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## FCC PART 15 B TEST REPORT

|                             |                                                                        |
|-----------------------------|------------------------------------------------------------------------|
| <b>Applicant</b>            | Harris Corporation                                                     |
| <b>Address</b>              | 1025 West NASA Boulevard<br>Melbourne FL 32919-0001 USA                |
| <b>Model Number</b>         | NK73092523                                                             |
| <b>Product Description</b>  | NK73092523 with 300KGXW & 1M25F9W                                      |
| <b>Date Sample Received</b> | 10/16/2009                                                             |
| <b>Date Tested</b>          | 10/26/2009                                                             |
| <b>Tested By</b>            | Nam Nguyen                                                             |
| <b>Approved By</b>          | Mario de Aranzeta                                                      |
| <b>Report Number</b>        | 2510BUT9TestReport.doc                                                 |
| <b>Test Results</b>         | <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.**



Testing Certificate # 0955-01

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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 only relate to the item 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 17025:2005 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:** 11/26/2009

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## REPORT SUMMARY

|                    |                                        |
|--------------------|----------------------------------------|
| 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<br>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                                                                                                        |

## DUT SPECIFICATION

|                                   |                                                                                         |  |
|-----------------------------------|-----------------------------------------------------------------------------------------|--|
| <b>DUT Description</b>            | NK73092523 WITH 300KGXW & 1M25F9W                                                       |  |
| <b>Model Number</b>               | NK73092523                                                                              |  |
| <b>DUT Power Source</b>           | <input checked="" type="checkbox"/> 110-120Vac/50- 60Hz                                 |  |
|                                   | <input checked="" 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<br>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**

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## TEST EQUIPMENT LIST

| Device                                       | Manufacturer                  | Model            | Serial Number             | Cal/Char Date  | Due Date |
|----------------------------------------------|-------------------------------|------------------|---------------------------|----------------|----------|
| 3/10-Meter OATS                              | TEI                           | N/A              | N/A                       | Listed 3/20/07 | 3/19/10  |
| 3-Meter OATS                                 | TEI                           | N/A              | N/A                       | Listed 2/5/09  | 2/5/12   |
| 3-Meter Semi-Anechoic Chamber                | Panashield                    | N/A              | N/A                       | Listed 5/11/07 | 5/10/10  |
| Analyzer Open-Frame Tower Preamplifier       | HP                            | 8449B            | 3008A01075                | CAL 7/22/09    | 7/22/11  |
| Analyzer Open-Frame Tower Quasi-Peak Adapter | HP                            | 85650A           | 2043A00305                | CAL 10/26/09   | 10/26/11 |
| Analyzer Open-Frame Tower RF Preselector     | HP                            | 85685A           | 3107A01282                | CAL 7/22/09    | 7/22/11  |
| Analyzer Open-Frame Tower Spectrum Analyzer  | HP                            | 8566B/<br>85662A | 2627A03154/<br>2648A14276 | CAL 7/22/09    | 7/22/11  |
| Antenna: Biconnical                          | Eaton                         | 94455-1          | 1057                      | CAL 1/15/08    | 1/15/10  |
| Antenna: Log-Periodic                        | Electro-Metrics               | LPA-25           | 1122                      | CAL 12/15/08   | 12/15/10 |
| Power Line Coupling/Decoupling Network       | Fischer Custom Communications | FCC-801-M2-16A   | 01048                     | CHAR 11/25/08  | 11/25/10 |
| Power Line Coupling/Decoupling Network       | Fischer Custom Communications | FCC-801-M3-16A   | 01060                     | CHAR 11/25/08  | 11/25/10 |

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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 preselector. The resolution bandwidth used 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 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 vertical planes. The frequency was scanned from 30 MHz to 1.0 GHz.. 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 dBμV) 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 dBμV       | + 10.36 dB/m | +0.40 dB | =30.36 dBμV/m @ 3m |

