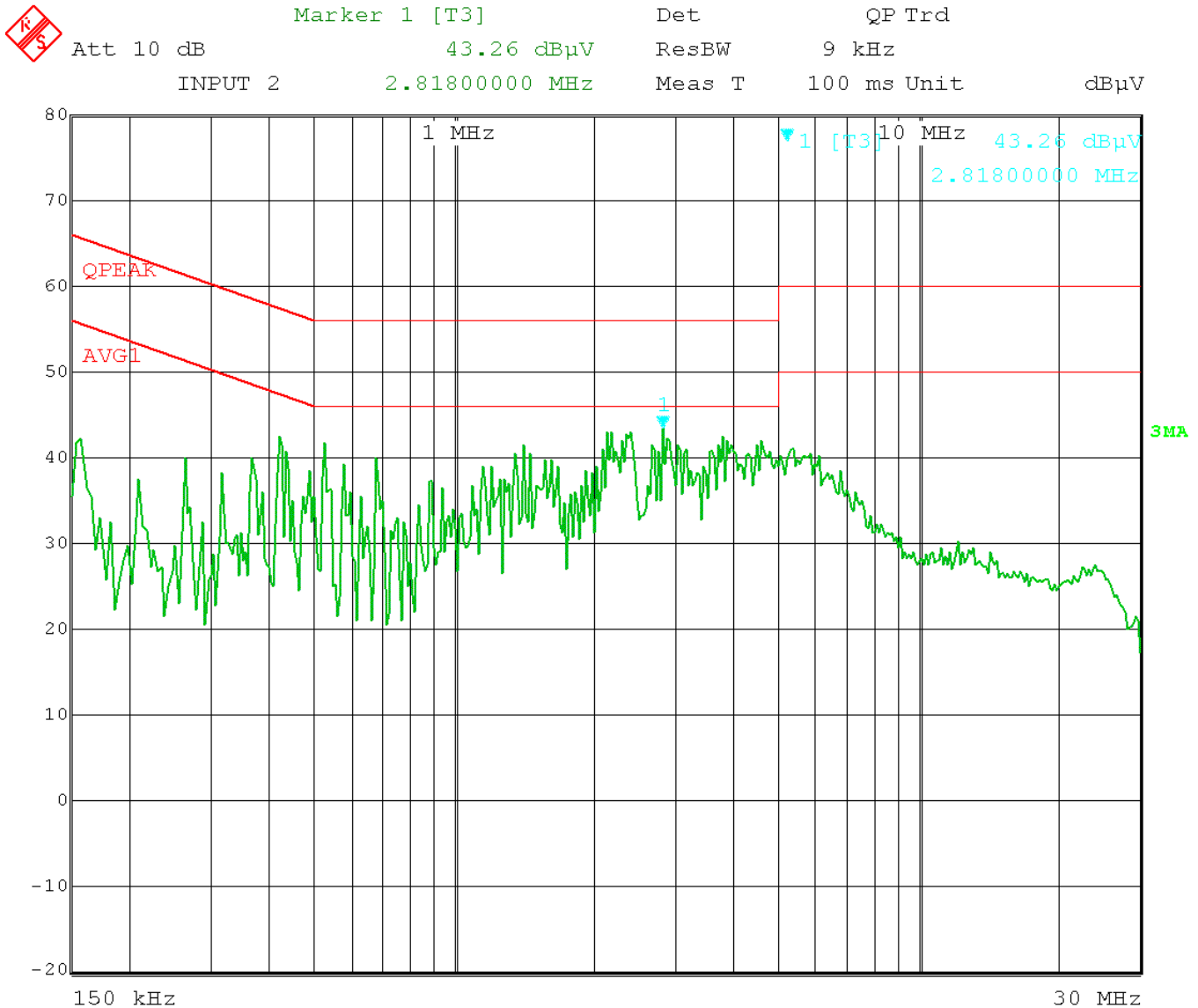
Requirements:

Frequency (MHz)	Quasi Peak Limits (dBuV)	Average Limits (dBuV)
0.15 – 0.5	66 – 56 *	56 – 46 *
0.5 – 5.0	56	46
5.0 – 30	60	50
* Decrease with logarithm of frequency		

Test Data: The following plots represent the emissions read for power line conducted. Both lines were observed.

