KLA-Tencor

ADDENDUM TO TEST REPORT 92849-7

Integral Carrier
Model: Carrier System 300

Tested To The Following Standards:

FCC Part 15 Subpart C Sections 15.207 & 15.209
and
RSS-210 Issue 8

Report No.: 92849-7A

Date of issue: October 17, 2013

ACCREDITED
Testing Certificates:
803.01, 803.02, 803.05, 803.06

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

Testing the Future
CKC LABORATORIES, INC.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

KLA-Tencor
SensArray Division
One Technology Drive
Milpitas, CA 95035

Representative: David Elmore
Customer Reference Number: 20474736

REPORT PREPARED BY:

Morgan Tramontin / Dianne Dudley
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 92849

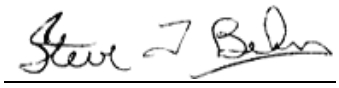
DATE OF EQUIPMENT RECEIPT: September 13, 2013
DATE(S) OF TESTING: May 7, 2012 – October 11, 2013

Revision History

Original: Testing of the Integral Carrier, Carrier System 300 to FCC Part 15 Subpart C Sections 15.207, 15.209 and RSS 210 Issue 8.
Addendum A: In the original report portions of the transmitter were not tested. All data has been replaced with new testing.

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information

Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
1120 Fulton Place
Fremont, CA 94539

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Fremont	US0082	SL2-IN-E-1148R	3082B-1	958979	R-2160 C-2332 T-228 G-522

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C 15.207 & 15.209 / RSS-210 Issue 8

Description	Test Procedure/Method	Results
Voltage Variation	FCC Part 15 Subpart C Section 15.31(e)	Pass
Conducted Emissions	FCC Part 15 Subpart C Section 15.207 / ANSI C63.4 (2003)	Pass
Radiated Emissions	FCC Part 15 Subpart C Section 15.209/ ANSI C63.4 (2003)	Pass
RF Out Power	FCC Part 15 Subpart C Section 2.1046	Pass
-20dB Bandwidth	FCC Part 15 Subpart C	Pass
RSS-210 99% Bandwidth	FCC Part 15 Subpart C / RSS-210 /RSS-GEN	Pass

Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions
Modifications to Carrier System 300 in order to pass in communications mode: Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

Integral Carrier
Manuf: KLA-Tencor
Model: Carrier System 300
Serial: SA-02775

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

Laptop
Manuf: Dell
Model: Latitude 5420
Serial: J4GN4S1

Power Supply (for laptop)
Manuf: Dell
Model: AA90PM111
Serial: None

Wafer
Manuf: KLA-Tencor
Model: type: 3440D-12-8004
Serial: D42742

FCC PART 15 SUBPART C

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) 47 CFR 15C requirements for Unlicensed Radio Frequency Devices, Subpart C - Intentional Radiators.

15.31(e) Voltage Variations

Test Conditions / Setup

Test Location: CKC Laboratories • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **KLA-Tencor**
Specification: **15.31e**
Work Order #: **92849** Date: 9/13/2013
Test Type: **Maximized Emissions** Time: 11:27:50
Equipment: **Integral Carrier** Sequence#: 41
Manufacturer: KLA-Tencor Tested By: Hieu Song Nguyenpham
Model: Carrier System 300
S/N: SA-02775

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Integral Carrier*	KLA-Tencor	Carrier System 300	SA-02775

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5420	J4GN4S1
Power Supply (for laptop)	Dell	AA90PM111	None
Wafer	KLA-Tencor	type: 3440D-12-8004	D42742

Test Conditions / Notes:

15.31e
Highest Clock: 25MHz
Software: Wafer EMC Exerciser-1.0.4
Firmware: 2.1.115
Temperature: 22.3°C
Humidity: 45%
Atmospheric Pressure: 101.0kPa

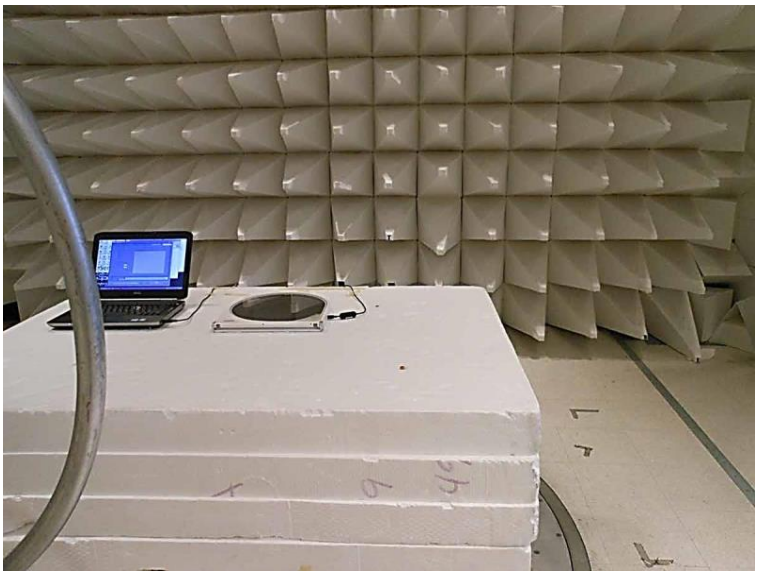
RF Power output= 10% of the maximum power of a coil
Transmit operating frequency =1.9MHz

The EUT in an Integral Carrier System. Its purpose is to provide interface from a wafer to a PC. Laptop is in the chamber at the back edge of the test table and connected to the EUT. The Laptop is connected to the EUT with a USB cable and running Wafer EMC Exerciser - 1.0.4,
Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.

Notes: Communications Mode

15.31(e): The supply voltage was varied between 85% and 115% of the nominal rated supply voltage (102V, 138V); no change in the fundamental signal level was observed.

Test Setup Photos



Front Side

Back Side

15.207 AC Conducted Emissions

Test Data Sheets

Test Location: CKC Laboratories • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **KLA-Tencor**
Specification: **15.207 AC Mains - Average**
Work Order #: **92849** Date: 9/13/2013
Test Type: **Conducted Emissions** Time: 11:54:18
Equipment: **Integral Carrier** Sequence#: 42
Manufacturer: KLA-Tencor Tested By: Hieu Song Nguyenpham
Model: Carrier System 300 120V 60Hz
S/N: SA-02775

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	PE7002-10	4/2/2013	4/2/2015
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
T4	AN00493	50uH LISN-L1 (L) Loss W/O European Adapter	3816/NM	3/4/2013	3/4/2015
	AN00493	50uH LISN-L(2) N Loss W/O European Adapter	3816/NM	3/4/2013	3/4/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T5	ANP05258	High Pass Filter	HE9615-150K-50-720B	12/6/2012	12/6/2014

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Integral Carrier*	KLA-Tencor	Carrier System 300	SA-02775

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5420	J4GN4S1
Power Supply (for laptop)	Dell	AA90PM111	None
Wafer	KLA-Tencor	type: 3440D-12-8004	D42742

Test Conditions / Notes:

Conducted Emission
Frequency Range: 150kHz to 30MHz

Highest Clock: 25MHz
Software: Wafer EMC Exerciser-1.0.4
Firmware: 2.1.115
Temperature: 22.3°C
Humidity: 45%
Atmospheric Pressure: 101.0kPa

RF Power output= 10% of the maximum power of a coil
Transmit operating frequency =1.9MHz

The EUT in an Integral Carrier System. Its purpose is to provide interface from a wafer to a PC. Laptop is in the chamber at the back edge of the test table and connected to the EUT. The Laptop is connected to the EUT with a USB cable and running Wafer EMC Exerciser - 1.0.4,
Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.

Notes:
Communications Mode

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	2.940M	31.1	+9.6 +0.1	+0.2	+0.0	+0.1	+0.0	41.1	46.0	-4.9	Black
2	243.810k	36.9	+9.6 +0.2	+0.1	+0.0	+0.1	+0.0	46.9	52.0	-5.1	Black
3	2.702M	30.0	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	39.9	46.0	-6.1	Black
4	2.621M	29.8	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	39.7	46.0	-6.3	Black
5	3.280M	29.6	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	39.7	46.0	-6.3	Black
6	2.604M	29.6	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	39.5	46.0	-6.5	Black
7	2.587M	29.5	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	39.4	46.0	-6.6	Black
8	2.872M	29.4	+9.6 +0.1	+0.2	+0.0	+0.1	+0.0	39.4	46.0	-6.6	Black
9	3.340M	29.2	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	39.3	46.0	-6.7	Black
10	3.391M	29.0	+9.5 +0.1	+0.2	+0.1	+0.1	+0.0	39.0	46.0	-7.0	Black
11	2.765M	28.8	+9.6 +0.1	+0.2	+0.0	+0.1	+0.0	38.8	46.0	-7.2	Black
12	3.080M	28.8	+9.6 +0.1	+0.2	+0.0	+0.1	+0.0	38.8	46.0	-7.2	Black

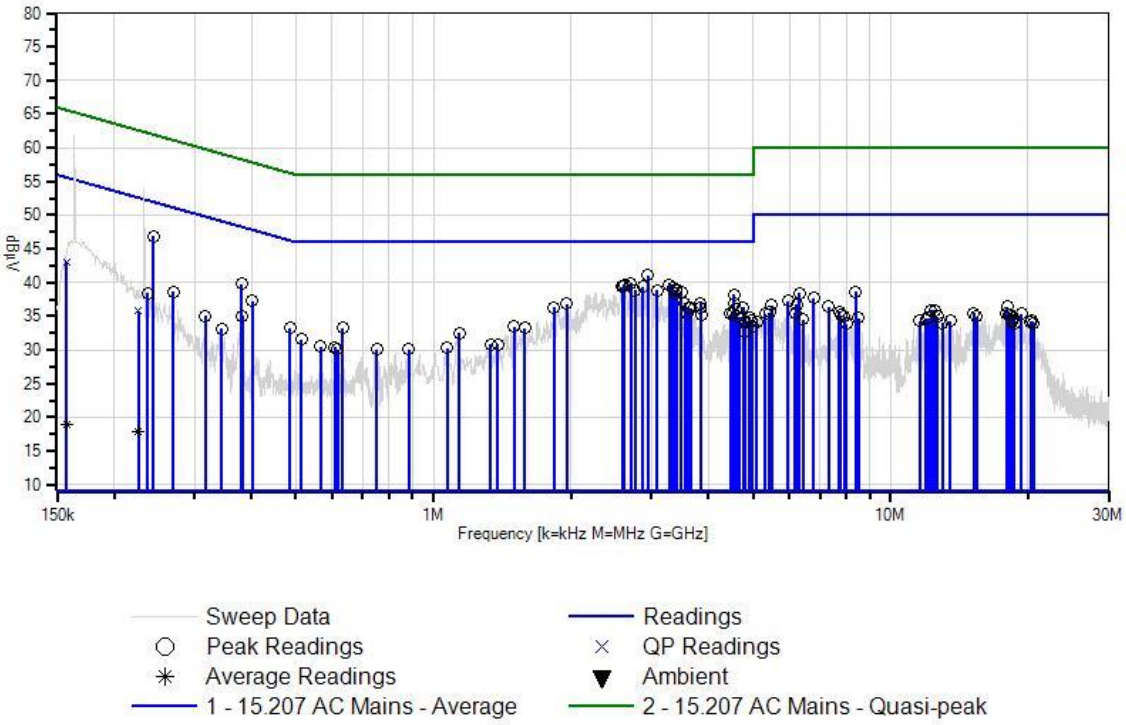
13	3.399M	28.7	+9.5 +0.1	+0.2	+0.1	+0.1	+0.0	38.7	46.0	-7.3	Black
14	3.480M	28.5	+9.5 +0.1	+0.2	+0.1	+0.1	+0.0	38.5	46.0	-7.5	Black
15	3.488M	28.5	+9.5 +0.1	+0.2	+0.1	+0.1	+0.0	38.5	46.0	-7.5	Black
16	3.361M	28.4	+9.5 +0.1	+0.2	+0.1	+0.1	+0.0	38.4	46.0	-7.6	Black
17	4.547M	27.9	+9.7 +0.2	+0.2	+0.1	+0.1	+0.0	38.2	46.0	-7.8	Black
18	379.797k	30.0	+9.6 +0.0	+0.1	+0.0	+0.1	+0.0	39.8	48.3	-8.5	Black
19	3.552M	26.8	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	36.9	46.0	-9.1	Black
20	3.833M	26.8	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	36.9	46.0	-9.1	Black
21	1.957M	26.9	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	36.8	46.0	-9.2	Black
22	4.539M	26.5	+9.7 +0.2	+0.2	+0.1	+0.1	+0.0	36.8	46.0	-9.2	Black
23	1.834M	26.4	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	36.3	46.0	-9.7	Black
24	3.612M	26.2	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	36.3	46.0	-9.7	Black
25	4.760M	26.1	+9.6 +0.2	+0.2	+0.1	+0.1	+0.0	36.3	46.0	-9.7	Black
26	3.650M	26.1	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	36.2	46.0	-9.8	Black
27	3.841M	26.1	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	36.2	46.0	-9.8	Black
28	4.581M	25.8	+9.7 +0.2	+0.2	+0.1	+0.1	+0.0	36.1	46.0	-9.9	Black
29	401.613k	27.5	+9.6 +0.0	+0.1	+0.0	+0.1	+0.0	37.3	47.8	-10.5	Black
30	3.586M	25.4	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	35.5	46.0	-10.5	Black
31	4.471M	25.3	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	35.4	46.0	-10.6	Black
32	4.509M	25.1	+9.7 +0.2	+0.2	+0.1	+0.1	+0.0	35.4	46.0	-10.6	Black
33	3.854M	25.0	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	35.1	46.0	-10.9	Black
34	4.611M	24.6	+9.7 +0.2	+0.2	+0.1	+0.1	+0.0	34.9	46.0	-11.1	Black
35	4.679M	24.6	+9.6 +0.2	+0.2	+0.1	+0.1	+0.0	34.8	46.0	-11.2	Black
36	4.922M	24.7	+9.5 +0.2	+0.2	+0.1	+0.1	+0.0	34.8	46.0	-11.2	Black
37	8.400M	28.3	+9.6 +0.1	+0.3	+0.1	+0.2	+0.0	38.6	50.0	-11.4	Black
38	6.319M	28.3	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	38.4	50.0	-11.6	Black