## 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:

| Emission Frequency MHz | Meter Reading dB $\mu$ V | Ant. Pol | Coax Loss dB | Correction Factor dB | Field Strength dB $\mu$ V/m | Margin dB |
|------------------------|--------------------------|----------|--------------|----------------------|-----------------------------|-----------|
| 37.50                  | 22.4                     | V        | 0.44         | 12.55                | 35.39                       | 4.61      |
| 65.40                  | 19.9                     | H        | 0.55         | 5.67                 | 26.12                       | 13.88     |
| 65.40                  | 24.0                     | V        | 0.55         | 5.88                 | 30.43                       | 9.57      |
| 76.80                  | 26.6                     | V        | 0.59         | 7.71                 | 34.90                       | 5.10      |
| 81.30                  | 28.7                     | V        | 0.60         | 9.19                 | 38.49                       | 1.51      |
| 83.40                  | 20.7                     | H        | 0.61         | 9.18                 | 30.49                       | 9.51      |
| 101.70                 | 30.5                     | V        | 0.65         | 11.43                | 42.58                       | 0.92      |
| 102.30                 | 26.0                     | H        | 0.65         | 10.61                | 37.26                       | 6.24      |
| 109.20                 | 23.7                     | H        | 0.66         | 10.33                | 34.69                       | 8.81      |
| 113.10                 | 23.3                     | V        | 0.66         | 10.88                | 34.84                       | 8.66      |
| 135.10                 | 18.3                     | H        | 0.69         | 14.22                | 33.21                       | 10.29     |
| 163.10                 | 12.4                     | H        | 0.75         | 16.28                | 29.43                       | 14.07     |
| 176.20                 | 11.7                     | H        | 0.80         | 14.31                | 26.81                       | 16.69     |

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**TEST DATA CONTD.**

| Emission Frequency MHz | Meter Reading dBμV | Ant. Pol | Coax Loss dB | Correction Factor dB | Field Strength dBμV/m | Margin dB |
|------------------------|--------------------|----------|--------------|----------------------|-----------------------|-----------|
| 183.20                 | 11.4               | H        | 0.83         | 13.44                | 25.67                 | 17.83     |
| 228.10                 | 18.0               | H        | 0.96         | 11.50                | 30.46                 | 15.54     |
| 240.00                 | 13.1               | H        | 0.98         | 12.00                | 26.08                 | 19.92     |
| 249.10                 | 13.0               | V        | 1.00         | 12.45                | 26.45                 | 19.55     |
| 250.00                 | 16.3               | H        | 1.00         | 12.50                | 29.80                 | 16.20     |
| 349.60                 | 7.1                | H        | 1.15         | 14.99                | 23.24                 | 22.76     |
| 349.70                 | 10.7               | V        | 1.15         | 14.60                | 26.45                 | 19.55     |
| 450.00                 | 7.8                | V        | 1.25         | 16.60                | 25.65                 | 20.35     |
| 647.20                 | 9.9                | H        | 1.65         | 20.12                | 31.67                 | 14.33     |
| 700.00                 | 15.0               | H        | 1.70         | 21.00                | 37.70                 | 8.30      |
| 700.00                 | 15.3               | V        | 1.70         | 20.60                | 37.60                 | 8.40      |
| 710.10                 | 14.8               | V        | 1.72         | 20.50                | 37.02                 | 8.98      |
| 715.00                 | 16.5               | H        | 1.73         | 21.15                | 39.38                 | 6.62      |
| 715.00                 | 17.1               | V        | 1.73         | 20.55                | 39.38                 | 6.62      |
| 720.00                 | 14.7               | H        | 1.74         | 21.30                | 37.74                 | 8.26      |
| 720.00                 | 15.8               | V        | 1.74         | 20.60                | 38.14                 | 7.86      |
| 1,054.00               | 10.1               | H        | 2.14         | 27.64                | 39.88                 | 14.12     |
| 1,247.00               | 12.1               | V        | 2.30         | 27.80                | 42.20                 | 11.80     |
| 1,418.00               | 20.4               | V        | 2.43         | 27.93                | 50.76                 | 3.24      |

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## POWER LINE CONDUCTED INTERFERENCE

**Rules Part No.:** Part 15.107

**Requirements:**

| Frequency<br>(MHz)                     | Quasi Peak Limits<br>(dB $\mu$ V) | Average Limits<br>(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 read for power line conducted. Both lines were observed.

