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## FCC PART 15 B SUBPART B RECEIVER TEST REPORT

Applicant	Harris Corp.	
Address	1025 West NASA Boulevard Melbourne FL 32919-0001 USA	
Model Number	NK73166210	
<b>DUT Description</b>	NK73166210 WITH 300KGXW & 1M25F9W	
Date Sample Received	12/23/2009	
Date Tested	1/11/2010	
Tested By	Nam Nguyen	
Approved By	Mario R. de Aranzeta	
Report Number	3127CUT9TestReport.doc	
Test Results	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL

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



Certificate # 0955-01

APPLICANT: Harris Corp.  
MODEL: NK73166210  
REPORT: H\Harris\3127CUT9\3127CUT9TestReport.doc

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## **GENERAL REMARKS**

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

The test results relate only to the items tested.

### **Summary**

The device under test does:

fulfill the general approval requirements as identified in this test report  
 not fulfill the general approval requirements as identified in this test report

### **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:** **3/18/10**

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## REPORT SUMMARY

Disclaimer	The test results only relate to the item tested.
Applicable Rule(s)	Pt 15.109, Pt 15.107, ANSI C63.4: 2003

## TEST ENVIRONMENT

Test Facility	Timco Engineering, Inc. 849 NW State Road 45 Newberry, FL 32669 USA.
Test Condition in the laboratory	Temperature: 26°C Relative humidity: 50%

## TEST SETUP SUMMARY

Test Setup Diagram/ Description	The DUT was placed on the turntable per setup per ANSI C63.4: 2003. A test set up photo is provided for clarification.
Deviation from the standard/procedure	No deviation
Modification of DUT	No modification

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**DUT SPECIFICATION**

<b>DUT Description</b>	NK73166210 WITH 300KGXW & 1M25F9W	
<b>Model Number</b>	NK73166210	
<b>DUT Power Source</b>	<input checked="" type="checkbox"/> 110-120Vac/50- 60Hz	
	<input type="checkbox"/> DC Power	
	<input type="checkbox"/> Battery Operated Exclusively	
<b>Test Item</b>	<input type="checkbox"/> Prototype	
	<input checked="" type="checkbox"/> Pre-Production	
	<input type="checkbox"/> Production	
<b>Type of Equipment</b>	<input checked="" type="checkbox"/> Fixed	
	<input type="checkbox"/> Mobile	
	<input type="checkbox"/> Portable	
<b>Laboratory Test Conditions</b>	Temperature: 26°C Humidity: 55%	
<b>Modifications to DUT:</b>	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes (explanation below)

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## **DUT EXTERNAL PHOTOS**

APPLICANT: Harris Corp.  
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**TEST EQUIPMENT LIST**

<b>Device</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial Number</b>	<b>Cal/Char Date</b>	<b>Due Date</b>
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	Listed 5/11/07	5/10/10
AC Voltmeter	HP	400FL	2213A14499	CAL 3/23/09	3/23/11
Antenna: Dipole Kit	Electro-Metrics	TDA-30/1-4	153	CHAR 6/10/09	6/10/11
Frequency Counter	HP	5385A	3242A07460	CAL 5/26/09	5/26/11
Hygro-Thermometer	Extech	445703	0602	CAL 1/30/09	1/30/11
Modulation Analyzer	HP	8901A	3435A06868	CAL 5/26/09	5/26/11
Digital Multimeter	Fluke	FLUKE-77-3	79510405	CAL 5/18/09	5/18/11
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 4/25/08	4/25/10

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## TEST PROCEDURES

**Power line conducted Emission:** The test procedure used was ANSI C63.4-2003. The spectrum was scanned from 0.15 to 30 MHz.

**Radiation Interference:** The test procedure used was ANSI C63.4-2003 using a spectrum analyzer with a preselector. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The video bandwidth was always greater than or equal to the RBW.

The frequency was scanned from 30 MHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The DUT was measured in three (3) orthogonal planes when necessary.

**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 dB $\mu$ V) 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:**

$$\begin{array}{lllll}
 \text{Freq (MHz)} & \text{Meter Reading} & + \text{ACF} & + \text{CL} & = \text{FS} \\
 33 & 20 \text{ dB}\mu\text{V} & + 10.36 \text{ dB/m} & + 0.40 \text{ dB} & = 30.36 \text{ dB}\mu\text{V/m} @ 3\text{m}
 \end{array}$$

**ANSI C63.4-2003 Measurement Procedures:** The unit under test was placed on a table 80 cm high and with dimensions of 1m by 1.5m. 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 verticals planes.

