



## ELECTRONICS TEST AND DEVELOPMENT CENTRE

(STQC Directorate, Ministry of Communications & Information Technology)

100 ft Road, Peenya Industrial Estate, Bangalore-560 058

(Tel: 2839 5992, 2839 4647. Fax: 080 - 2839 1804)

E-mail: etdcbg@stqc.gov.in



Report No.: TR/EMC/62971-3

### TEST REPORT

Page 01 of 16

#### 1. Scope

1.	Service request number	62971
2.	Test requested by (Name & Address of the Organization)	M/s. CEM Solutions Pvt. Ltd. #143/A1, Bommasandra Industrial Area, Hebbagodi Village, Bangalore-560099.
3.	Description of the equipment:	
	a) Nomenclature	2 <sup>nd</sup> Gen 1/2 port PRI PCI/PCIe+LEC Low Profile Card
	b) Manufactured by	CEM Solutions Pvt. Ltd.
	c) Model / type no.	2aCP1/2/e/L-H
	d) No. of samples submitted	01
	e) Serial no.	PA079058J1400001
4.	Date of submission of test samples	08/09/2014
5.	Condition of test samples on receipt	Good
6.	Test carried out at	In-house
7.	Date of start of tests	09/09/2014
8.	Date of completion of tests	09/09/2014
9.	Applicable test specification	CISPR 22:2008 Class B
10.	Test category	Performance Test
11.	Environment condition	Temp: 25±5 °C RH: 45 to 70%

#### 2. Major equipment used

SN	Nomenclature	Make	Model	Cal. Due
1.	Bi-Log Antenna	Electro-metrics	EM-6917B-1	04/06/2015
2.	EMI Receiver	R&S	ESCI7	12/12/2014
3.	V network	R&S	ESH3Z5	04/06/2015
4.	EMI Receiver	R&S	ESCI	21/10/2014

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Test Parameter : 1) Conducted disturbance at the mains ports  
2) Radiated disturbance measurement @ 3 mts distance  
Test Specification : CISPR 22:2008 Class B  
Detector used : Quasi Peak (QP) / Average (Avg)  
Detector Bandwidth

Frequency (MHz)	Detector Bandwidth (kHz)
0.15 - 30	9
30 - 1000	120

Limits:

Class B				
Conducted disturbance at the mains ports			Radiated disturbance measurement	
Freq (MHz)	QP (dB $\mu$ V)	AVG (dB $\mu$ V)	Freq (MHz)	QP (dB $\mu$ V/m)
0.15- 0.5	66-56	56-46	30 - 230	40
0.5- 5	56	46	230 - 1000	47
5 - 30	60	50		

**EUT Configuration:** The EUT is a 2<sup>nd</sup> Gen 1/2 port PRI PCI/PCIe+LEC Low Profile Card, inserted in a PCIe slot of a desktop PC which was powered by 230V AC main supply.

**Remark:** The Image of EUT and test setup for Radiated disturbance measurement are shown in Annexure 'A' and 'B' respectively. The graphs for Conducted disturbance at the mains ports and Radiated disturbance measurement tests are shown in Annexure 'C' and 'D' respectively.

Summary of test results:

Conducted disturbance at the mains ports:  
Meets the Class B Limits of CISPR 22:2008.  
Few Significant emission are reported in page no. 03  
Radiated disturbance measurement:  
Meets the Class B Limits of CISPR 22:2008.  
Few Significant emission are reported in page no. 04







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**Results:** (1) Conducted disturbance at the mains ports.

Frequency (MHz)	Qp Reading (dB $\mu$ V)	Qp Limit (dB $\mu$ V)	Avg Reading (dB $\mu$ V)	Avg Limit (dB $\mu$ V)
<b>On Phase to ground</b>				
0.154	56.02	66.00	39.27	56.00
0.190	53.24	64.86	36.78	54.86
0.278	48.04	62.57	36.59	52.57
0.298	51.51	62.00	41.66	52.00
0.342	46.81	60.57	34.82	50.57
7.922	33.00	60.00	25.76	50.00
13.518	31.52	60.00	22.99	50.00
<b>On Neutral to ground</b>				
0.158	57.38	66.00	42.60	56.00
0.202	56.60	64.57	41.68	54.57
0.230	51.84	63.71	37.13	53.71
0.382	44.81	59.43	30.18	49.43
0.430	48.58	58.00	31.66	48.00
0.514	41.21	56.00	27.77	46.00
3.278	35.88	56.00	32.30	46.00

M-2



(19)



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**Results:** (2) Radiated disturbance measurement.

Frequency (MHz)	Emission level measured (dB $\mu$ V/m)	Angle (deg)	Polarisation (H/V)*	Limit (dB $\mu$ V/m)
30.40	27.12	270	V	40
31.56	27.17	90	V	40
32.12	26.37	180	V	40
527.96	27.12	90	H	47
630.44	29.43	90	V	47
766.28	34.27	180	H	47

(H/V)\*:H-Horizontal polarization, V-Vertical polarization

*Hemant Kumar Sahu*  
Tested By  
(Hemant Kumar Sahu)  
(Scientist 'B')

*N.C. Joshi*  
Approved By  
**Dr. N.C. JOSHI**  
Scientist 'E'  
Electronics Test & Development Centre  
Ministry of Comm. & IT., STQC Directorate,  
Govt. of India, Bangalore - 560 058.