APPLICANT: MOTOROLA, INC.
MODEL: H76XAH6JR4AN
FCC ID: IHDP56LN1, IC: 1090-P56LN1
REPORT: Z:\M\MOTOROLA IL AB\1301DT10\1301DT10TestReport.doc

POWERLINE CONDUCTED PLOT – LINE 1



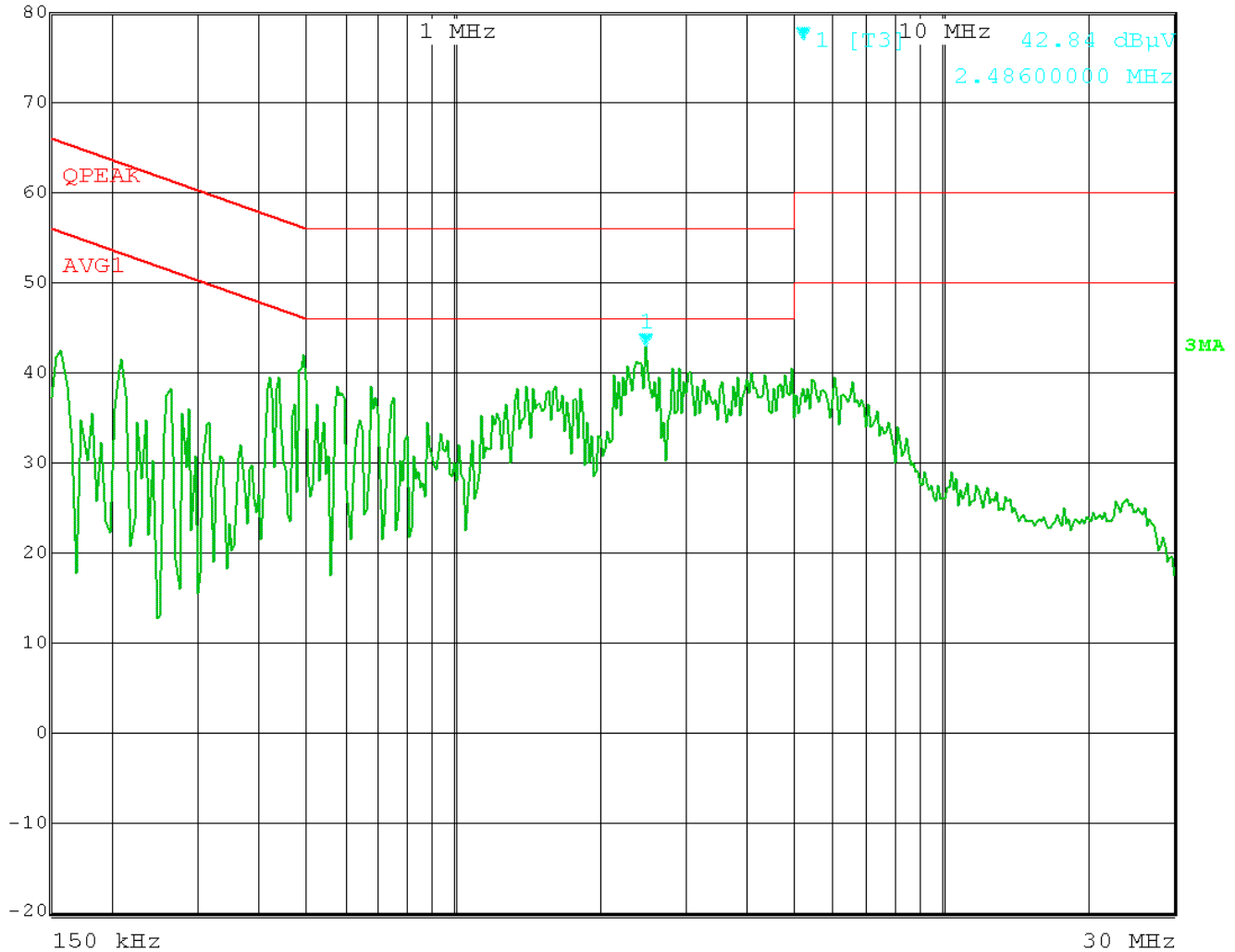
Date: 25.JUN.2010 13:35:13

APPLICANT: MOTOROLA, INC.
 MODEL: H76XAH6JR4AN
 FCC ID: IHDP56LN1, IC: 1090-P56LN1
 REPORT: Z:\M\MOTOROLA IL AB\1301DT10\1301DT10TestReport.doc

POWERLINE CONDUCTED PLOT – LINE 2



Att 10 dB Marker 1 [T3] Det QP Trd
 42.84 dBμV ResBW 9 kHz
 INPUT 2 2.48600000 MHz Meas T 100 ms Unit dBμV



Date: 25.JUN.2010 13:33:25

APPLICANT: MOTOROLA, INC.
 MODEL: H76XAH6JR4AN
 FCC ID: IHDP56LN1, IC: 1090-P56LN1
 REPORT: Z:\M\MOTOROLA IL AB\1301DT10\1301DT10TestReport.doc