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## RADIATED SPURIOUS EMISSIONS

**Rules Part No.:** 15.109

**Requirements:**

Frequency MHz	Limits
30 – 88	40.0 dB $\mu$ V/m measured @ 3 meters
88 – 216	43.5 dB $\mu$ V/m measured @ 3 meters
216 – 960	46.0 dB $\mu$ V/m measured @ 3 meters
Above 960	54.0 dB $\mu$ V/m measured @ 3 meters

**Test Data:**

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
836.5	836.5	7.5	V	1.92	21.53	30.95	15.05
836.5	836.5	8.3	H	1.92	22.36	32.58	13.42
836.5	1,673.00	10.9	H	2.64	29.11	42.65	11.35
836.5	1,673.00	11.2	V	2.64	29.11	42.95	11.05
836.5	2,509.50	7.3	H	3.26	32.5	43.06	10.94
836.5	2,509.50	7.6	V	3.26	32.5	43.36	10.64
836.5	3,346.00	6.5	H	3.91	32.74	43.15	10.85
836.5	3,346.00	8.2	V	3.91	32.74	44.85	9.15
836.5	4,182.50	6.9	H	4.59	33.78	45.27	8.73
836.5	4,182.50	7.2	V	4.59	33.78	45.57	8.43
1,732.50	1,732.50	10.5	H	2.69	29.49	42.68	11.32
1,732.50	1,732.50	11.4	V	2.69	29.49	43.58	10.42
1,732.50	3,465.00	9.1	V	4.02	32.79	45.91	8.09
1,732.50	3,465.00	9.8	H	4.02	32.79	46.61	7.39
1,732.50	5,197.50	6.9	H	5.06	34.34	46.3	7.7
1,732.50	5,197.50	7.5	V	5.06	34.34	46.9	7.1
1,732.50	6,930.00	6.5	H	5.58	35.97	48.05	5.95
1,732.50	6,930.00	7.9	V	5.58	35.97	49.45	4.55
1,732.50	8,662.50	5.4	V	6.47	36.1	47.97	6.04
1,732.50	8,662.50	5.8	H	6.47	36.1	48.37	5.64

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**TEST DATA CONTD.**

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
1,880.00	1,880.00	8.6	H	2.8	30.43	41.83	12.17
1,880.00	1,880.00	9.3	V	2.8	30.43	42.53	11.47
1,880.00	3,760.00	9	H	4.28	33.22	46.5	7.5
1,880.00	3,760.00	9.4	V	4.28	33.22	46.9	7.1
1,880.00	5,640.00	7.2	V	5.19	34.9	47.29	6.71
1,880.00	5,640.00	7.8	H	5.19	34.9	47.89	6.11
1,880.00	7,520.00	7.9	V	5.91	36.1	49.91	4.09
1,880.00	7,520.00	8.4	H	5.91	36.1	50.41	3.59
1,880.00	9,400.00	7.8	V	6.72	36.54	51.06	2.94
1,880.00	9,400.00	9.1	H	6.72	36.54	52.36	1.64

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## POWER LINE CONDUCTED INTERFERENCE

**Rules Part No.:** Part 15.107

**Requirements:**

Frequency (MHz)	Quasi Peak Limits (dB $\mu$ V)	Average Limits (dB $\mu$ V)
0.15 – 0.5	66 – 56 *	56 – 46 *
0.5 – 5.0	56	46
5.0 – 30	60	50

\* Decrease with logarithm of frequency

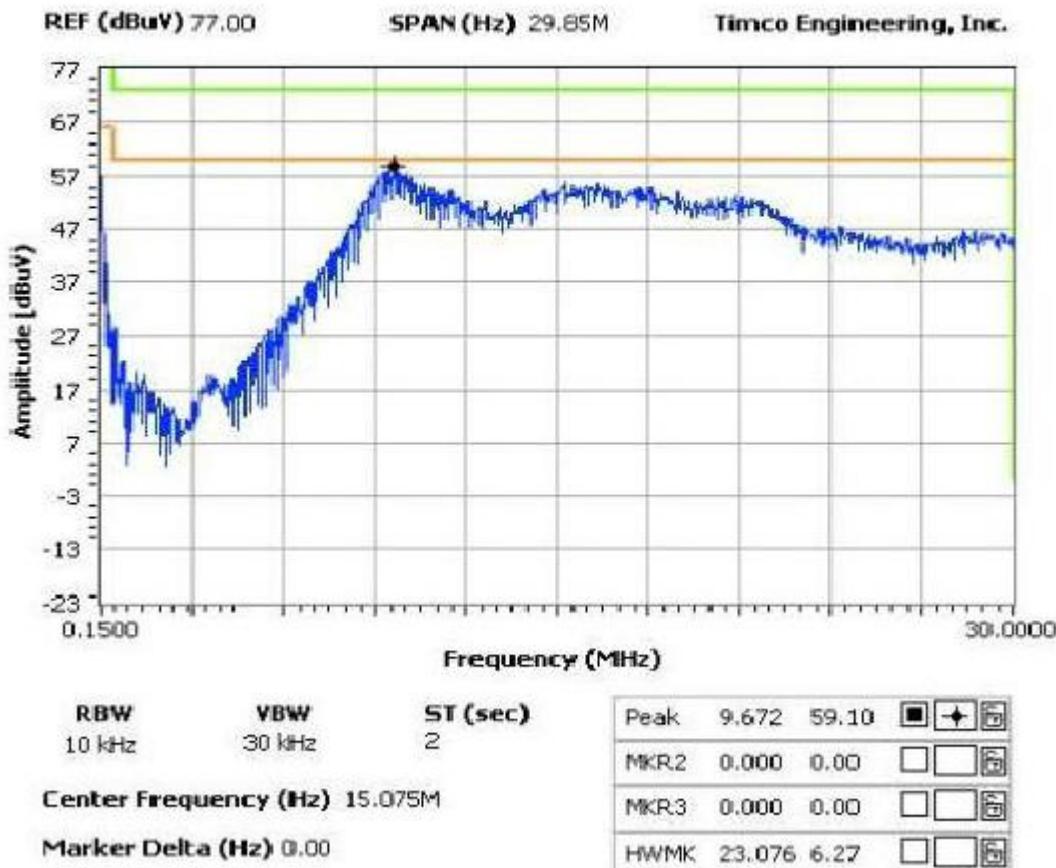
**Test Data:** The following plots represent the emissions for power line conducted. Both lines were observed.