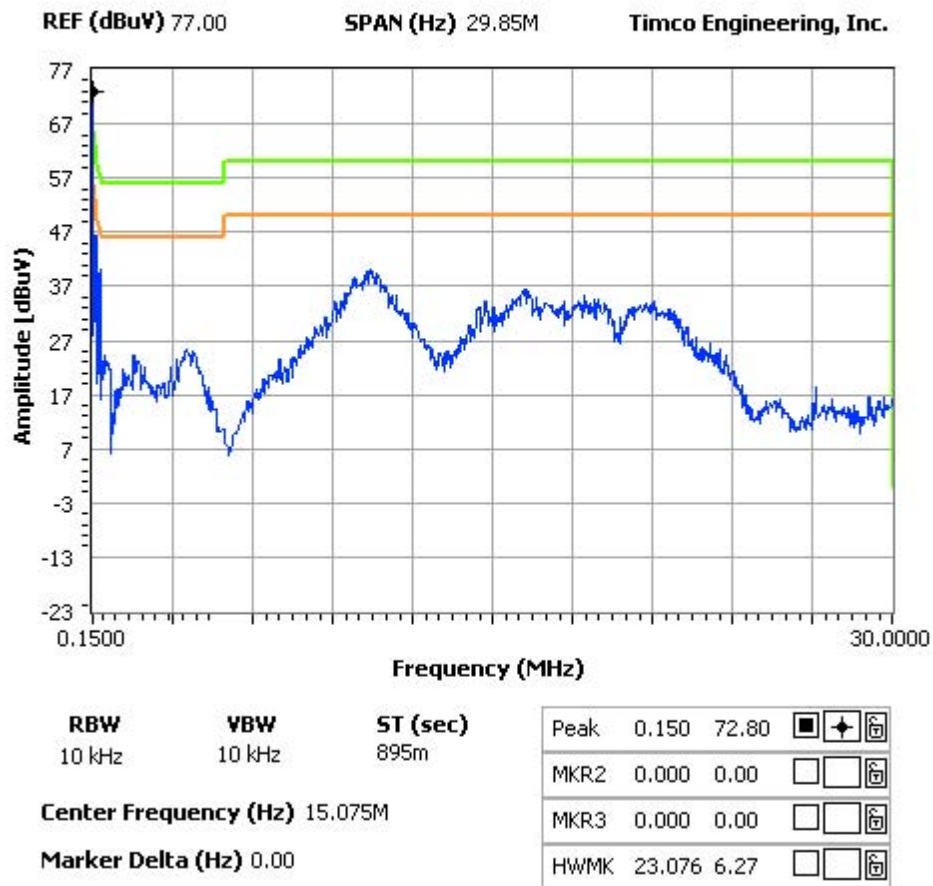
NK73092523  
ONLY WITHOUT THE 2100 MHz CONVERTER BOX:

## POWERLINE CONDUCTED EMISSIONS – LINE 1

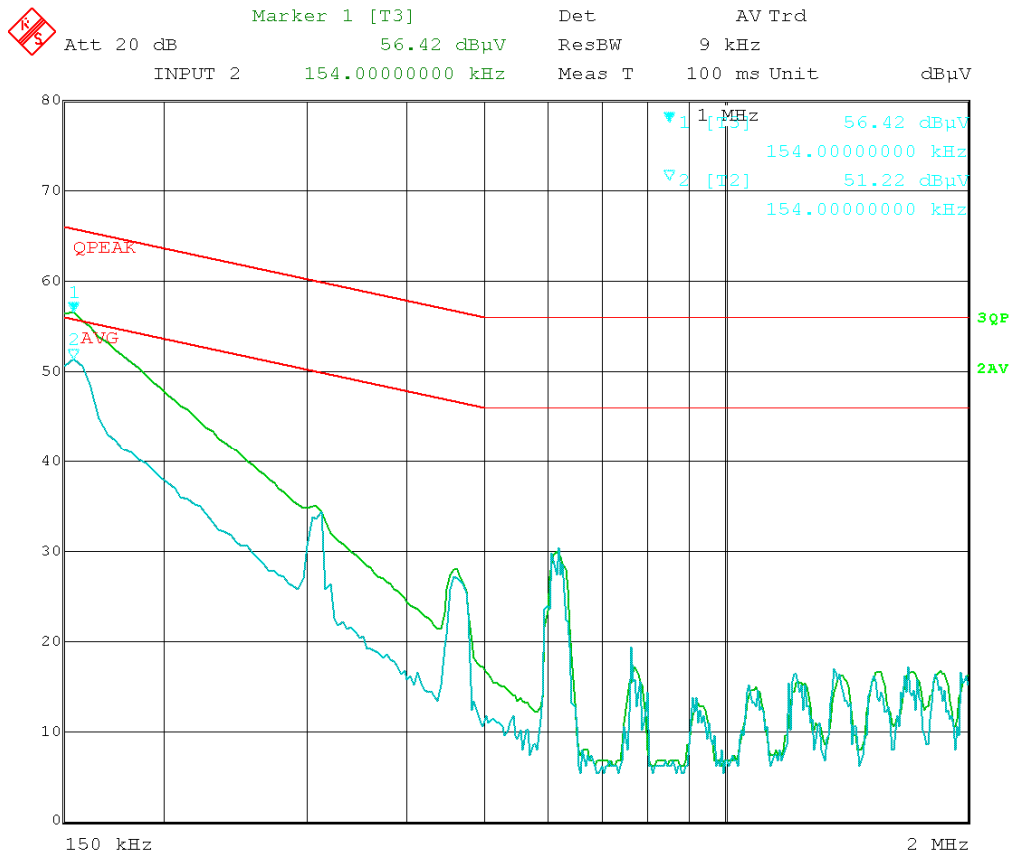
### NOTES:

Harris Corp.  
Model number: Power line conducted plot - Line 1

### FCC 15.107 Mask Class B



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Date: 13.NOV.2009 10:38:27

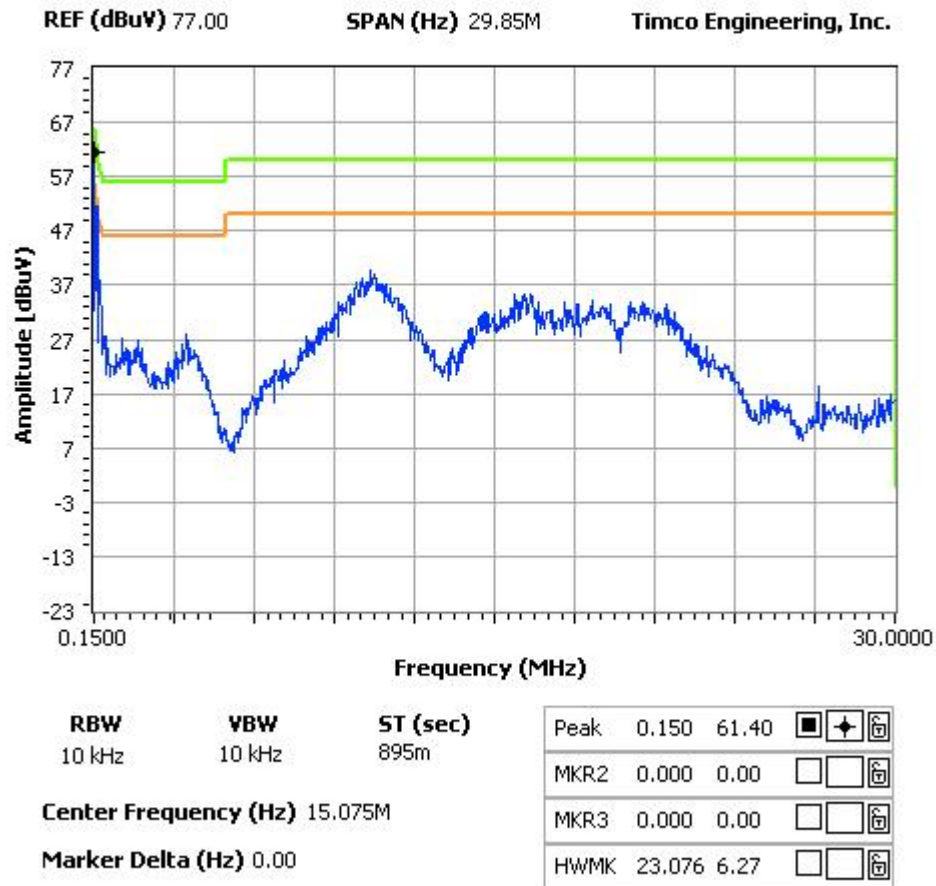
APPLICANT: Harris Corp.  
 MODEL: NK73092523  
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## POWERLINE CONDUCTED EMISSIONS – LINE 2