*Ranjit*  
Issued By

CO-ORDINATOR  
TESTING SERVICES,  
E.T.D.C., BANGALORE





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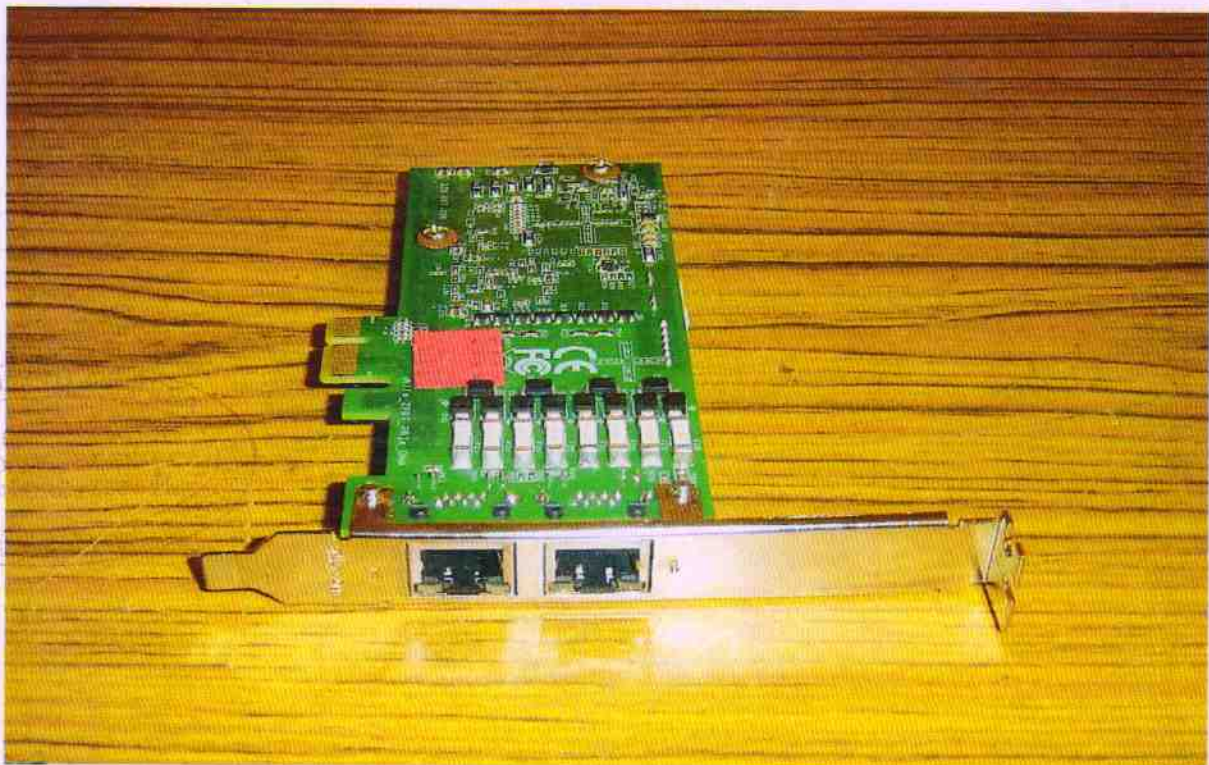


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Annexure "A"