39	4.968M	24.2	+9.5 +0.2	+0.2	+0.1	+0.1	+0.0	34.3	46.0	-11.7	Black
40	4.815M	24.1	+9.5 +0.2	+0.2	+0.1	+0.1	+0.0	34.2	46.0	-11.8	Black
41	6.788M	27.6	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	37.7	50.0	-12.3	Black
42	4.985M	23.5	+9.5 +0.2	+0.2	+0.1	+0.1	+0.0	33.6	46.0	-12.4	Black
43	269.262k	28.6	+9.6 +0.2	+0.1	+0.0	+0.1	+0.0	38.6	51.1	-12.5	Black
44	1.502M	23.6	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	33.5	46.0	-12.5	Black
45	632.865k	23.3	+9.7 +0.1	+0.1	+0.0	+0.1	+0.0	33.3	46.0	-12.7	Black
46	5.977M	27.2	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	37.3	50.0	-12.7	Black
47	1.583M	23.2	+9.7 +0.1	+0.1	+0.0	+0.1	+0.0	33.2	46.0	-12.8	Black
48	485.969k	23.3	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	33.2	46.2	-13.0	Black
49	381.979k	25.2	+9.6 +0.0	+0.1	+0.0	+0.1	+0.0	35.0	48.2	-13.2	Black
50	6.220M	26.6	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	36.7	50.0	-13.3	Black
51	4.777M	22.5	+9.6 +0.2	+0.2	+0.1	+0.1	+0.0	32.7	46.0	-13.3	Black
52	5.499M	26.4	+9.7 +0.1	+0.2	+0.1	+0.1	+0.0	36.6	50.0	-13.4	Black
53	1.141M	22.6	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	32.5	46.0	-13.5	Black
54	7.328M	26.2	+9.6 +0.1	+0.2	+0.1	+0.2	+0.0	36.4	50.0	-13.6	Black
55	17.995M	25.9	+9.6 +0.1	+0.4	+0.1	+0.3	+0.0	36.4	50.0	-13.6	Black
56	237.265k	28.4	+9.6 +0.2	+0.1	+0.0	+0.1	+0.0	38.4	52.2	-13.8	Black
57	12.283M	25.6	+9.6 +0.1	+0.3	+0.1	+0.2	+0.0	35.9	50.0	-14.1	Black
58	12.499M	25.6	+9.6 +0.1	+0.3	+0.1	+0.2	+0.0	35.9	50.0	-14.1	Black
59	7.734M	25.5	+9.6 +0.1	+0.2	+0.1	+0.2	+0.0	35.7	50.0	-14.3	Black
60	513.603k	21.6	+9.7 +0.1	+0.1	+0.0	+0.1	+0.0	31.6	46.0	-14.4	Black
61	5.427M	25.3	+9.7 +0.2	+0.2	+0.1	+0.1	+0.0	35.6	50.0	-14.4	Black
62	6.184M	25.4	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	35.5	50.0	-14.5	Black
63	15.211M	25.1	+9.7 +0.1	+0.3	+0.1	+0.2	+0.0	35.5	50.0	-14.5	Black
64	5.319M	25.2	+9.6 +0.2	+0.2	+0.1	+0.1	+0.0	35.4	50.0	-14.6	Black

65	17.923M	24.8	+9.7 +0.1	+0.4	+0.1	+0.3	+0.0	35.4	50.0	-14.6	Black
66	19.355M	24.6	+9.6 +0.2	+0.4	+0.1	+0.5	+0.0	35.4	50.0	-14.6	Black
67	7.779M	24.9	+9.6 +0.1	+0.3	+0.1	+0.2	+0.0	35.2	50.0	-14.8	Black
68	316.530k	25.0	+9.6 +0.2	+0.1	+0.0	+0.1	+0.0	35.0	49.8	-14.8	Black
69	18.310M	24.7	+9.6 +0.1	+0.4	+0.1	+0.3	+0.0	35.2	50.0	-14.8	Black
70	18.211M	24.7	+9.6 +0.1	+0.4	+0.1	+0.3	+0.0	35.2	50.0	-14.8	Black
71	7.923M	24.6	+9.6 +0.1	+0.3	+0.1	+0.2	+0.0	34.9	50.0	-15.1	Black
72	12.679M	24.6	+9.6 +0.1	+0.3	+0.1	+0.2	+0.0	34.9	50.0	-15.1	Black
73	15.427M	24.5	+9.7 +0.1	+0.3	+0.1	+0.2	+0.0	34.9	50.0	-15.1	Black
74	1.332M	20.9	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	30.8	46.0	-15.2	Black
75	1.383M	20.9	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	30.8	46.0	-15.2	Black
76	8.517M	24.3	+9.7 +0.1	+0.3	+0.1	+0.2	+0.0	34.7	50.0	-15.3	Black
77	12.085M	24.4	+9.6 +0.1	+0.3	+0.1	+0.2	+0.0	34.7	50.0	-15.3	Black
78	18.580M	24.1	+9.6 +0.1	+0.4	+0.1	+0.4	+0.0	34.7	50.0	-15.3	Black
79	11.950M	24.3	+9.6 +0.1	+0.3	+0.1	+0.2	+0.0	34.6	50.0	-15.4	Black
80	565.962k	20.6	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	30.5	46.0	-15.5	Black
81	6.427M	24.4	+9.6 +0.1	+0.2	+0.1	+0.1	+0.0	34.5	50.0	-15.5	Black
82	607.413k	20.4	+9.7 +0.1	+0.1	+0.0	+0.1	+0.0	30.4	46.0	-15.6	Black
83	18.373M	23.9	+9.6 +0.1	+0.4	+0.1	+0.3	+0.0	34.4	50.0	-15.6	Black
84	11.589M	24.0	+9.6 +0.1	+0.3	+0.1	+0.2	+0.0	34.3	50.0	-15.7	Black
85	1.073M	20.4	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	30.3	46.0	-15.7	Black
86	20.391M	23.2	+9.7 +0.2	+0.4	+0.1	+0.7	+0.0	34.3	50.0	-15.7	Black
87	13.490M	24.0	+9.6 +0.1	+0.3	+0.1	+0.2	+0.0	34.3	50.0	-15.7	Black
88	5.104M	24.0	+9.6 +0.2	+0.2	+0.1	+0.1	+0.0	34.2	50.0	-15.8	Black
89	20.292M	23.1	+9.7 +0.2	+0.4	+0.1	+0.7	+0.0	34.2	50.0	-15.8	Black
90	751.399k	20.1	+9.6 +0.2	+0.1	+0.0	+0.1	+0.0	30.1	46.0	-15.9	Black

91	616.139k	20.1	+9.7 +0.1	+0.1	+0.0	+0.1	+0.0	30.1	46.0	-15.9	Black
92	18.409M	23.5	+9.6 +0.1	+0.4	+0.1	+0.4	+0.0	34.1	50.0	-15.9	Black
93	881.458k	20.1	+9.6 +0.2	+0.1	+0.0	+0.1	+0.0	30.1	46.0	-15.9	Black
94	343.437k	23.2	+9.6 +0.1	+0.1	+0.0	+0.1	+0.0	33.1	49.1	-16.0	Black
95	13.004M	23.7	+9.6 +0.1	+0.3	+0.1	+0.2	+0.0	34.0	50.0	-16.0	Black
96	20.526M	22.9	+9.7 +0.2	+0.4	+0.1	+0.7	+0.0	34.0	50.0	-16.0	Black
97	8.004M	23.6	+9.6 +0.1	+0.3	+0.1	+0.2	+0.0	33.9	50.0	-16.1	Black
98	18.670M	23.3	+9.6 +0.1	+0.4	+0.1	+0.4	+0.0	33.9	50.0	-16.1	Black
99	157.354k QP	32.9	+9.6 +0.5	+0.0	+0.0	+0.1	+0.0	43.1	65.6	-22.5	Black
100	226.298k QP	25.8	+9.6 +0.2	+0.1	+0.0	+0.1	+0.0	35.8	62.6	-26.8	Black
101	226.298k Ave	7.8	+9.6 +0.2	+0.1	+0.0	+0.1	+0.0	17.8	52.6	-34.8	Black
^	226.298k	43.9	+9.6 +0.2	+0.1	+0.0	+0.1	+0.0	53.9	52.6	+1.3	Black
^	226.298k	42.9	+9.6 +0.2	+0.1	+0.0	+0.1	+0.0	52.9	52.6	+0.3	Black
104	157.354k Ave	8.8	+9.6 +0.5	+0.0	+0.0	+0.1	+0.0	19.0	55.6	-36.6	Black
^	157.354k	51.8	+9.6 +0.5	+0.0	+0.0	+0.1	+0.0	62.0	55.6	+6.4	Black
^	157.354k	50.0	+9.6 +0.5	+0.0	+0.0	+0.1	+0.0	60.2	55.6	+4.6	Black

CKC Laboratories Date: 9/13/2013 Time: 11:54:18 KLA-Tencor WO#: 92849
15.207 AC Mains - Average Test Lead: Black 120V 60Hz Sequence#: 42 Black



Test Location: CKC Laboratories • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **KLA-Tencor**
Specification: **15.207 AC Mains - Average**
Work Order #: **92849** Date: 9/13/2013
Test Type: **Conducted Emissions** Time: 12:00:38
Equipment: **Integral Carrier** Sequence#: 43
Manufacturer: KLA-Tencor Tested By: Hieu Song Nguyenpham
Model: Carrier System 300 120V 60Hz
S/N: SA-02775

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	PE7002-10	4/2/2013	4/2/2015
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN00493	50uH LISN-L1 (L) Loss W/O European Adapter	3816/NM	3/4/2013	3/4/2015
T4	AN00493	50uH LISN-L(2) N Loss W/O European Adapter	3816/NM	3/4/2013	3/4/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T5	ANP05258	High Pass Filter	HE9615-150K-50-720B	12/6/2012	12/6/2014

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Integral Carrier*	KLA-Tencor	Carrier System 300	SA-02775

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5420	J4GN4S1
Power Supply (for laptop)	Dell	AA90PM111	None
Wafer	KLA-Tencor	type: 3440D-12-8004	D42742

Test Conditions / Notes:

Conducted Emission
Frequency Range: 150kHz to 30MHz
Highest Clock: 25MHz
Software: Wafer EMC Exerciser-1.0.4
Firmware: 2.1.115
Temperature: 22.3°C, Humidity: 45%, Atmospheric Pressure: 101.0kPa
RF Power output= 10% of the maximum power of a coil
Transmit operating frequency =1.9MHz

The EUT in an Integral Carrier System. Its purpose is to provide interface from a wafer to a PC. Laptop is in the chamber at the back edge of the test table and connected to the EUT. The Laptop is connected to the EUT with a USB cable and running Wafer EMC Exerciser - 1.0.4,
Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.