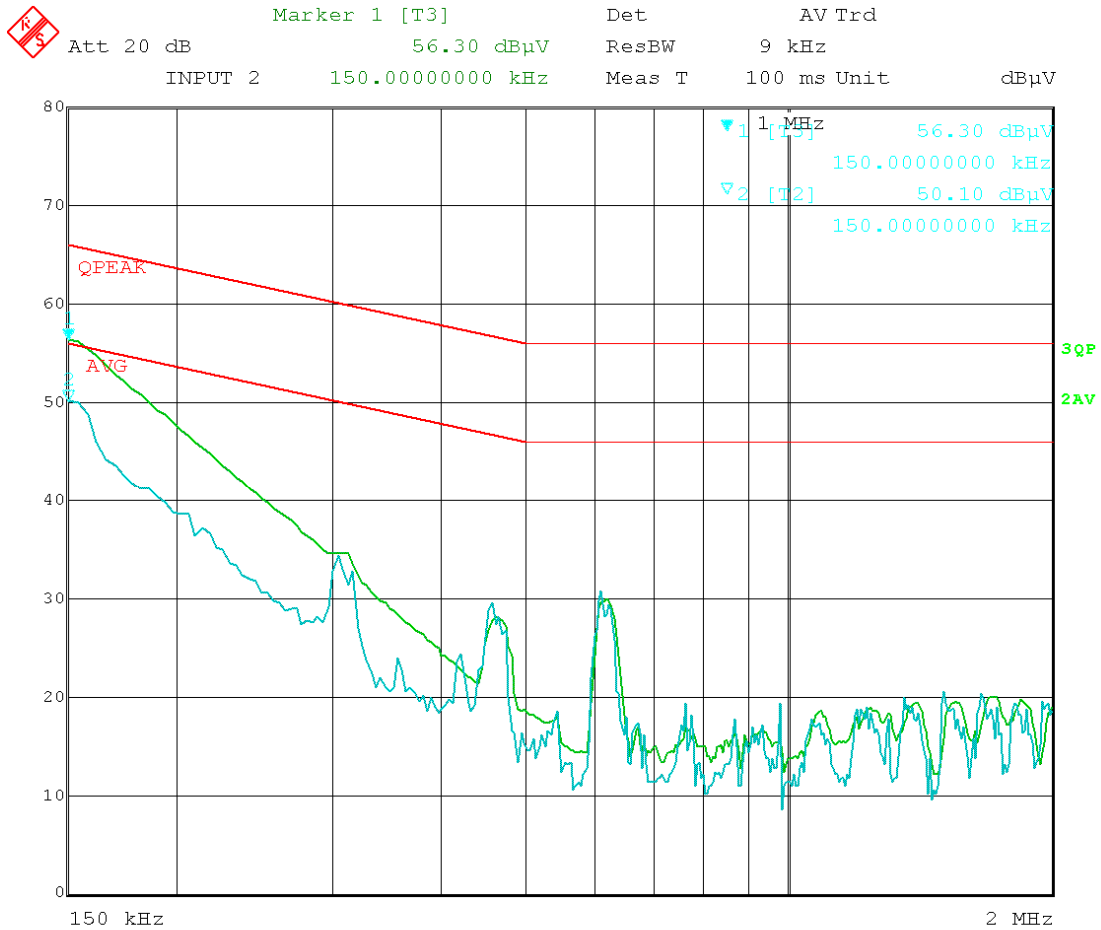
### NOTES:

Harris Corp.  
Model number: Power line conducted plot - Line 2

### FCC 15.107 Mask Class B



APPLICANT: Harris Corp.  
MODEL: NK73092523  
REPORT: H\Harris\2510BUT9\2510BUT9TestReport.doc



Date: 13.NOV.2009 11:07:30

APPLICANT: Harris Corp.  
 MODEL: NK73092523  
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**NOTES:**

Harris Corp.