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Image of EUT



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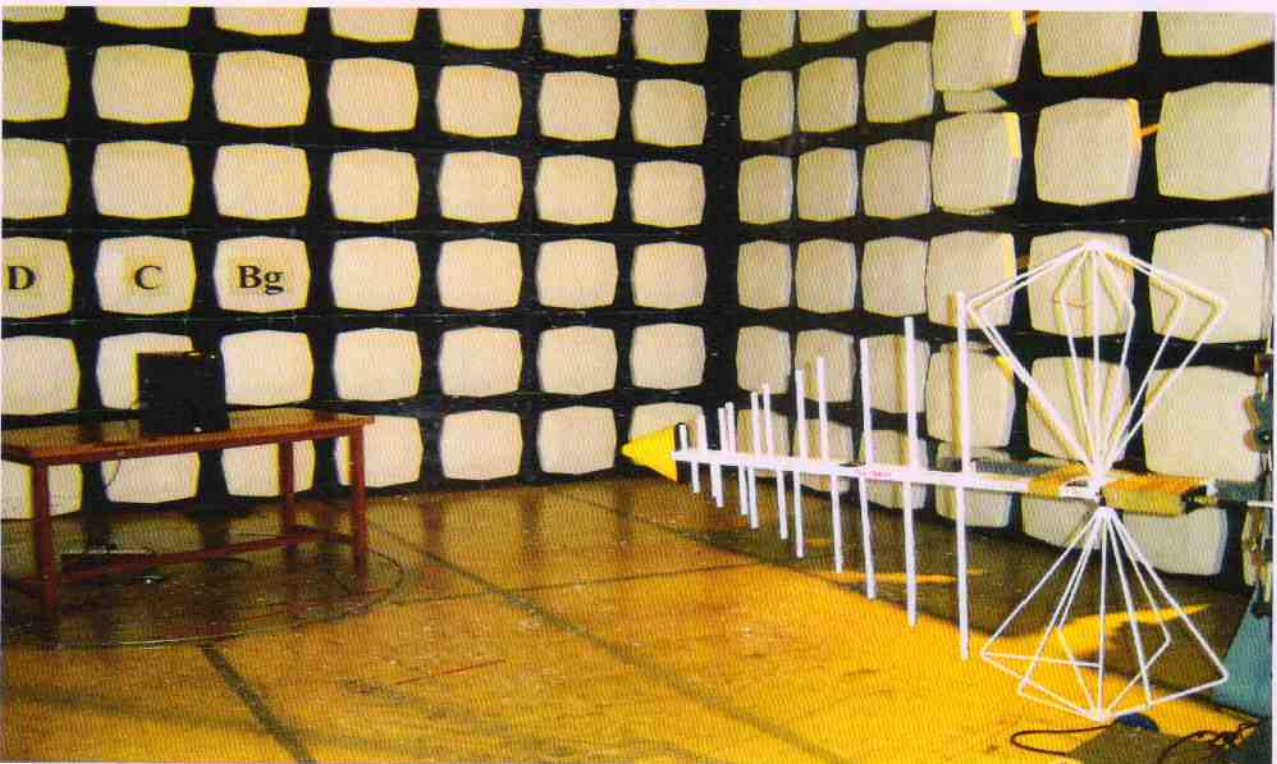
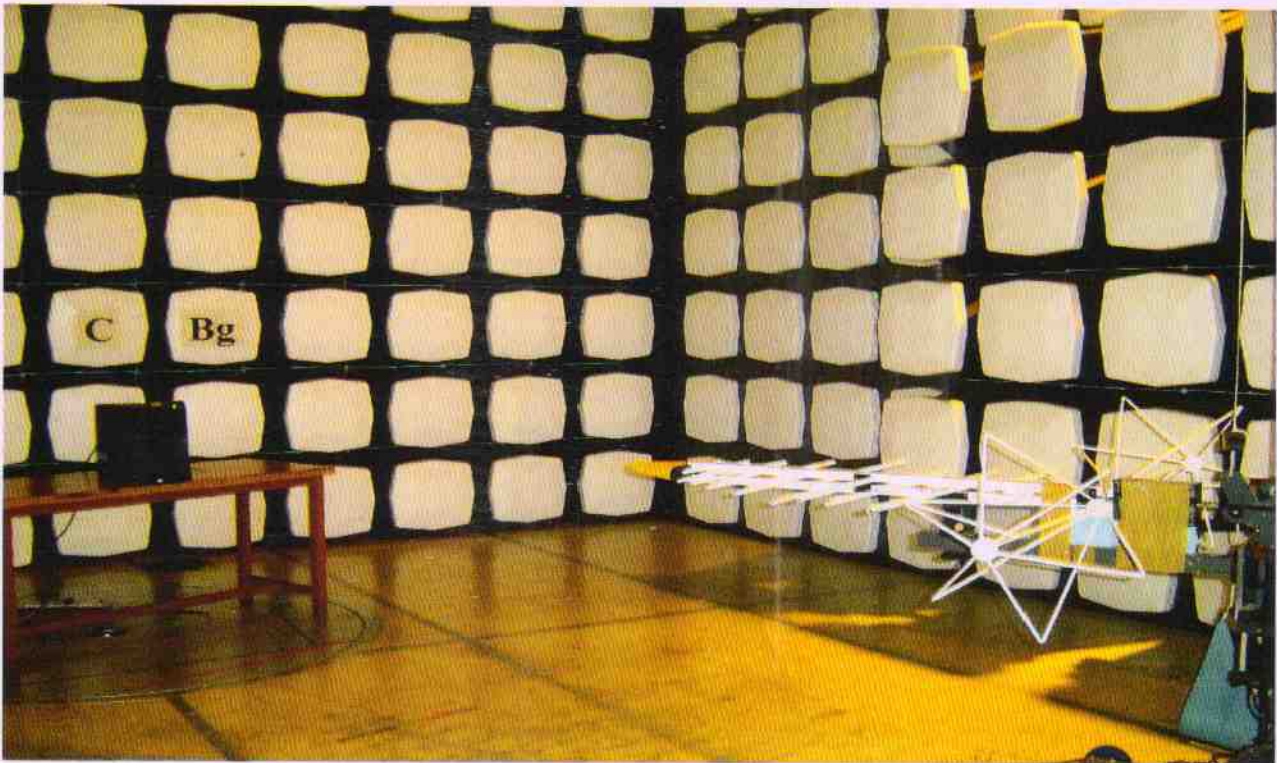


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Annexure "B"

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### EUT Test Setup for Radiated disturbance measurement