Notes: Communications Mode

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: White

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	3.216M	31.1	+9.6 +0.1	+0.2	+0.0	+0.6	+0.0	41.6	46.0	-4.4	White
2	2.621M	29.9	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	40.3	46.0	-5.7	White
3	368.162k	32.0	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	42.4	48.5	-6.1	White
4	172.543k	37.6	+9.6 +0.3	+0.1	+0.0	+0.6	+0.0	48.2	54.8	-6.6	White
5	2.846M	28.8	+9.6 +0.1	+0.2	+0.0	+0.6	+0.0	39.3	46.0	-6.7	White
6	2.880M	28.7	+9.6 +0.1	+0.2	+0.0	+0.6	+0.0	39.2	46.0	-6.8	White
7	2.965M	28.6	+9.6 +0.1	+0.2	+0.0	+0.6	+0.0	39.1	46.0	-6.9	White
8	3.004M	28.5	+9.6 +0.1	+0.2	+0.0	+0.6	+0.0	39.0	46.0	-7.0	White
9	2.561M	28.5	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	38.9	46.0	-7.1	White
10	2.685M	28.3	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	38.7	46.0	-7.3	White
11	2.247M	27.9	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	38.3	46.0	-7.7	White
12	2.315M	27.9	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	38.3	46.0	-7.7	White
13	2.948M	27.7	+9.6 +0.1	+0.2	+0.0	+0.6	+0.0	38.2	46.0	-7.8	White
14	2.221M	27.6	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	38.0	46.0	-8.0	White
15	3.323M	27.4	+9.6 +0.1	+0.2	+0.1	+0.6	+0.0	38.0	46.0	-8.0	White
16	2.480M	27.0	+9.7 +0.1	+0.1	+0.0	+0.6	+0.0	37.5	46.0	-8.5	White
17	2.412M	26.9	+9.7 +0.1	+0.1	+0.0	+0.6	+0.0	37.4	46.0	-8.6	White
18	2.366M	26.8	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	37.2	46.0	-8.8	White
19	203.086k	33.9	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	44.4	53.5	-9.1	White
20	444.518k	27.4	+9.6 +0.0	+0.1	+0.0	+0.6	+0.0	37.7	47.0	-9.3	White
21	3.276M	25.9	+9.6 +0.1	+0.2	+0.1	+0.6	+0.0	36.5	46.0	-9.5	White
22	345.618k	29.1	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	39.5	49.1	-9.6	White
23	225.629k	32.4	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	42.9	52.6	-9.7	White

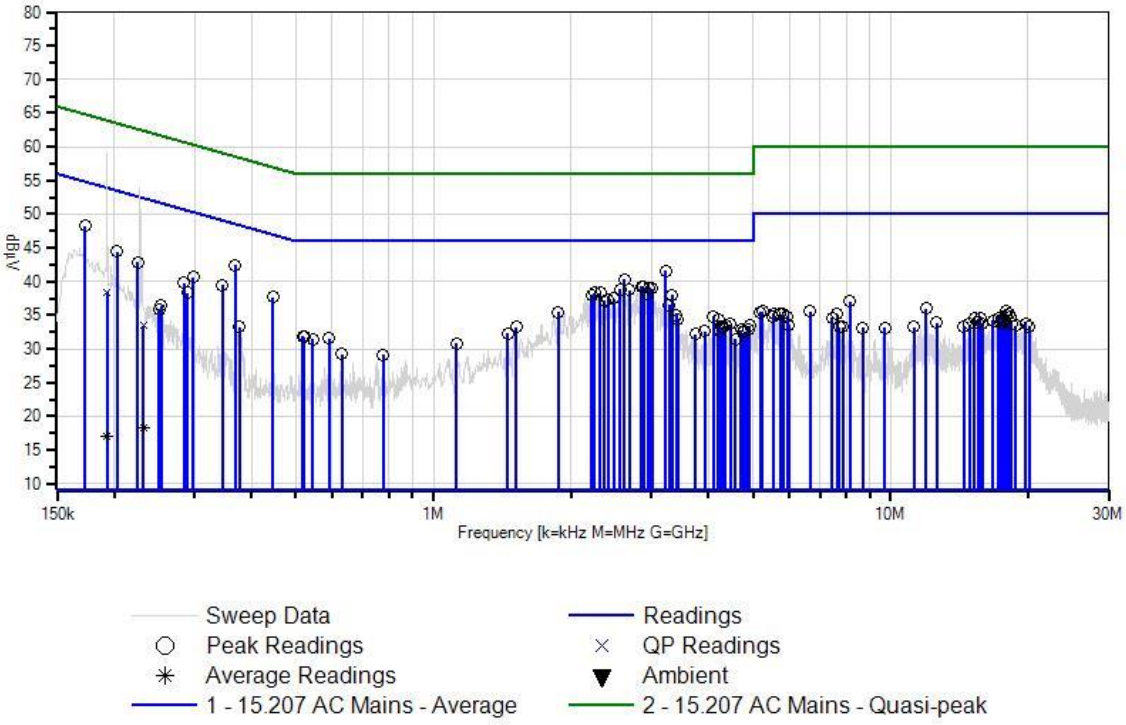
24	298.350k	30.1	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	40.6	50.3	-9.7	White
25	1.872M	25.1	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	35.5	46.0	-10.5	White
26	284.533k	29.3	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	39.8	50.7	-10.9	White
27	3.395M	24.5	+9.5 +0.1	+0.2	+0.1	+0.6	+0.0	35.0	46.0	-11.0	White
28	4.097M	24.2	+9.6 +0.1	+0.2	+0.1	+0.6	+0.0	34.8	46.0	-11.2	White
29	3.420M	23.9	+9.5 +0.1	+0.2	+0.1	+0.6	+0.0	34.4	46.0	-11.6	White
30	4.203M	23.7	+9.6 +0.1	+0.2	+0.1	+0.6	+0.0	34.3	46.0	-11.7	White
31	289.624k	27.8	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	38.3	50.5	-12.2	White
32	4.467M	23.1	+9.6 +0.1	+0.2	+0.1	+0.6	+0.0	33.7	46.0	-12.3	White
33	4.356M	22.9	+9.6 +0.1	+0.2	+0.1	+0.6	+0.0	33.5	46.0	-12.5	White
34	4.917M	22.8	+9.5 +0.2	+0.2	+0.1	+0.7	+0.0	33.5	46.0	-12.5	White
35	4.258M	22.7	+9.6 +0.1	+0.2	+0.1	+0.6	+0.0	33.3	46.0	-12.7	White
36	4.309M	22.7	+9.6 +0.1	+0.2	+0.1	+0.6	+0.0	33.3	46.0	-12.7	White
37	1.519M	22.8	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	33.2	46.0	-12.8	White
38	8.157M	26.2	+9.6 +0.1	+0.3	+0.1	+0.7	+0.0	37.0	50.0	-13.0	White
39	4.875M	22.2	+9.5 +0.2	+0.2	+0.1	+0.7	+0.0	32.9	46.0	-13.1	White
40	4.705M	22.0	+9.6 +0.2	+0.2	+0.1	+0.7	+0.0	32.8	46.0	-13.2	White
41	3.926M	22.0	+9.6 +0.1	+0.2	+0.1	+0.6	+0.0	32.6	46.0	-13.4	White
42	4.228M	22.0	+9.6 +0.1	+0.2	+0.1	+0.6	+0.0	32.6	46.0	-13.4	White
43	4.790M	21.8	+9.6 +0.2	+0.2	+0.1	+0.7	+0.0	32.6	46.0	-13.4	White
44	4.764M	21.6	+9.6 +0.2	+0.2	+0.1	+0.7	+0.0	32.4	46.0	-13.6	White
45	1.451M	21.9	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	32.3	46.0	-13.7	White
46	3.744M	21.6	+9.6 +0.1	+0.2	+0.1	+0.6	+0.0	32.2	46.0	-13.8	White
47	11.959M	25.2	+9.6 +0.1	+0.3	+0.1	+0.7	+0.0	36.0	50.0	-14.0	White
48	517.966k	21.4	+9.7 +0.1	+0.1	+0.0	+0.6	+0.0	31.9	46.0	-14.1	White
49	521.602k	21.4	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	31.8	46.0	-14.2	White

50	17.860M	24.6	+9.7 +0.1	+0.4	+0.1	+0.8	+0.0	35.7	50.0	-14.3	White
51	590.687k	21.2	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	31.6	46.0	-14.4	White
52	5.247M	24.8	+9.6 +0.2	+0.2	+0.1	+0.7	+0.0	35.6	50.0	-14.4	White
53	6.679M	24.9	+9.6 +0.1	+0.2	+0.1	+0.7	+0.0	35.6	50.0	-14.4	White
54	543.418k	21.2	+9.5 +0.1	+0.1	+0.0	+0.6	+0.0	31.5	46.0	-14.5	White
55	5.193M	24.7	+9.6 +0.2	+0.2	+0.1	+0.7	+0.0	35.5	50.0	-14.5	White
56	4.577M	20.5	+9.7 +0.2	+0.2	+0.1	+0.7	+0.0	31.4	46.0	-14.6	White
57	5.562M	24.5	+9.7 +0.1	+0.2	+0.1	+0.7	+0.0	35.3	50.0	-14.7	White
58	5.734M	24.4	+9.7 +0.1	+0.2	+0.1	+0.7	+0.0	35.2	50.0	-14.8	White
59	5.824M	24.3	+9.7 +0.1	+0.2	+0.1	+0.7	+0.0	35.1	50.0	-14.9	White
60	7.652M	24.4	+9.6 +0.1	+0.2	+0.1	+0.7	+0.0	35.1	50.0	-14.9	White
61	18.130M	24.0	+9.6 +0.1	+0.4	+0.1	+0.9	+0.0	35.1	50.0	-14.9	White
62	376.161k	23.0	+9.6 +0.0	+0.1	+0.0	+0.6	+0.0	33.3	48.4	-15.1	White
63	17.878M	23.8	+9.7 +0.1	+0.4	+0.1	+0.8	+0.0	34.9	50.0	-15.1	White
64	1.124M	20.4	+9.6 +0.1	+0.1	+0.0	+0.6	+0.0	30.8	46.0	-15.2	White
65	253.263k	25.9	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	36.4	51.6	-15.2	White
66	5.950M	24.0	+9.7 +0.1	+0.2	+0.1	+0.7	+0.0	34.8	50.0	-15.2	White
67	5.535M	24.0	+9.7 +0.1	+0.2	+0.1	+0.7	+0.0	34.8	50.0	-15.2	White
68	18.256M	23.6	+9.6 +0.1	+0.4	+0.1	+0.9	+0.0	34.7	50.0	-15.3	White
69	7.463M	23.9	+9.6 +0.1	+0.2	+0.1	+0.7	+0.0	34.6	50.0	-15.4	White
70	15.706M	23.7	+9.7 +0.1	+0.3	+0.1	+0.7	+0.0	34.6	50.0	-15.4	White
71	15.256M	23.6	+9.7 +0.1	+0.3	+0.1	+0.7	+0.0	34.5	50.0	-15.5	White
72	17.265M	23.4	+9.7 +0.1	+0.4	+0.1	+0.8	+0.0	34.5	50.0	-15.5	White
73	17.508M	23.3	+9.7 +0.1	+0.4	+0.1	+0.8	+0.0	34.4	50.0	-15.6	White
74	17.806M	23.3	+9.7 +0.1	+0.4	+0.1	+0.8	+0.0	34.4	50.0	-15.6	White
75	251.082k	25.4	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	35.9	51.7	-15.8	White

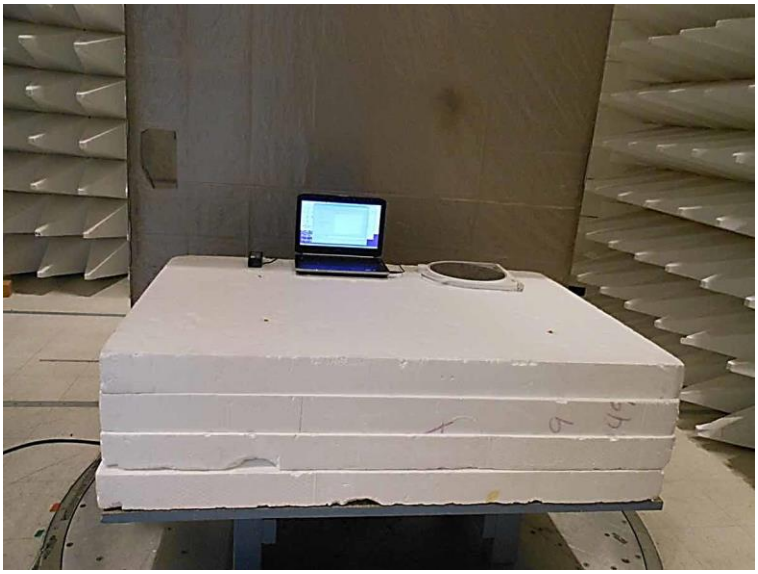
76	16.770M	23.2	+9.7 +0.1	+0.3	+0.1	+0.8	+0.0	34.2	50.0	-15.8	White
77	17.346M	22.9	+9.7 +0.1	+0.4	+0.1	+0.8	+0.0	34.0	50.0	-16.0	White
78	15.553M	23.1	+9.7 +0.1	+0.3	+0.1	+0.7	+0.0	34.0	50.0	-16.0	White
79	17.616M	22.9	+9.7 +0.1	+0.4	+0.1	+0.8	+0.0	34.0	50.0	-16.0	White
80	17.409M	22.9	+9.7 +0.1	+0.4	+0.1	+0.8	+0.0	34.0	50.0	-16.0	White
81	12.616M	23.1	+9.6 +0.1	+0.3	+0.1	+0.7	+0.0	33.9	50.0	-16.1	White
82	15.517M	23.0	+9.7 +0.1	+0.3	+0.1	+0.7	+0.0	33.9	50.0	-16.1	White
83	15.851M	22.9	+9.7 +0.1	+0.3	+0.1	+0.7	+0.0	33.8	50.0	-16.2	White
84	18.409M	22.7	+9.6 +0.1	+0.4	+0.1	+0.9	+0.0	33.8	50.0	-16.2	White
85	19.761M	22.4	+9.6 +0.2	+0.4	+0.1	+1.1	+0.0	33.8	50.0	-16.2	White
86	14.860M	22.9	+9.6 +0.1	+0.3	+0.1	+0.7	+0.0	33.7	50.0	-16.3	White
87	5.995M	22.9	+9.6 +0.1	+0.2	+0.1	+0.7	+0.0	33.6	50.0	-16.4	White
88	18.788M	22.3	+9.6 +0.1	+0.4	+0.1	+1.0	+0.0	33.5	50.0	-16.5	White
89	14.481M	22.6	+9.6 +0.1	+0.3	+0.1	+0.7	+0.0	33.4	50.0	-16.6	White
90	20.085M	22.0	+9.6 +0.2	+0.4	+0.1	+1.1	+0.0	33.4	50.0	-16.6	White
91	11.265M	22.4	+9.7 +0.1	+0.3	+0.1	+0.7	+0.0	33.3	50.0	-16.7	White
92	630.683k	18.7	+9.7 +0.1	+0.1	+0.0	+0.6	+0.0	29.2	46.0	-16.8	White
93	7.716M	22.5	+9.6 +0.1	+0.2	+0.1	+0.7	+0.0	33.2	50.0	-16.8	White
94	7.869M	22.4	+9.6 +0.1	+0.3	+0.1	+0.7	+0.0	33.2	50.0	-16.8	White
95	775.397k	18.6	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	29.1	46.0	-16.9	White
96	8.697M	22.2	+9.7 +0.1	+0.3	+0.1	+0.7	+0.0	33.1	50.0	-16.9	White
97	9.707M	22.3	+9.6 +0.0	+0.3	+0.1	+0.8	+0.0	33.1	50.0	-16.9	White
98	192.885k QP	28.0	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	38.5	63.9	-25.4	White
99	232.152k QP	22.9	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	33.4	62.4	-29.0	White
100	232.152k Ave	7.7	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	18.2	52.4	-34.2	White
^	232.152k	54.3	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	64.8	52.4	+12.4	White