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## POWERLINE CONDUCTED EMISSIONS – LINE 1

**NOTES:**

 Harris Corp.  
 POWER LINE CONDUCTED PLOT - LINE 1

**FCC 15.107 Mask Class A**


APPLICANT: Harris Corp.

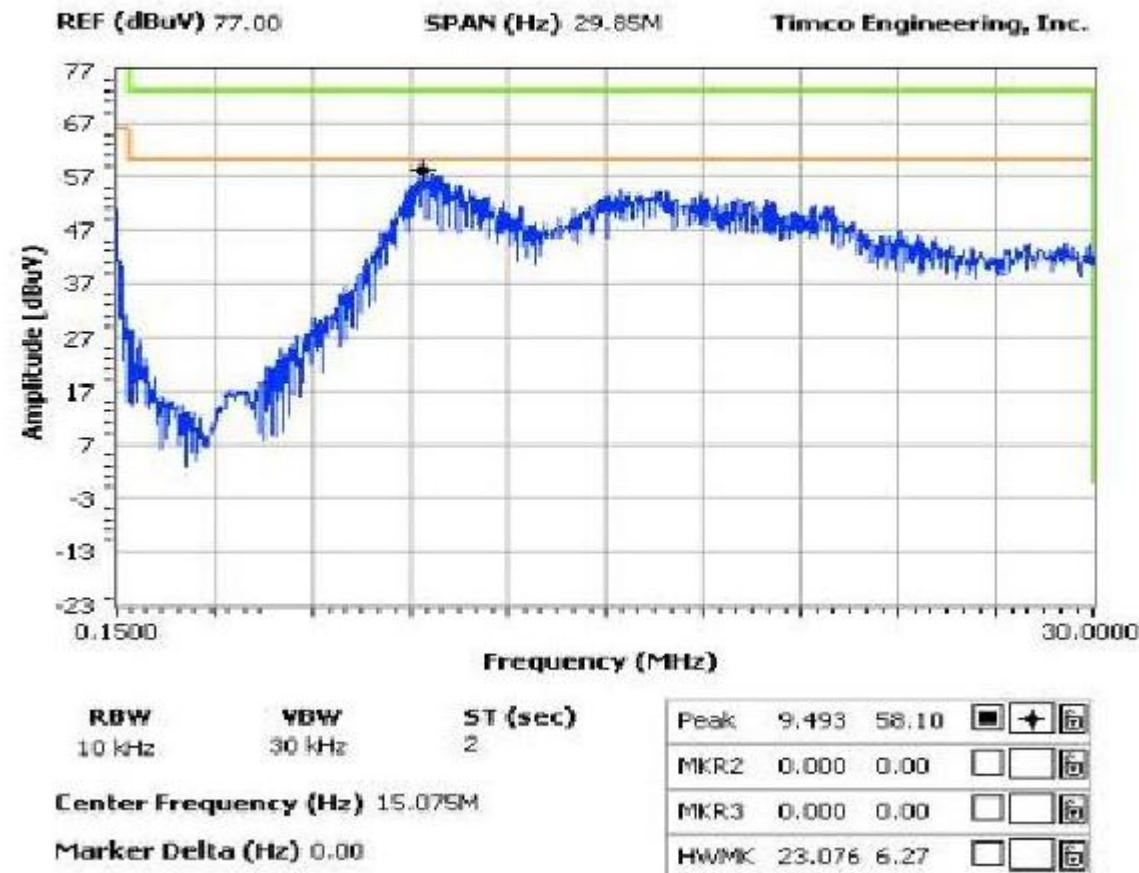
MODEL: NK73166210

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## POWERLINE CONDUCTED EMISSIONS – LINE 2

**NOTES:**

 Harris Corp.  
 POWER LINE CONDUCTED PLOT - LINE 2

**FCC 15.107 Mask Class A**


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## **RADIATED EMISSIONS TEST SETUP PHOTO**

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## **POWERLINE CONDUCTED EMISSIONS TEST SET UP PHOTO**

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