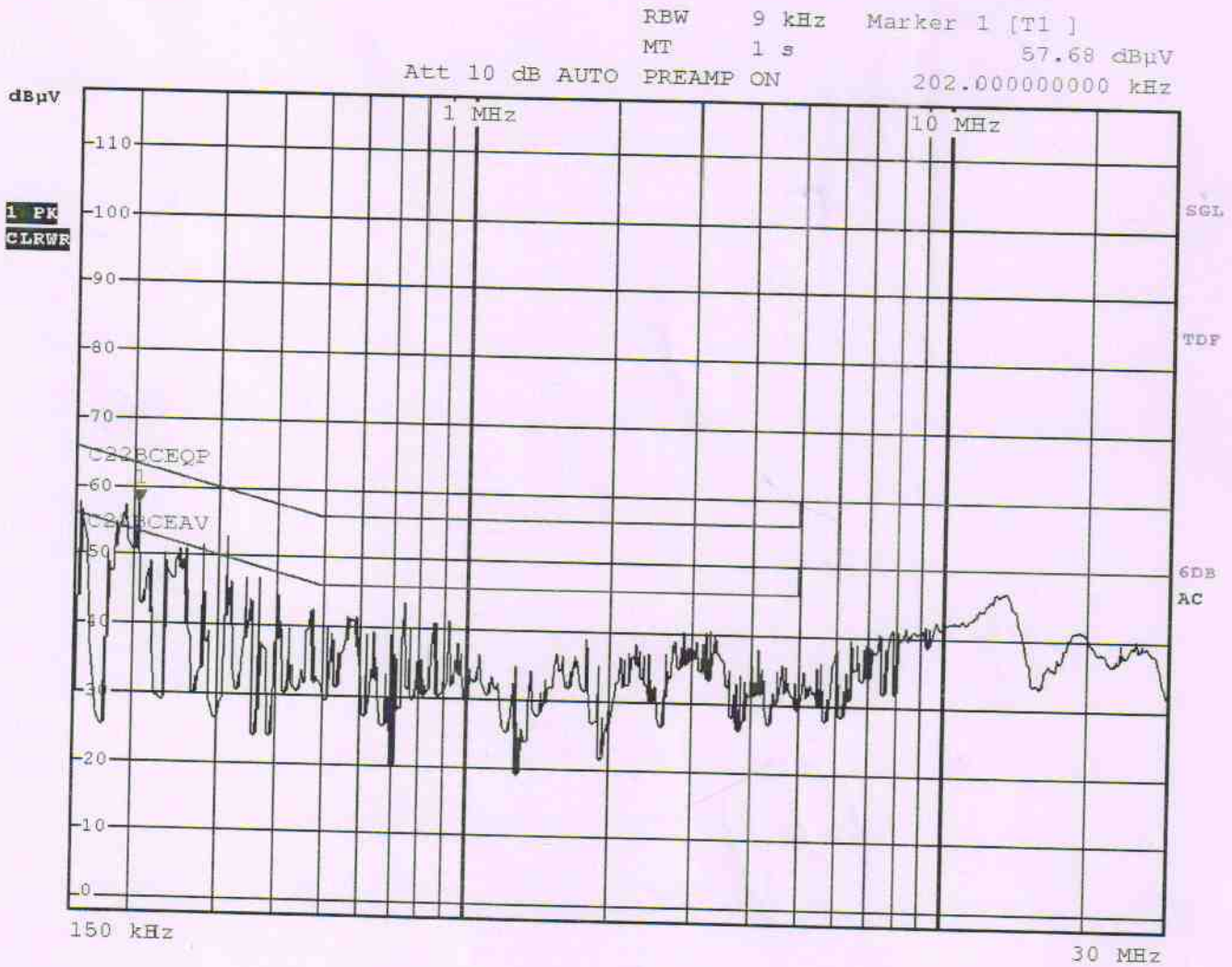
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BANGALORE  
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### Annexure 'C' (Continued...)

Graphs of Conducted disturbance at the mains ports



MA

MA

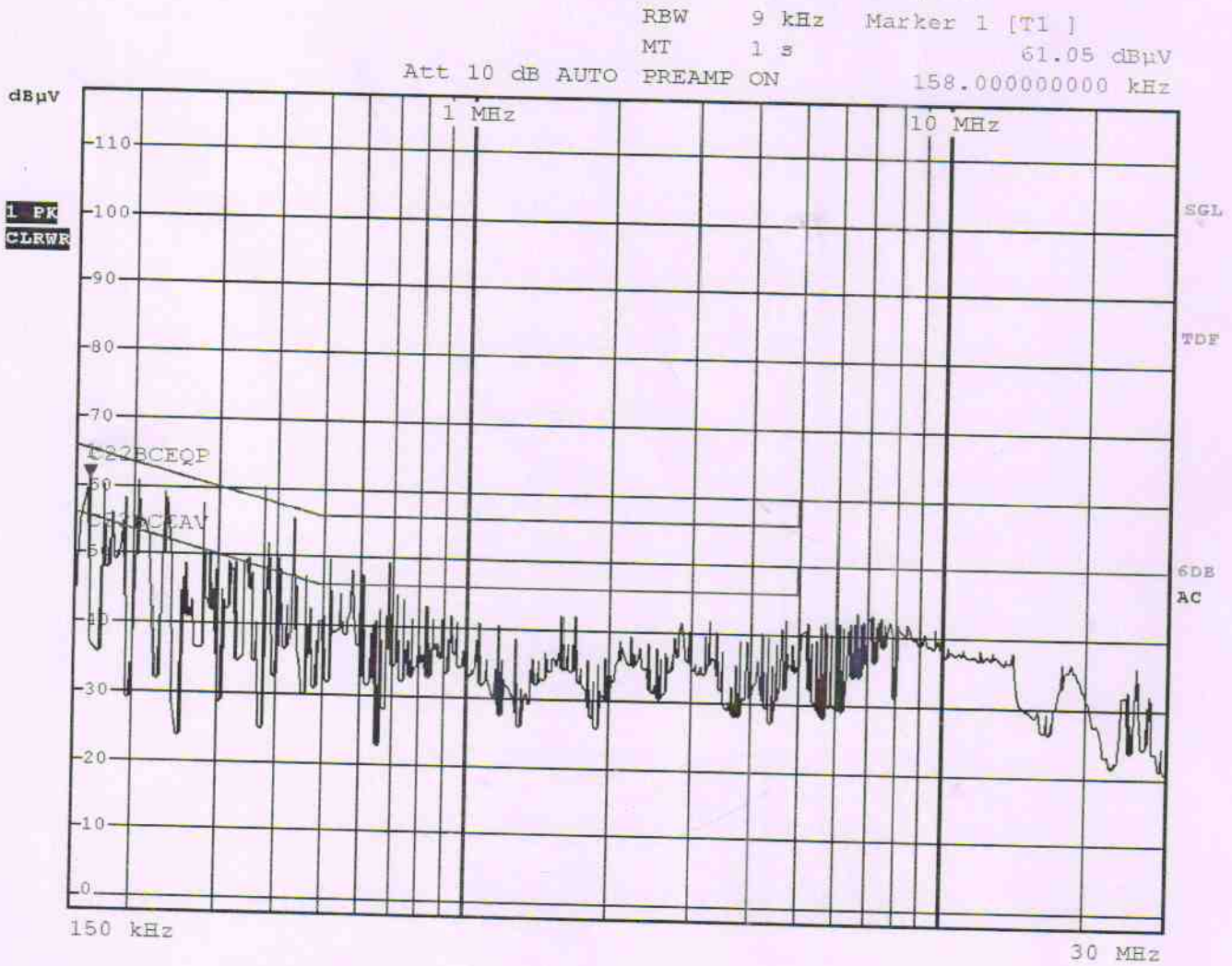
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Date: 9.SEP.2014 12:34:44