^	232.152k	43.4	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	53.9	52.4	+1.5	White
^	230.720k	31.9	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	42.4	52.4	-10.0	White
104 Ave	192.885k	6.6	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	17.1	53.9	-36.8	White
^	192.885k	48.7	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	59.2	53.9	+5.3	White
^	192.885k	47.6	+9.6 +0.2	+0.1	+0.0	+0.6	+0.0	58.1	53.9	+4.2	White

CKC Laboratories Date: 9/13/2013 Time: 12:00:38 KLA-Tencor WO#: 92849
15.207 AC Mains - Average Test Lead: White 120V 60Hz Sequence#: 43 White



Test Setup Photos



Front Side

Back Side

15.209 Radiated Emissions

Test Data Sheets

Test Location: CKC Laboratories • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **KLA-Tencor**
Specification: **15.209 Radiated Emissions**
Work Order #: **92849** Date: 9/13/2013
Test Type: **Maximized Emissions** Time: 10:32:42
Equipment: **Integral Carrier** Sequence#: 40
Manufacturer: KLA-Tencor Tested By: Hieu Song Nguyenpham
Model: Carrier System 300
S/N: SA-02775

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Integral Carrier*	KLA-Tencor	Carrier System 300	SA-02775

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5420	J4GN4S1
Power Supply (for laptop)	Dell	AA90PM111	None
Wafer	KLA-Tencor	type: 3440D-12-8004	D42742

Test Conditions / Notes:

Radiated Spurious Emission
Frequency Range: 9kHz to 30MHz
Highest Clock: 25MHz
Software: Wafer EMC Exerciser-1.0.4
Firmware: 2.1.115
Temperature: 22.3°C
Humidity: 45%
Atmospheric Pressure: 101.0kPa
RF Power output= 10% of the maximum power of a coil
Transmit operating frequency =1.9MHz

The EUT in an Integral Carrier System. Its purpose is to provide interface from a wafer to a PC. Laptop is in the chamber at the back edge of the test table and connected to the EUT. The Laptop is connected to the EUT with a USB cable and running Wafer EMC Exerciser - 1.0.4,
Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.

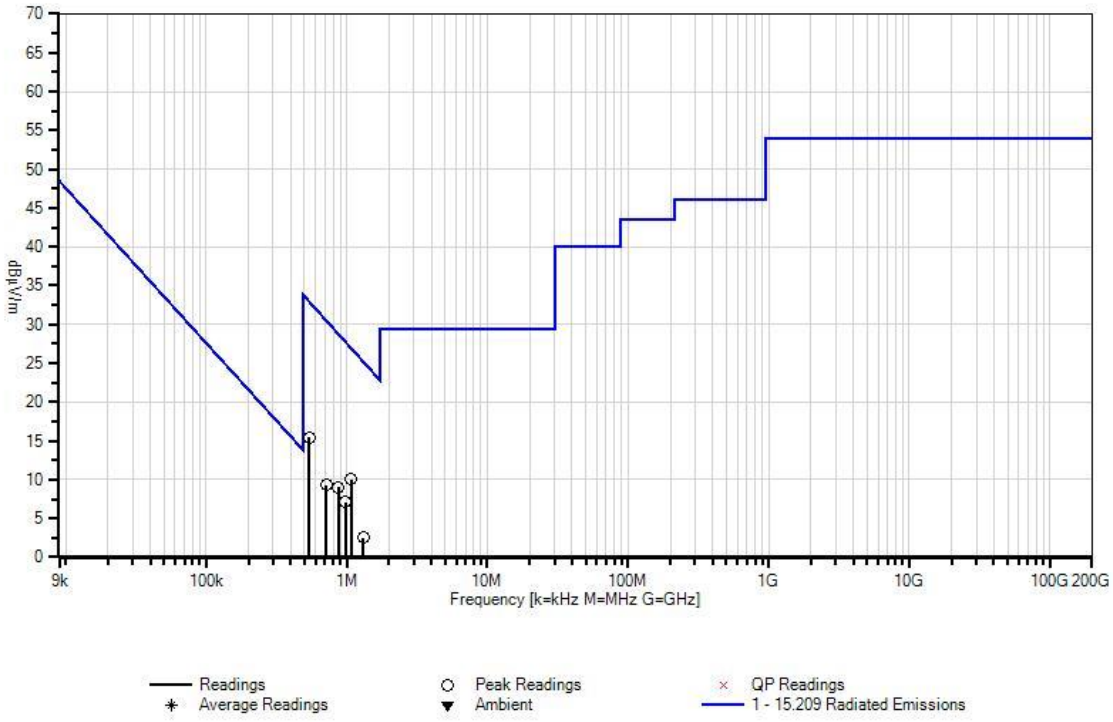
Notes: Communications Mode
X-axis

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1.077M	40.2	+9.7	+0.1	+0.0		-40.0	10.0	26.9	-16.9	Perpe
2	538.973k	45.5	+9.8	+0.1	+0.0		-40.0	15.4	33.0	-17.6	Perpe
3	872.520k	39.4	+9.5	+0.1	+0.0		-40.0	9.0	28.8	-19.8	Perpe
4	976.445k	37.3	+9.7	+0.1	+0.0		-40.0	7.1	27.8	-20.7	Paral
5	718.119k	39.4	+9.8	+0.1	+0.0		-40.0	9.3	30.5	-21.2	Paral
6	1.313M	32.6	+9.8	+0.1	+0.0		-40.0	2.5	25.2	-22.7	Paral

CKC Laboratories Date: 9/13/2013 Time: 10:32:42 KLA-Tencor WO#: 92849
15.209 Radiated Emissions Test Distance: 3 Meters Sequence#: 40 Perpendicular



Test Location: CKC Laboratories • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **KLA-Tencor**
Specification: **15.209 Radiated Emissions**
Work Order #: **92849** Date: 9/13/2013
Test Type: **Maximized Emissions** Time: 08:49:55
Equipment: **Integral Carrier** Sequence#: 25
Manufacturer: KLA-Tencor Tested By: Hieu Song Nguyenpham
Model: Carrier System 300
S/N: SA-02775

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00730	Preamp	8447D	1/17/2013	1/17/2015
T2	AN00852	Biconilog Antenna	CBL 6111C	11/28/2012	11/28/2014
T3	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T4	ANP01183	Cable	CNT-195	10/24/2011	10/24/2013
T5	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Integral Carrier*	KLA-Tencor	Carrier System 300	SA-02775

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5420	J4GN4S1
Power Supply (for laptop)	Dell	AA90PM111	None
Wafer	KLA-Tencor	type: 3440D-12-8004	D42742

Test Conditions / Notes:

Radiated Spurious Emission
Frequency Range: 30MHz to 1000MHz

Highest Clock: 25MHz
Software: Wafer EMC Exerciser-1.0.4
Firmware: 2.1.115
Temperature: 22.3°C
Humidity: 45%
Atmospheric Pressure: 101.0kPa

RF Power output= 10% of the maximum power of a coil
Transmit operating frequency =1.9MHz

The EUT in an Integral Carrier System. Its purpose is to provide interface from a wafer to a PC. Laptop is in the chamber at the back edge of the test table and connected to the EUT. The Laptop is connected to the EUT with a USB cable and running Wafer EMC Exerciser - 1.0.4,
Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.

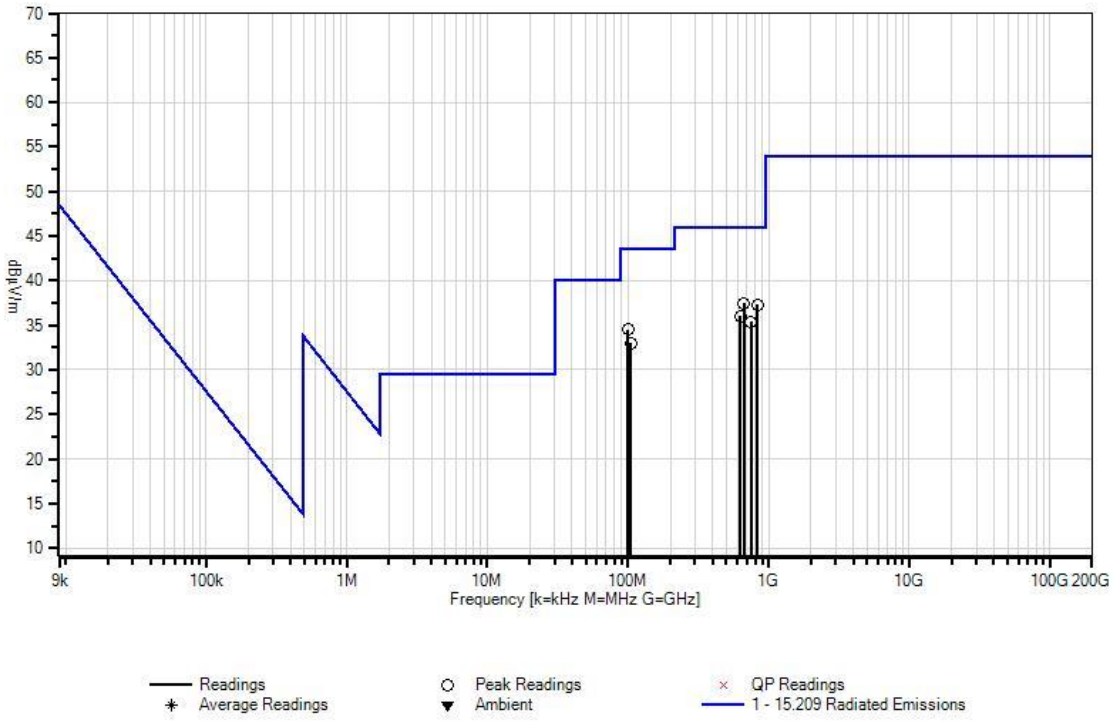
Notes: Communications Mode
X-axis

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	663.876M	39.9	-26.8 +0.7	+20.1	+2.8	+0.8	+0.0	37.5	46.0	-8.5	Horiz
2	832.644M	37.0	-26.9 +0.9	+22.1	+3.3	+0.9	+0.0	37.3	46.0	-8.7	Horiz
3	99.912M	50.1	-27.1 +0.3	+10.0	+1.0	+0.2	+0.0	34.5	43.5	-9.0	Vert
4	629.762M	38.9	-26.8 +0.7	+19.7	+2.8	+0.7	+0.0	36.0	46.0	-10.0	Vert
5	105.198M	48.1	-27.1 +0.3	+10.5	+1.0	+0.2	+0.0	33.0	43.5	-10.5	Vert
6	747.359M	35.7	-26.9 +0.8	+21.9	+3.0	+0.9	+0.0	35.4	46.0	-10.6	Horiz

CKC Laboratories Date: 9/13/2013 Time: 08:49:55 KLA-Tencor WO#: 92849
15.209 Radiated Emissions Test Distance: 3 Meters Sequence#: 25 Horiz



Test Location: CKC Laboratories • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **KLA-Tencor**
Specification: **15.209 Radiated Emissions**
Work Order #: **92849** Date: 9/13/2013
Test Type: **Maximized Emissions** Time: 10:21:07
Equipment: **Integral Carrier** Sequence#: 37
Manufacturer: KLA-Tencor Tested By: Hieu Song Nguyenpham
Model: Carrier System 300
S/N: SA-02775

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Integral Carrier*	KLA-Tencor	Carrier System 300	SA-02775

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5420	J4GN4S1
Power Supply (for laptop)	Dell	AA90PM111	None
Wafer	KLA-Tencor	type: 3440D-12-8004	D42742

Test Conditions / Notes:

Radiated Spurious Emission
Frequency Range: 9kHz to 30MHz

Highest Clock: 25MHz
Software: Wafer EMC Exerciser-1.0.4
Firmware: 2.1.115
Temperature: 22.3°C
Humidity: 45%
Atmospheric Pressure: 101.0kPa

RF Power output= 10% of the maximum power of a coil
Transmit operating frequency =1.9MHz

The EUT in an Integral Carrier System. Its purpose is to provide interface from a wafer to a PC. Laptop is in the chamber at the back edge of the test table and connected to the EUT. The Laptop is connected to the EUT with a USB cable and running Wafer EMC Exerciser - 1.0.4.
Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.