Model number:

Power line conducted plot - With converter - Line 1

**FCC 15.107 Mask Class B**



APPLICANT: Harris Corp.

MODEL: NK73092523

REPORT: H\Harris\2510BUT9\2510BUT9TestReport.doc

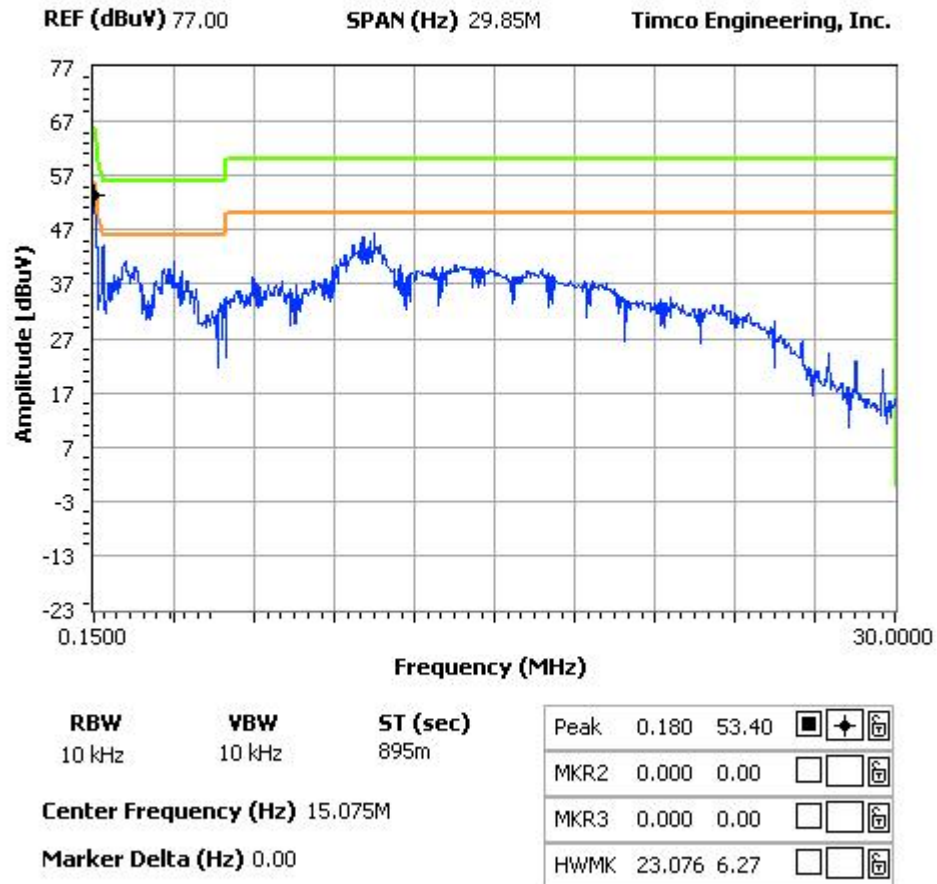
**NOTES:**

Harris Corp.

Model number:

Power line conducted plot - With converter - Line 2

**FCC 15.107 Mask Class B**



APPLICANT: Harris Corp.

MODEL: NK73092523

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## **RADIATED EMISSIONS TEST SETUP PHOTOS**

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**WITH 2100 MHz CONVERTER BOX:**

APPLICANT: Harris Corp.  
MODEL: NK73092523  
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## **POWERLINE CONDUCTED EMISSIONS TEST SET UP PHOTOS**

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**WITH 2100 MHz CONVERTER BOX:**

APPLICANT: Harris Corp  
MODEL: NK73092523  
REPORT: H\Harris\2510BUT9\2510BUT9TestReport.doc