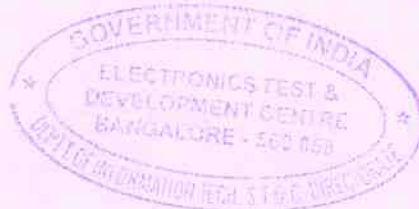
Annexure 'C'

Graphs of Conducted disturbance at the mains ports



SRF NO:62971, CE test on 2nd Gen 1/2 port PRI PCI/PCIe+LEC Low Profile Card, Model :2aCP1/2/e/L-H on Neutral.

Date: 9.SEP.2014 12:43:50

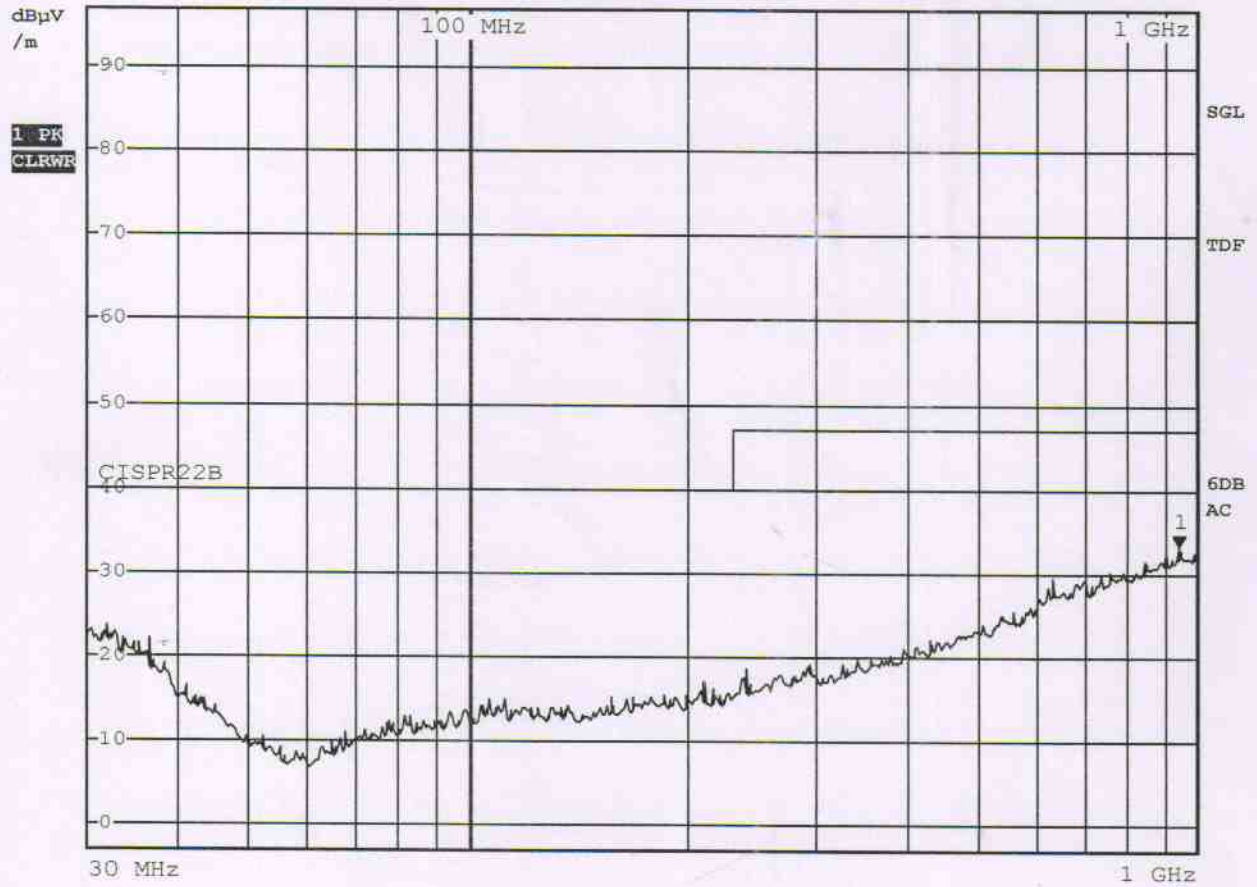




Graphs of radiated disturbance measurement @ 3mts Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 33.23 dBuV/m  
Att 0 dB AUTO PREAMP ON 947.32000000 MHz