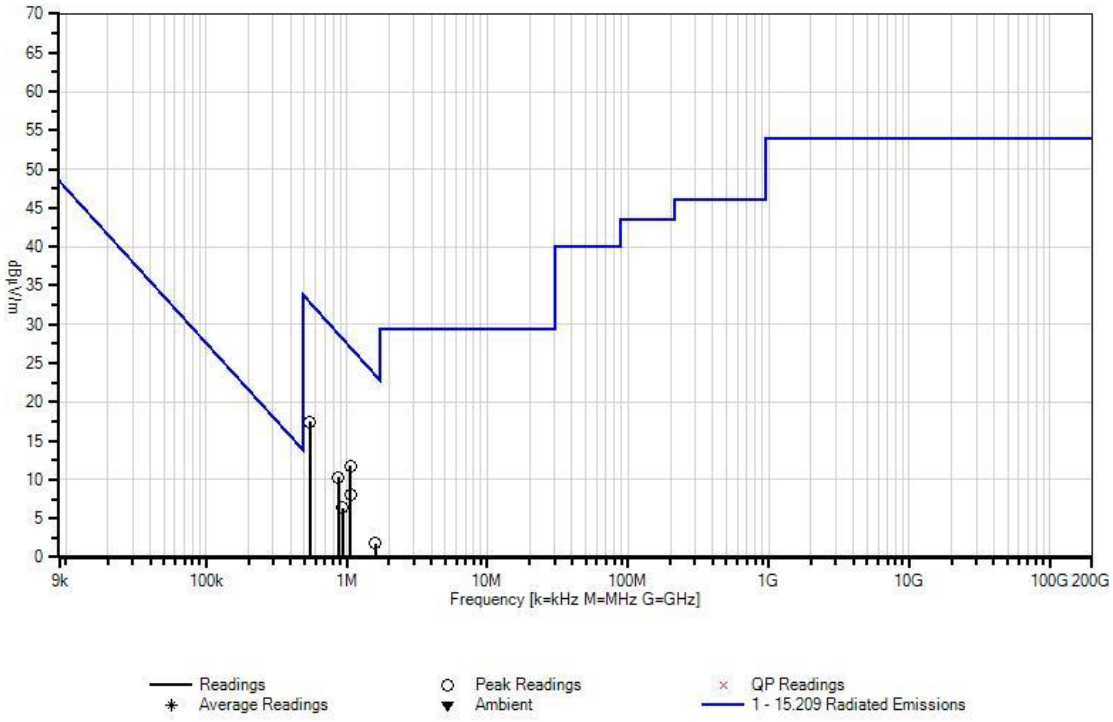
Notes:
Communications Mode
Y-axis

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1.059M	42.0	+9.7	+0.1	+0.0		-40.0	11.8	27.1	-15.3	Perpe
2	543.922k	47.6	+9.8	+0.1	+0.0		-40.0	17.5	32.9	-15.4	Paral
3	875.490k	40.7	+9.5	+0.1	+0.0		-40.0	10.3	28.7	-18.4	Paral
4	1.067M	38.3	+9.7	+0.1	+0.0		-40.0	8.1	27.0	-18.9	Paral
5	1.599M	31.9	+9.8	+0.1	+0.0		-40.0	1.8	23.5	-21.7	Perpe
6	932.895k	36.7	+9.6	+0.1	+0.0		-40.0	6.4	28.2	-21.8	Perpe

CKC Laboratories Date: 9/13/2013 Time: 10:21:07 KLA-Tencor WO#: 92849
15.209 Radiated Emissions Test Distance: 3 Meters Sequence#: 37 Parallel



Test Location: CKC Laboratories • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **KLA-Tencor**
Specification: **15.209 Radiated Emissions**
Work Order #: **92849** Date: 9/13/2013
Test Type: **Maximized Emissions** Time: 09:20:45
Equipment: **Integral Carrier** Sequence#: 28
Manufacturer: KLA-Tencor Tested By: Hieu Song Nguyenpham
Model: Carrier System 300
S/N: SA-02775

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00730	Preamp	8447D	1/17/2013	1/17/2015
T2	AN00852	Biconilog Antenna	CBL 6111C	11/28/2012	11/28/2014
T3	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T4	ANP01183	Cable	CNT-195	10/24/2011	10/24/2013
T5	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Integral Carrier*	KLA-Tencor	Carrier System 300	SA-02775

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5420	J4GN4S1
Power Supply (for laptop)	Dell	AA90PM111	None
Wafer	KLA-Tencor	type: 3440D-12-8004	D42742

Test Conditions / Notes:

Radiated Spurious Emission
Frequency Range: 30MHz to 1000MHz

Highest Clock: 25MHz
Software: Wafer EMC Exerciser-1.0.4
Firmware: 2.1.115
Temperature: 22.3°C
Humidity: 45%
Atmospheric Pressure: 101.0kPa

RF Power output= 10% of the maximum power of a coil
Transmit operating frequency =1.9MHz

The EUT in an Integral Carrier System. Its purpose is to provide interface from a wafer to a PC. Laptop is in the chamber at the back edge of the test table and connected to the EUT. The Laptop is connected to the EUT with a USB cable and running Wafer EMC Exerciser - 1.0.4.
Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.

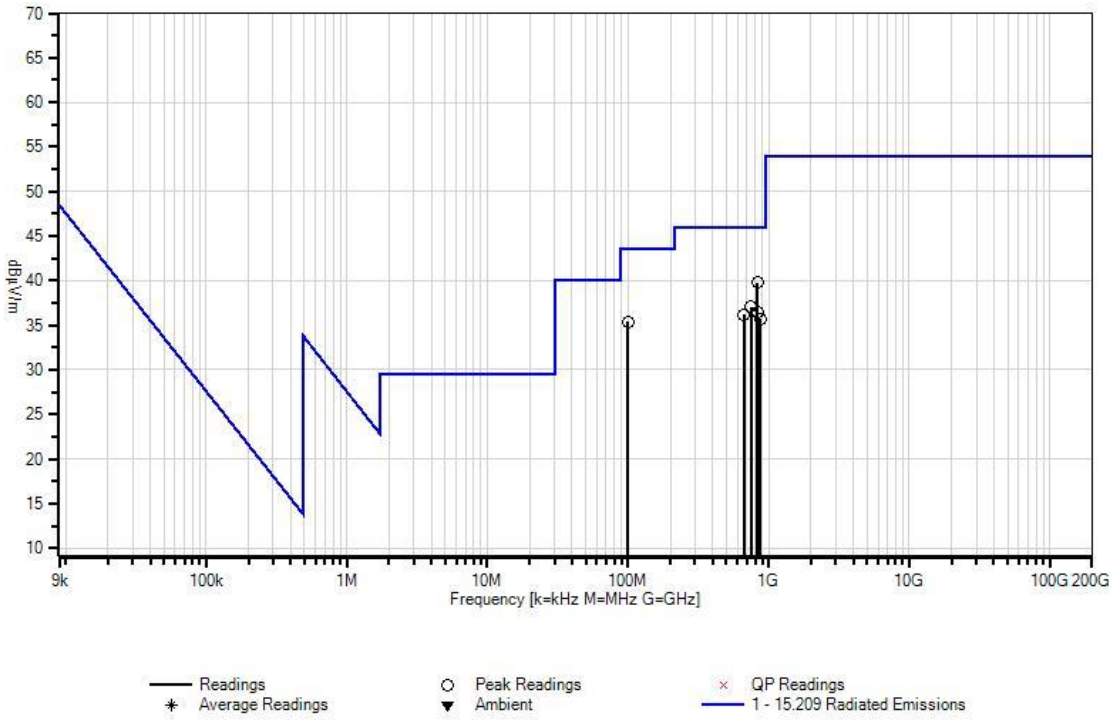
Notes: Communications Mode
Y-axis

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	830.122M	39.5	-26.9 +0.9	+22.1	+3.3	+0.9	+0.0	39.8	46.0	-6.2	Horiz
2	99.792M	51.0	-27.1 +0.3	+10.0	+1.0	+0.2	+0.0	35.4	43.5	-8.1	Vert
3	749.882M	37.2	-26.9 +0.8	+22.1	+3.0	+0.9	+0.0	37.1	46.0	-8.9	Horiz
4	833.245M	36.2	-26.9 +0.9	+22.1	+3.3	+0.9	+0.0	36.5	46.0	-9.5	Vert
5	666.398M	38.7	-26.8 +0.7	+20.1	+2.8	+0.7	+0.0	36.2	46.0	-9.8	Vert
6	868.320M	34.6	-27.0 +0.9	+22.9	+3.4	+0.9	+0.0	35.7	46.0	-10.3	Horiz

CKC Laboratories Date: 9/13/2013 Time: 09:20:45 KLA-Tencor WO#: 92849
15.209 Radiated Emissions Test Distance: 3 Meters Sequence#: 28 Vert



Test Location: CKC Laboratories • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **KLA-Tencor**
Specification: **15.209 Radiated Emissions**
Work Order #: **92849** Date: 9/13/2013
Test Type: **Maximized Emissions** Time: 10:08:34
Equipment: **Integral Carrier** Sequence#: 34
Manufacturer: KLA-Tencor Tested By: Hieu Song Nguyenpham
Model: Carrier System 300
S/N: SA-02775

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Integral Carrier*	KLA-Tencor	Carrier System 300	SA-02775

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5420	J4GN4S1
Power Supply (for laptop)	Dell	AA90PM111	None
Wafer	KLA-Tencor	type: 3440D-12-8004	D42742

Test Conditions / Notes:

Radiated Spurious Emission
Frequency Range: 9kHz to 30MHz

Highest Clock: 25MHz
Software: Wafer EMC Exerciser-1.0.4
Firmware: 2.1.115
Temperature: 22.3°C
Humidity: 45%
Atmospheric Pressure: 101.0kPa

RF Power output= 10% of the maximum power of a coil
Transmit operating frequency =1.9MHz

The EUT in an Integral Carrier System. Its purpose is to provide interface from a wafer to a PC. Laptop is in the chamber at the back edge of the test table and connected to the EUT. The Laptop is connected to the EUT with a USB cable and running Wafer EMC Exerciser - 1.0.4.
Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.

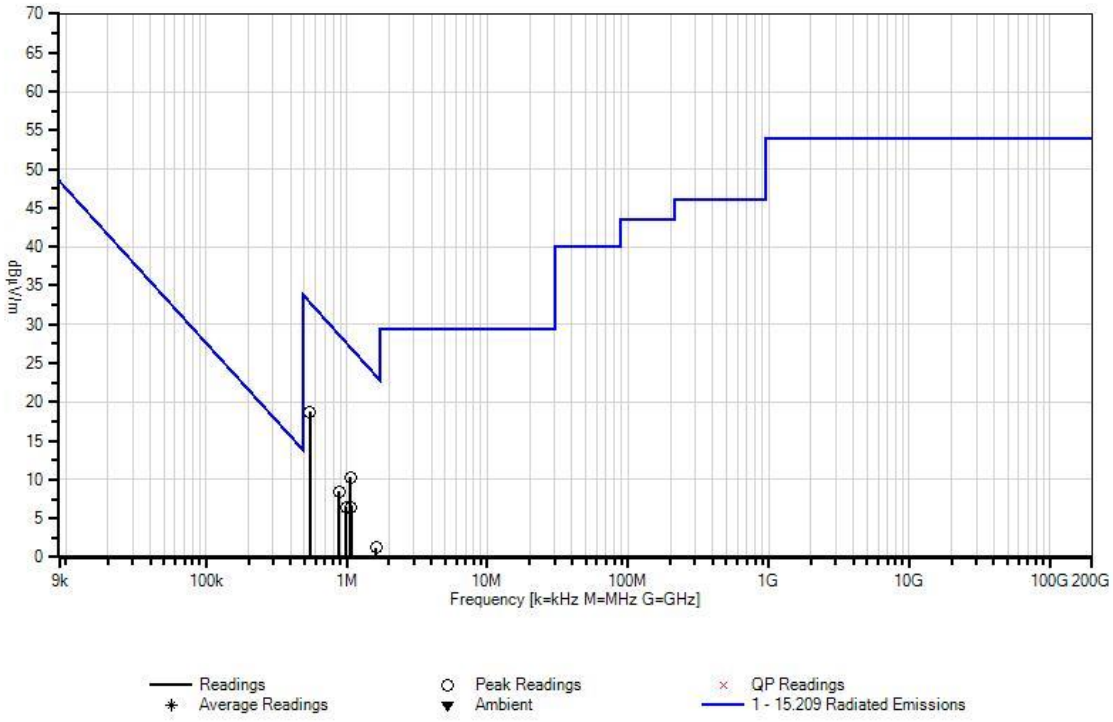
Notes: Communications Mode
Z-axis

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	545.902k	48.8	+9.8	+0.1	+0.0		-40.0	18.7	32.9	-14.2	Perpe
2	1.063M	40.5	+9.7	+0.1	+0.0		-40.0	10.3	27.0	-16.7	Perpe
3	877.469k	38.9	+9.5	+0.1	+0.0		-40.0	8.5	28.7	-20.2	Paral
4	1.075M	36.7	+9.7	+0.1	+0.0		-40.0	6.5	26.9	-20.4	Perpe
5	995.250k	36.7	+9.7	+0.1	+0.0		-40.0	6.5	27.6	-21.1	Paral
6	1.614M	31.3	+9.8	+0.1	+0.0		-40.0	1.2	23.4	-22.2	Paral

CKC Laboratories Date: 9/13/2013 Time: 10:08:34 KLA-Tencor WO#: 92849
15.209 Radiated Emissions Test Distance: 3 Meters Sequence#: 34 Perpendicular



Test Location: CKC Laboratories • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **KLA-Tencor**
Specification: **15.209 Radiated Emissions**
Work Order #: **92849** Date: 9/13/2013
Test Type: **Maximized Emissions** Time: 09:51:26
Equipment: **Integral Carrier** Sequence#: 31
Manufacturer: KLA-Tencor Tested By: Hieu Song Nguyenpham
Model: Carrier System 300
S/N: SA-02775

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00730	Preamp	8447D	1/17/2013	1/17/2015
T2	AN00852	Biconilog Antenna	CBL 6111C	11/28/2012	11/28/2014
T3	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T4	ANP01183	Cable	CNT-195	10/24/2011	10/24/2013
T5	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Integral Carrier*	KLA-Tencor	Carrier System 300	SA-02775

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5420	J4GN4S1
Power Supply (for laptop)	Dell	AA90PM111	None
Wafer	KLA-Tencor	type: 3440D-12-8004	D42742

Test Conditions / Notes:

Radiated Spurious Emission
Frequency Range: 30MHz to 1000MHz

Highest Clock: 25MHz
Software: Wafer EMC Exerciser-1.0.4
Firmware: 2.1.115
Temperature: 22.3°C
Humidity: 45%
Atmospheric Pressure: 101.0kPa

RF Power output= 10% of the maximum power of a coil
Transmit operating frequency =1.9MHz

The EUT in an Integral Carrier System. Its purpose is to provide interface from a wafer to a PC. Laptop is in the chamber at the back edge of the test table and connected to the EUT. The Laptop is connected to the EUT with a USB cable and running Wafer EMC Exerciser - 1.0.4,
Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.