*MS*

*MS*

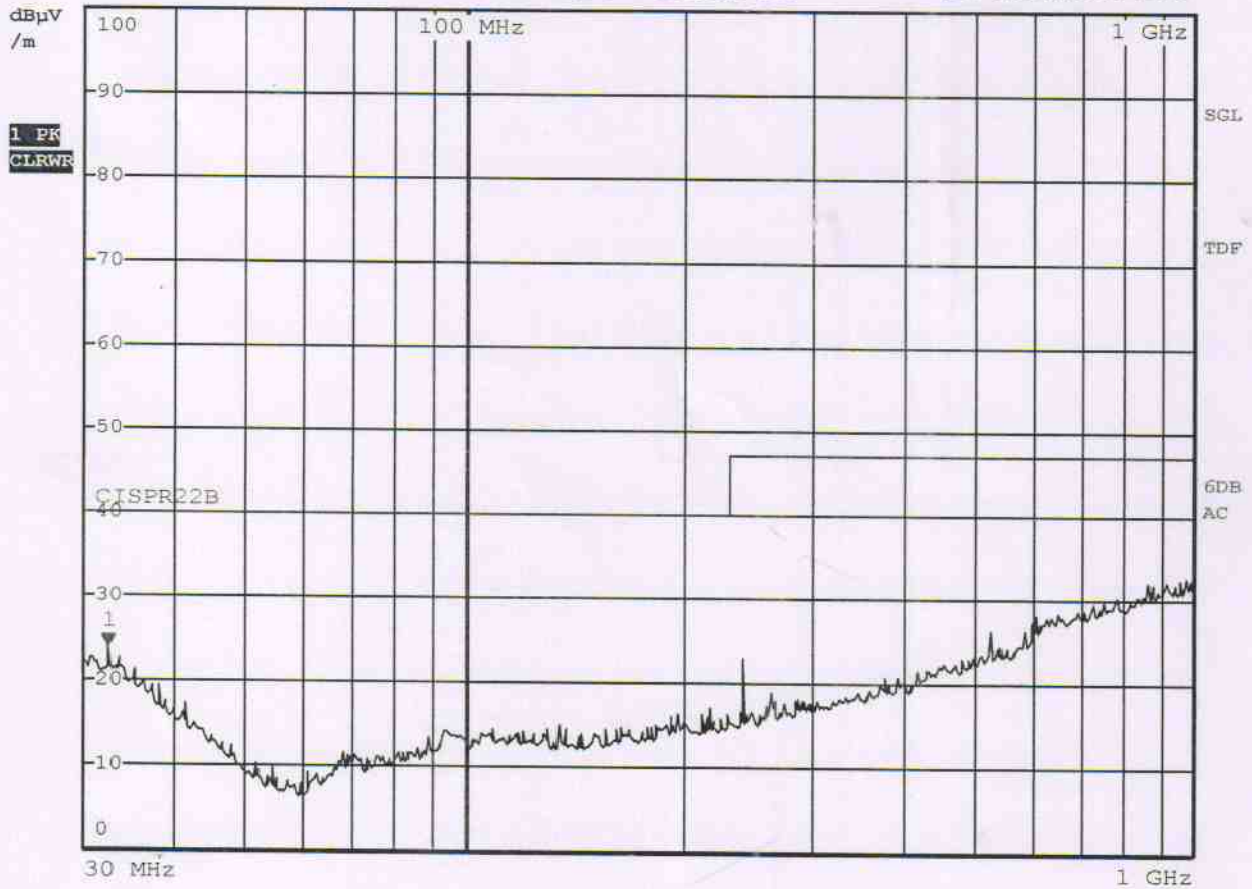
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w Profile Card,Model:2aCP1/2/e/L-H, Angle:0 deg,Antenna:HP  
Date: 9.SEP.2014 11:23:15



Graphs of radiated disturbance measurement @ 3mts Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 24.01 dBµV/m  
Att 0 dB AUTO PREAMP ON 32.40000000 MHz



SRF No:62971,RE Test on 2nd Gen 1/2 port PRI PCI/PCIe+LEC Low Profile Card,Model:2aCP1/2/e/L-H, Angle:90 deg,Antenna:HP  
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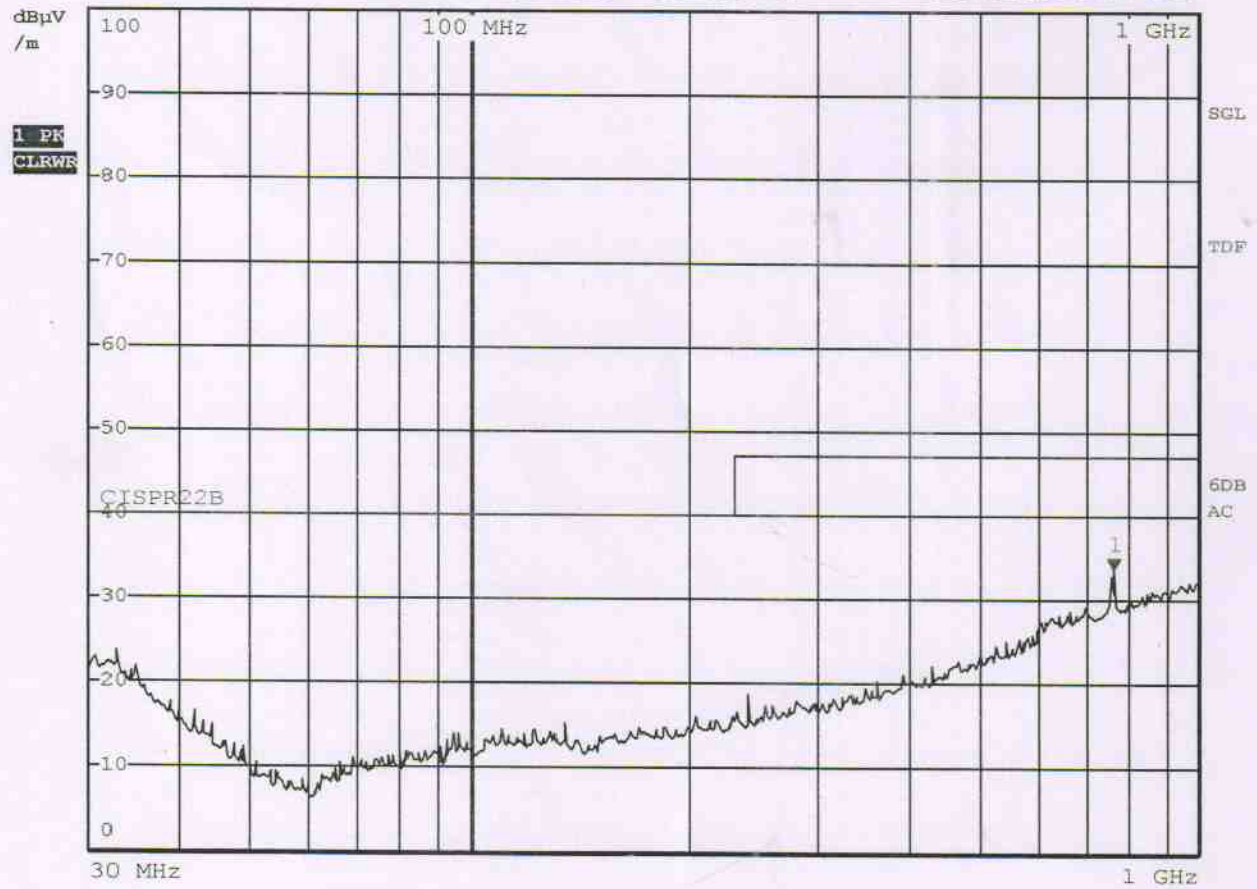




Graphs of radiated disturbance measurement @ 3mts Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 33.64 dBuV/m  
Att 0 dB AUTO PREAMP ON 766.280000000 MHz



M/S

(M)

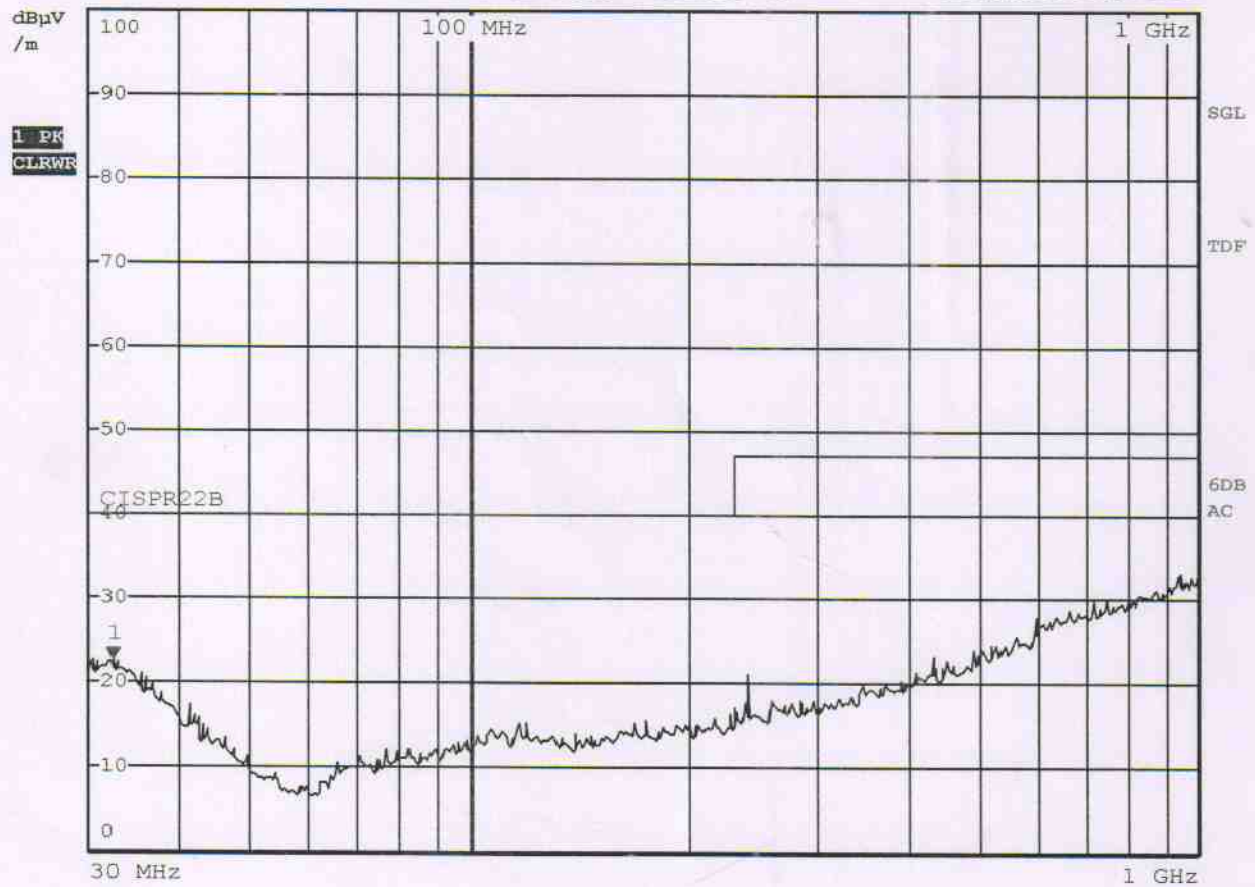
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Date: 9.SEP.2014 12:09:27