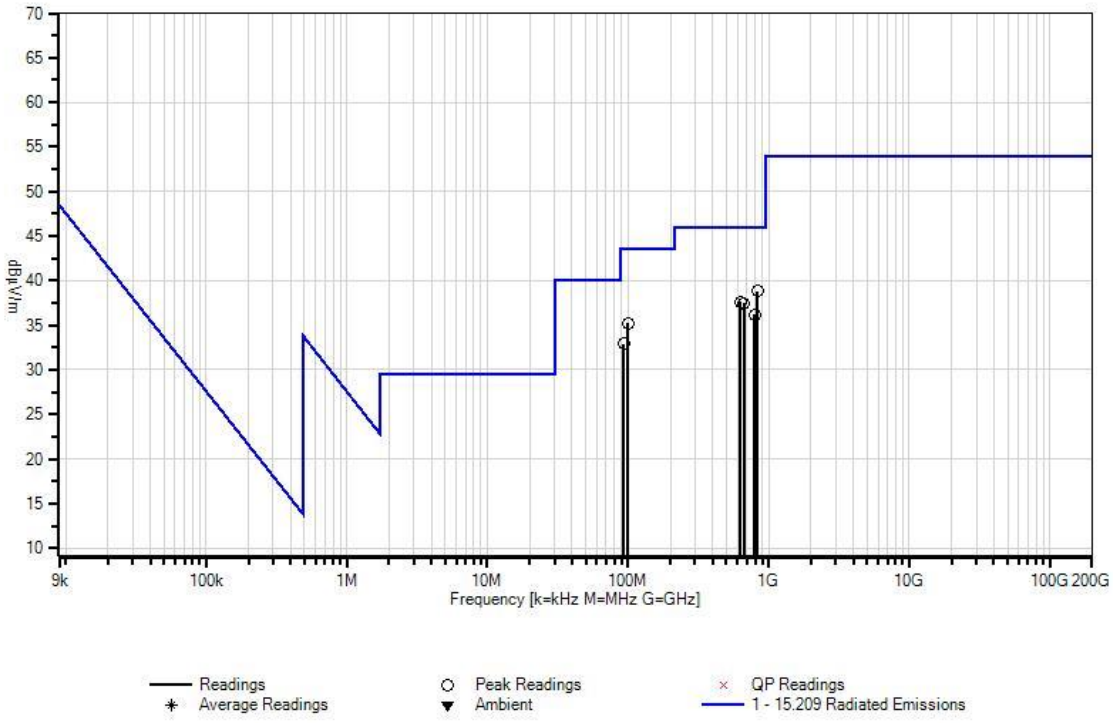
Notes: Communications Mode
Z-axis

Ext Attn: 0 dB

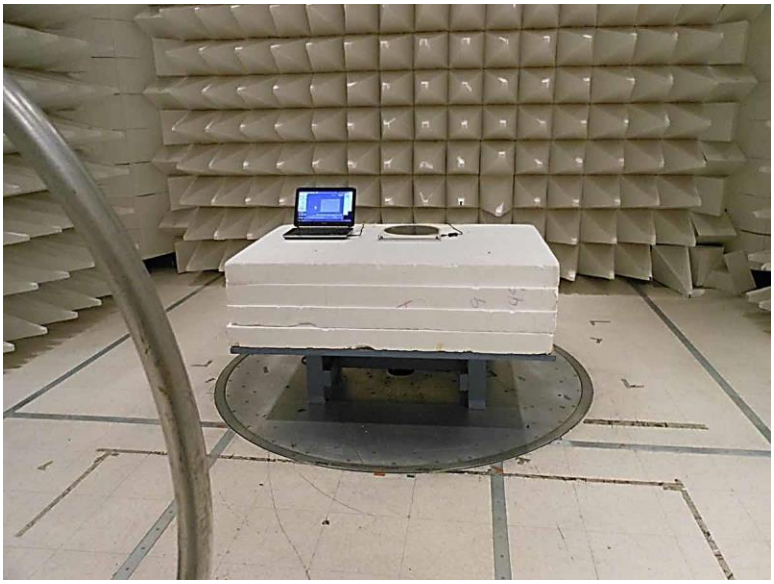
Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	830.963M	38.5	-26.9 +0.9	+22.1	+3.3	+0.9	+0.0	38.8	46.0	-7.2	Horiz
2	99.672M	50.8	-27.1 +0.3	+10.0	+1.0	+0.2	+0.0	35.2	43.5	-8.3	Vert
3	627.239M	40.4	-26.8 +0.7	+19.9	+2.7	+0.7	+0.0	37.6	46.0	-8.4	Vert
4	663.876M	39.9	-26.8 +0.7	+20.1	+2.8	+0.8	+0.0	37.5	46.0	-8.5	Horiz
5	794.806M	36.3	-26.7 +0.9	+21.6	+3.2	+0.9	+0.0	36.2	46.0	-9.8	Horiz
6	93.554M	49.3	-27.1 +0.3	+9.3	+0.9	+0.2	+0.0	32.9	43.5	-10.6	Vert

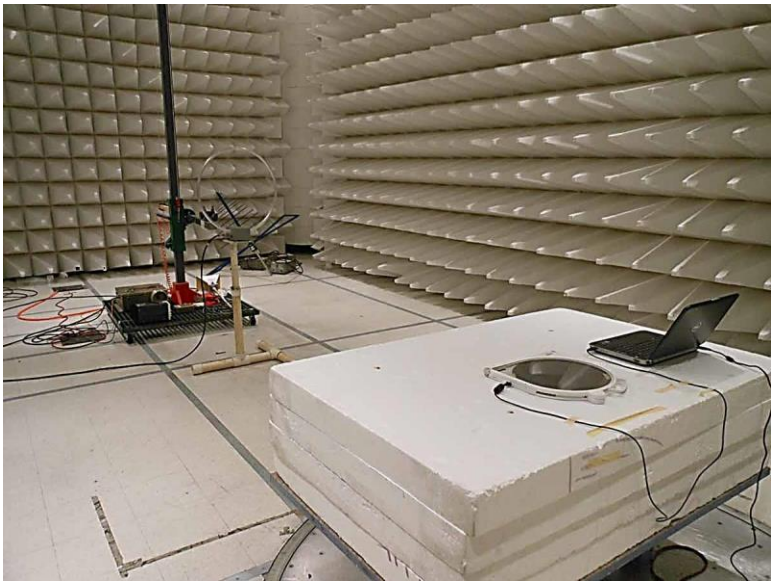
CKC Laboratories Date: 9/13/2013 Time: 09:51:26 KLA-Tencor WO#: 92849
15.209 Radiated Emissions Test Distance: 3 Meters Sequence#: 31 Horiz



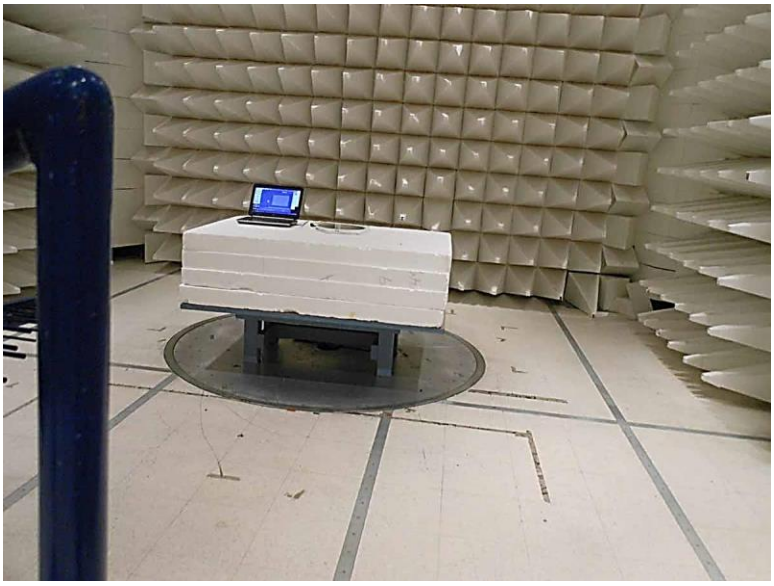
Test Setup Photos



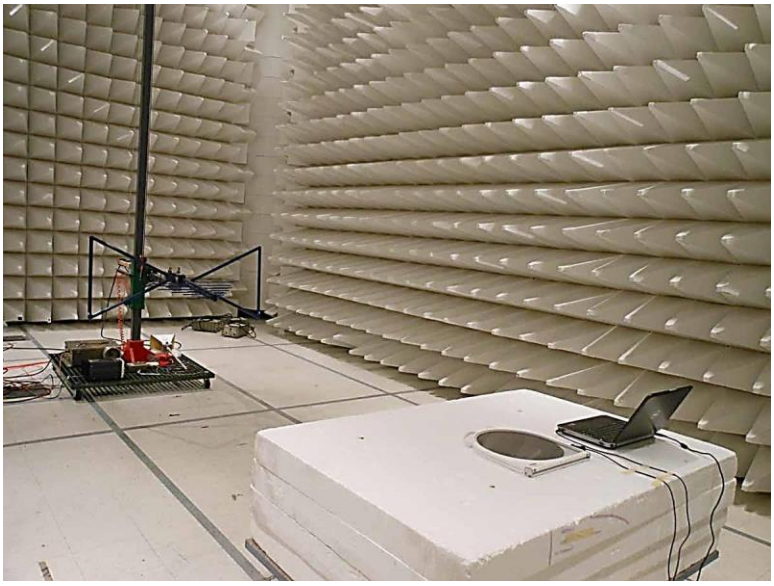
9kHz - 30MHz



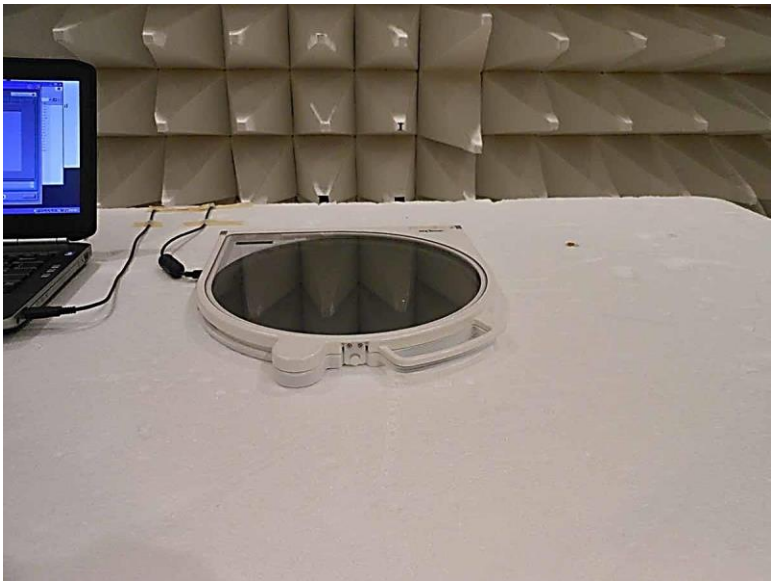
9kHz - 30MHz



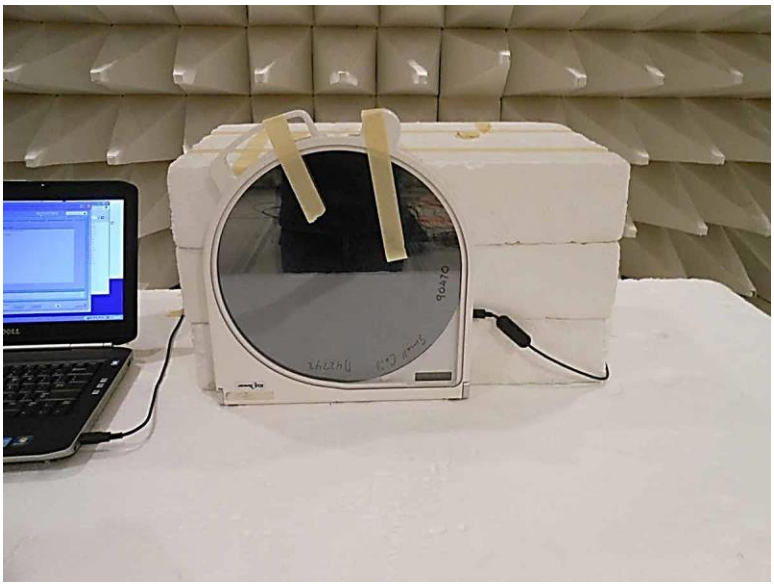
30MHz – 1GHz



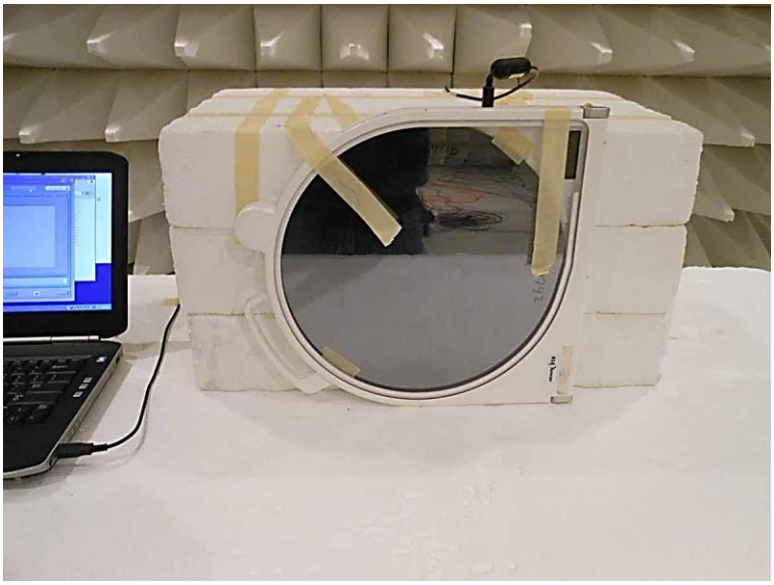
30MHz – 1GHz



X - Axis



Y - Axis



Z - Axis

2.1046 RF Power Output

Test Conditions / Setup

Test Location: CKC Laboratories • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **KLA-Tencor**
Specification: **15.209 Radiated Emissions**
Work Order #: **92849** Date: 9/13/2013
Test Type: **Maximized Emissions** Time: 11:27:50
Equipment: **Integral Carrier** Sequence#: 41
Manufacturer: KLA-Tencor Tested By: Hieu Song Nguyenpham
Model: Carrier System 300
S/N: SA-02775

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Integral Carrier*	KLA-Tencor	Carrier System 300	SA-02775

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5420	J4GN4S1
Power Supply (for laptop)	Dell	AA90PM111	None
Wafer	KLA-Tencor	type: 3440D-12-8004	D42742

Test Conditions / Notes:

Fundamental of the EUT
Highest Clock: 25MHz
Software: Wafer EMC Exerciser-1.0.4
Firmware: 2.1.115
Temperature: 22.3°C
Humidity: 45%
Atmospheric Pressure: 101.0kPa

RF Power output= 10% of the maximum power of a coil
Transmit operating frequency =1.9MHz

The EUT in an Integral Carrier System. Its purpose is to provide interface from a wafer to a PC. Laptop is in the chamber at the back edge of the test table and connected to the EUT. The Laptop is connected to the EUT with a USB cable and running Wafer EMC Exerciser - 1.0.4,
Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.

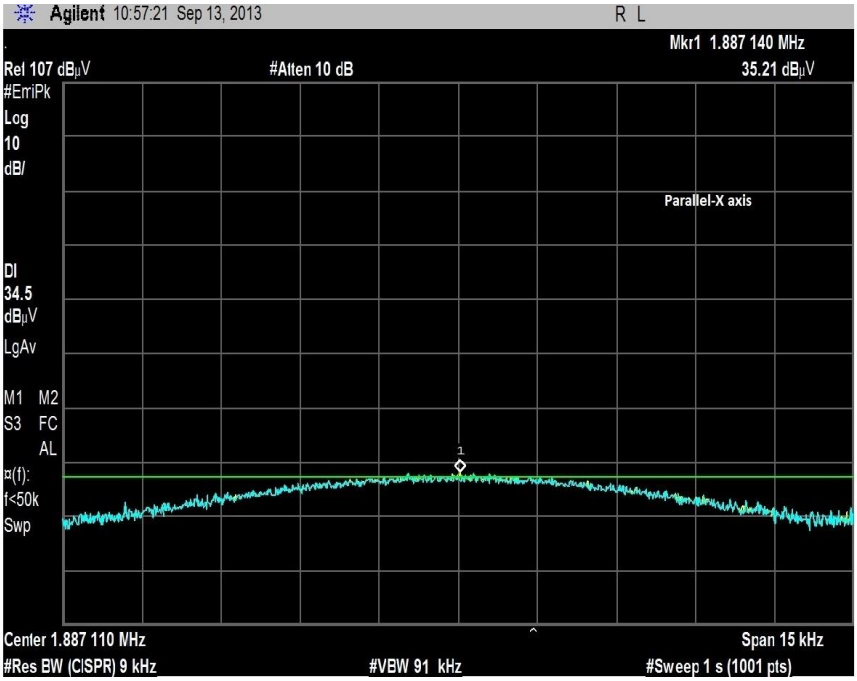
Notes: Communications Mode
X-axis

Ext Attn: 0 dB

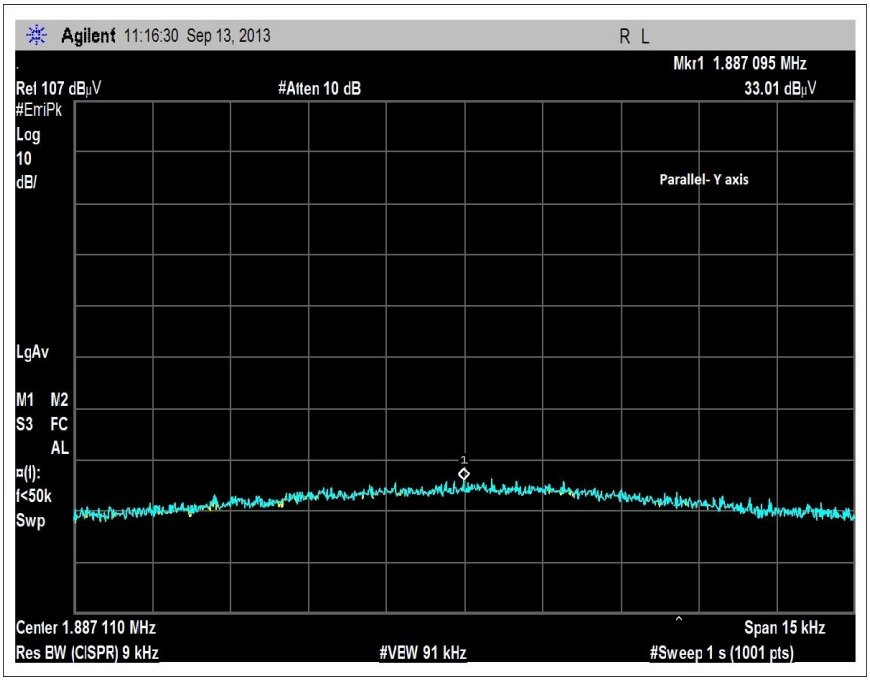
Measurement Data: Reading listed by margin. Test Distance: 1 Meter

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1.887M	40.6	+9.9	+0.1	+0.0		-59.1	-8.5	29.5 Z-axis	-38.0	Paral
2	1.887M	40.1	+9.9	+0.1	+0.0		-59.1	-9.0	29.5 Z-axis	-38.5	Perpe
3	1.886M	36.2	+9.9	+0.1	+0.0		-59.1	-12.9	29.5 Y-axis	-42.4	Perpe
4	1.887M	36.0	+9.9	+0.1	+0.0		-59.1	-13.1	29.5 X-axis	-42.6	Perpe
5	1.887M	35.2	+9.9	+0.1	+0.0		-59.1	-13.9	29.5 X-axis	-43.4	Paral
6	1.886M	33.0	+9.9	+0.1	+0.0		-59.1	-16.1	29.5 Y-axis	-45.6	Paral

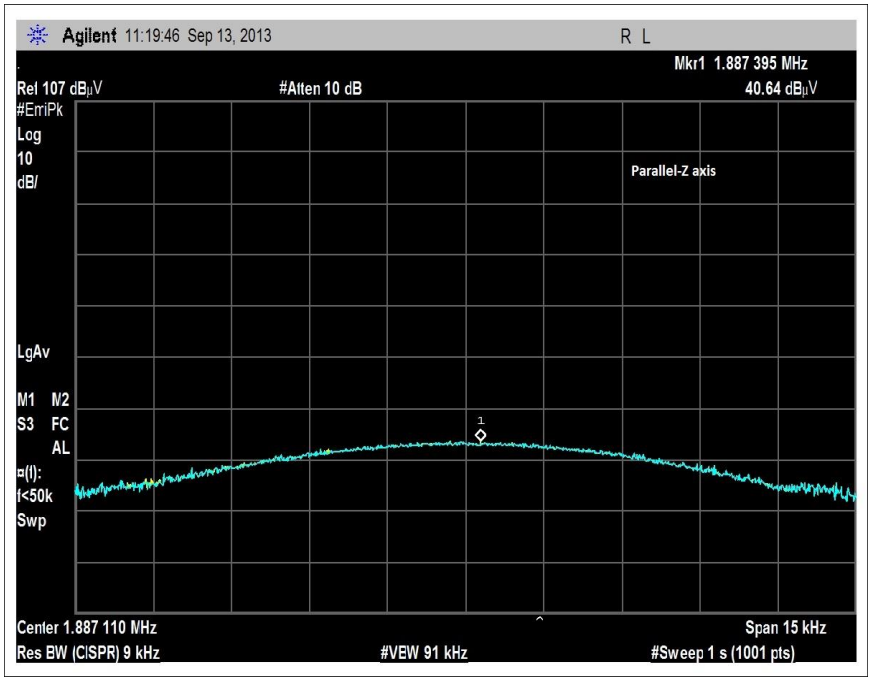
Test Data



X - Axis

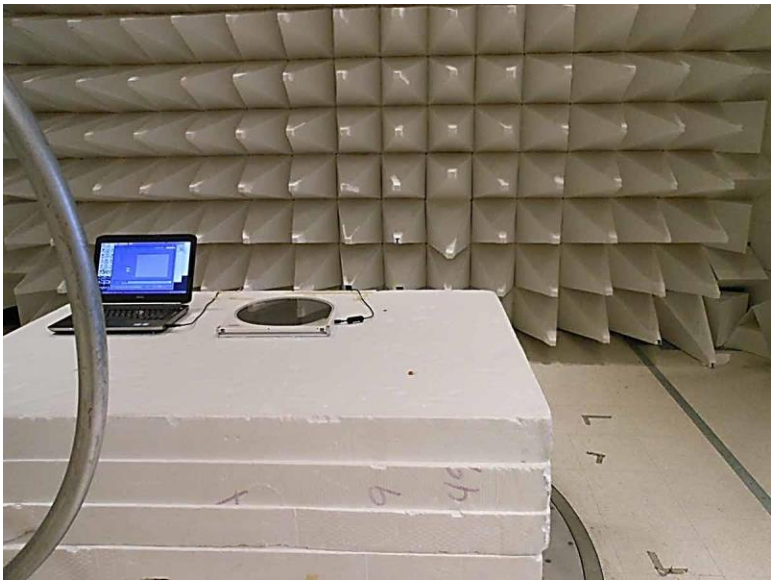


Y - Axis


Agilent 11:19:46 Sep 13, 2013
R L
Mkr1 1.887 395 MHz
Ref 107 dBµV
#Atten 10 dB
40.64 dBµV
#ErrPk
Log
10
dB/
Parallel-Z axis
LgAv
M1 N2
S3 FC
AL
¤(f):
f<50k
Swp
Center 1.887 110 MHz
Span 15 kHz
Res BW (CISPR) 9 kHz
#VBW 91 kHz
#Sweep 1 s (1001 pts)

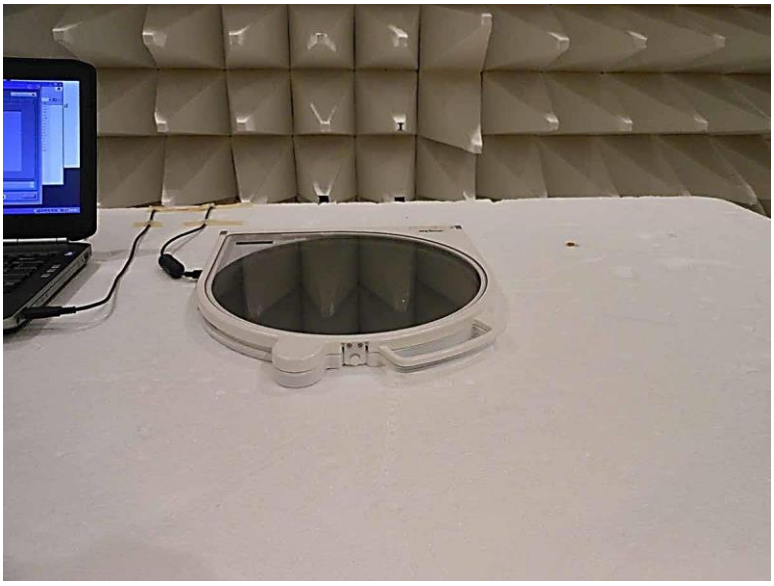
Z - Axis

Test Setup Photos

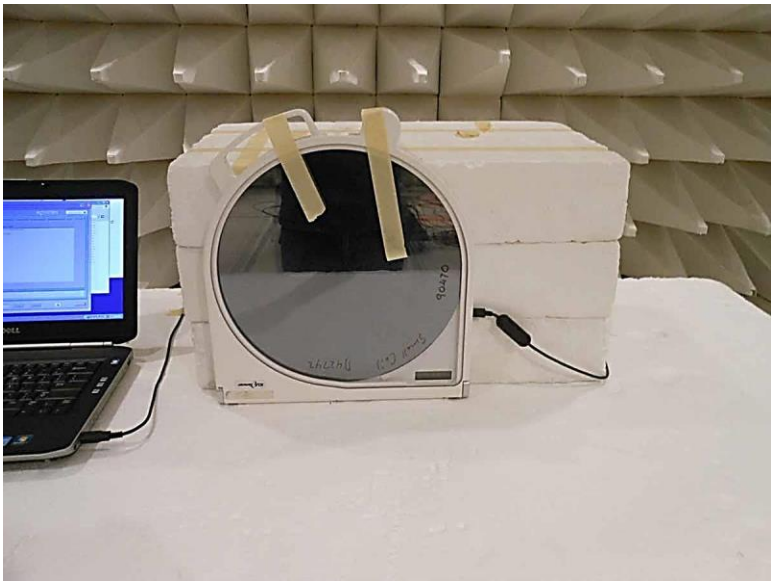


Front Side

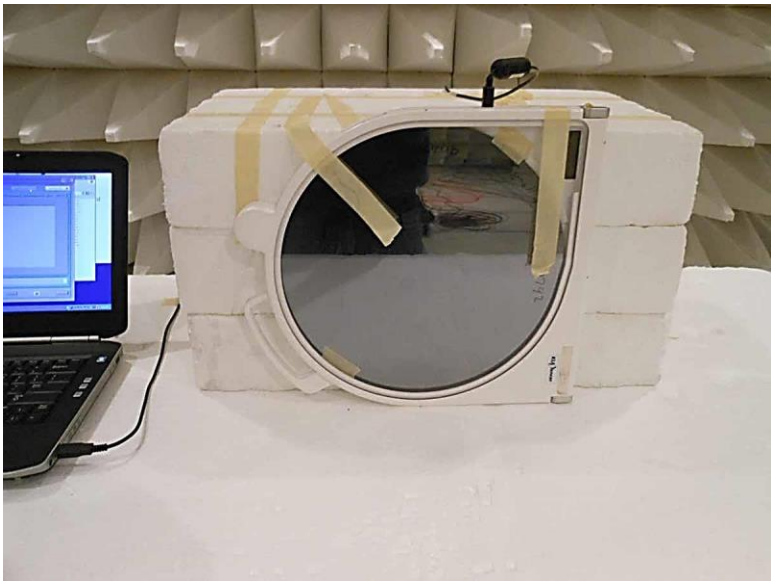
Back Side



X - Axis



Y - Axis



Z - Axis

-20dBc Bandwidth

Test Conditions / Setup

Test Location: CKC Laboratories • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **KLA-Tencor**
Specification: **OBW**
Work Order #: **92849** Date: 10/11/2013
Test Type: **Maximized Emissions** Time: 08:30:28
Equipment: **Integral Carrier** Sequence#: 3
Manufacturer: KLA-Tencor Tested By: Hieu Song Nguyenpham
Model: Carrier System 300
S/N: SA-02775

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
	AN00730	Preamp	8447D	1/17/2013	1/17/2015
	ANP01183	Cable	CNT-195	9/3/2013	9/3/2015
	ANP06024	Near-Field Probe	N/A	NCR	NCR

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Integral Carrier*	KLA-Tencor	Carrier System 300	SA-02775

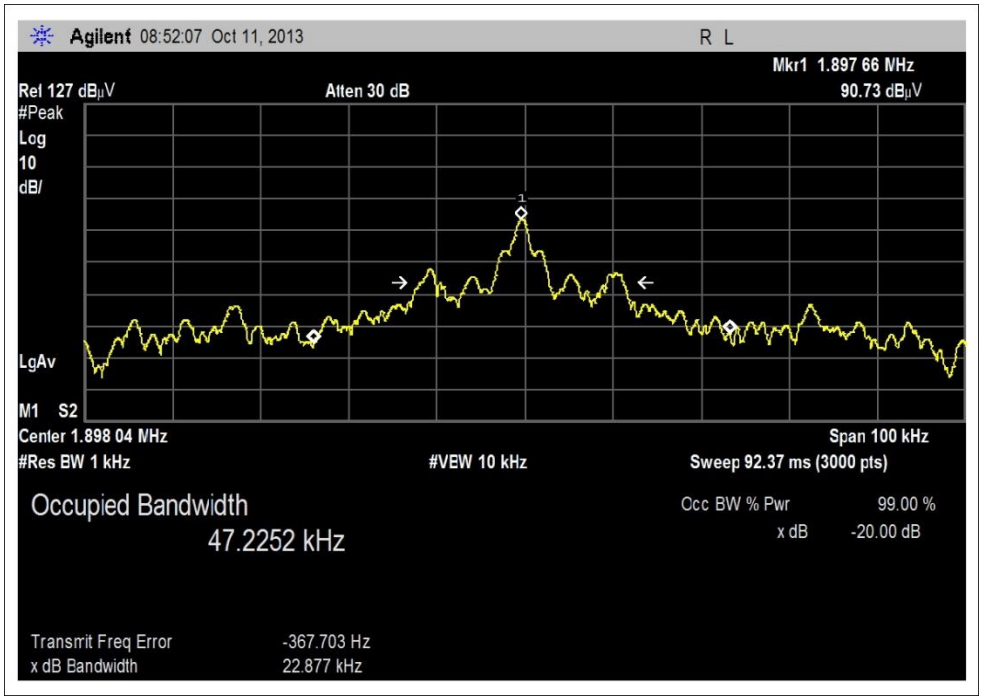
Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5420	J4GN4S1
Power Supply (for laptop)	Dell	AA90PM111	None
Wafer	KLA-Tencor	type: 3440D-12-8004	D42742

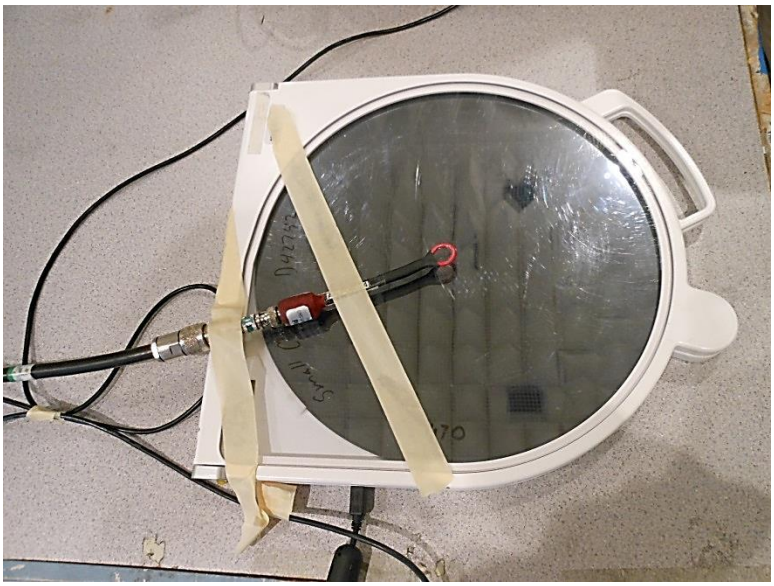
Test Conditions / Notes:

Highest Clock: 25MHz
Software: Wafer EMC Exerciser-1.0.4
Firmware: 2.1.115
Temperature: 19.5°C, Humidity: 43%, Atmospheric Pressure: 101.4kPa
RF Power output= 10% of the maximum power of a coil
Transmit operating frequency =1.9MHz
The EUT in an Integral Carrier System. Its purpose is to provide interface from a wafer to a PC. Laptop is in the chamber at the back edge of the test table and connected to the EUT. The Laptop is connected to the EUT with a USB cable and running Wafer EMC Exerciser - 1.0.4.
Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.
Notes: Communications Mode
Using a near field probe to measure the OBW. The absolute amplitude scale of the measurements is not calibrated.

Test Data



Test Setup Photos



RSS-210 99% Bandwidth

Test Conditions / Setup

Test Location: CKC Laboratories • 1120 Fulton Place • Fremont, CA 94539 • 510-249-1170

Customer: **KLA-Tencor**
Specification: **OBW**
Work Order #: **92849** Date: 10/11/2013
Test Type: **Maximized Emissions** Time: 08:30:28
Equipment: **Integral Carrier** Sequence#: 3
Manufacturer: KLA-Tencor Tested By: Hieu Song Nguyenpham
Model: Carrier System 300
S/N: SA-02775

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
	AN00730	Preamp	8447D	1/17/2013	1/17/2015
	ANP01183	Cable	CNT-195	9/3/2013	9/3/2015
	ANP06024	Near-Field Probe	NA	NCR	NCR

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Integral Carrier*	KLA-Tencor	Carrier System 300	SA-02775

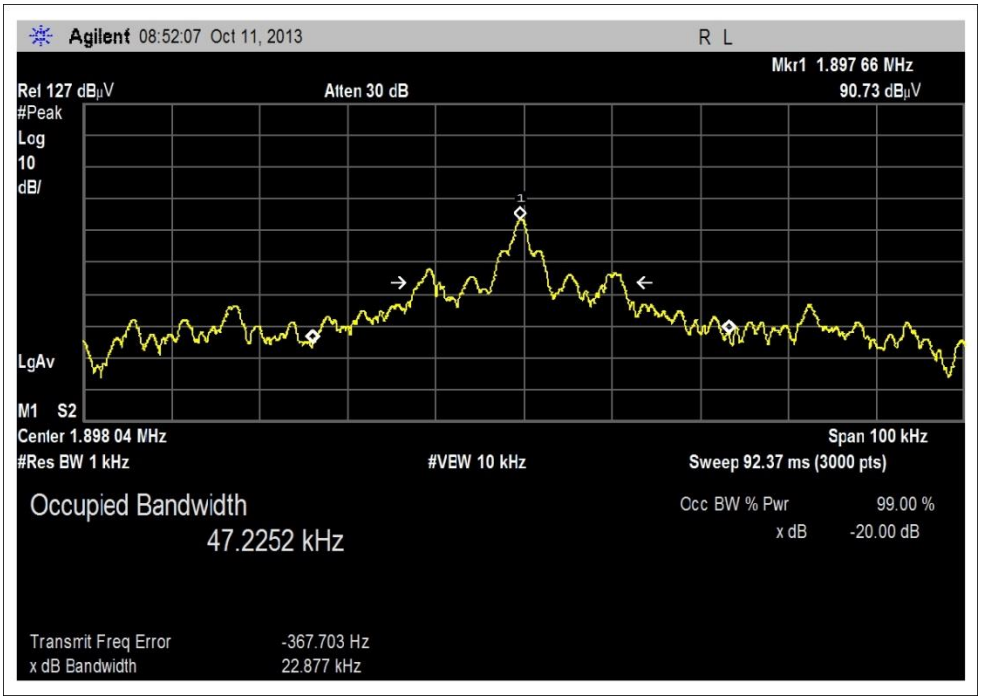
Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5420	J4GN4S1
Power Supply (for laptop)	Dell	AA90PM111	None
Wafer	KLA-Tencor	type: 3440D-12-8004	D42742

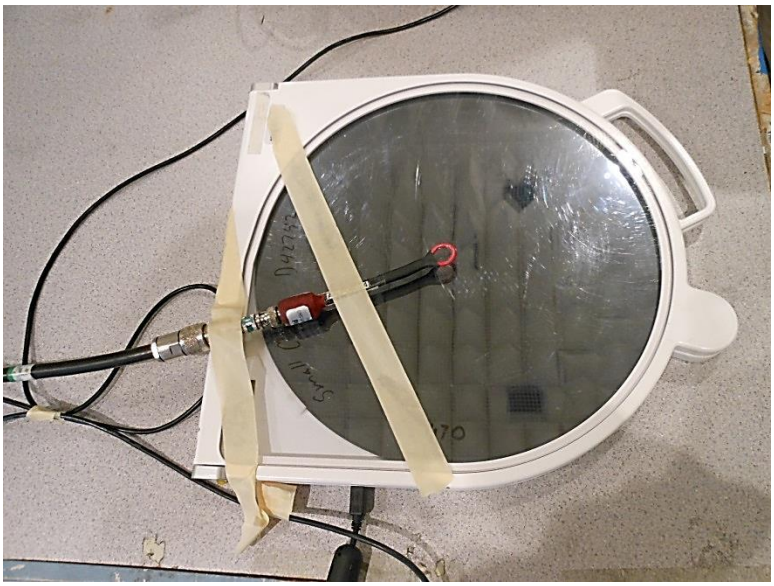
Test Conditions / Notes:

Highest Clock: 25MHz Software: Wafer EMC Exerciser-1.0.4
Firmware: 2.1.115
Temperature: 19.5°C, Humidity: 43%, Atmospheric Pressure: 101.4kPa
RF Power output= 10% of the maximum power of a coil
Transmit operating frequency =1.9MHz
The EUT in an Integral Carrier System. Its purpose is to provide interface from a wafer to a PC. Laptop is in the chamber at the back edge of the test table and connected to the EUT. The Laptop is connected to the EUT with a USB cable and running Wafer EMC Exerciser - 1.0.4.
Added a ferrite (# 28A0592-0A2) with 1 passes through on the USB cable near the EUT.
Notes: Communications Mode
Using a near field probe to measure the OBW. The absolute amplitude scale of the measurements is not calibrated.

Test Data



Test Setup Photos



SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or carrot ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.