Graphs of radiated disturbance measurement @ 3mts Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 22.67 dBuV/m  
Att 0 dB AUTO PREAMP ON 32.360000000 MHz



MS

MS

SRF No:62971,RE Test on 2nd Gen 1/2 port PRI PCI/PCIe+LEC Low Profile Card,Model:2aCP1/2/e/L-H, Angle:270 deg,Antenna:HP  
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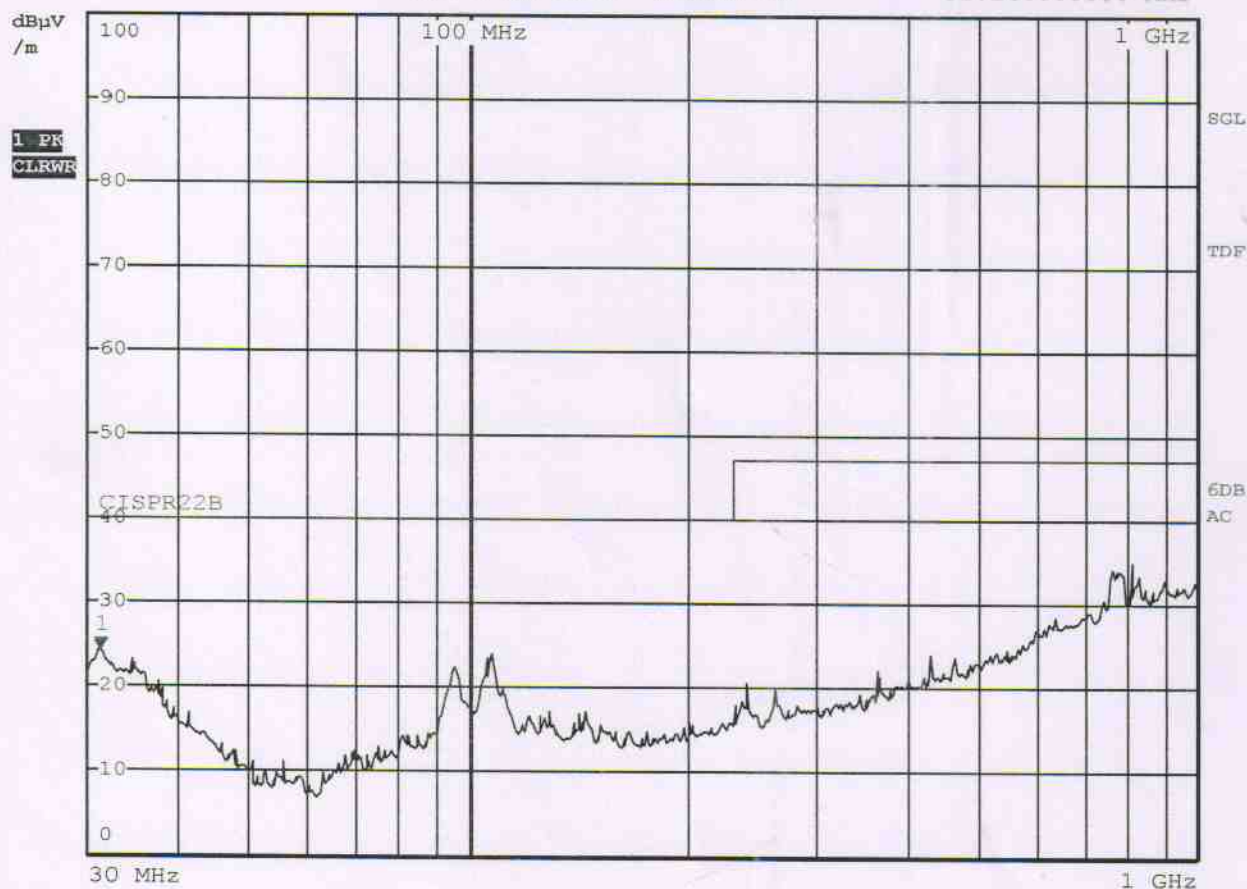




Graphs of radiated disturbance measurement @ 3mts Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 24.37 dBµV/m  
Att 0 dB AUTO PREAMP ON 31.160000000 MHz



M/S

(M)

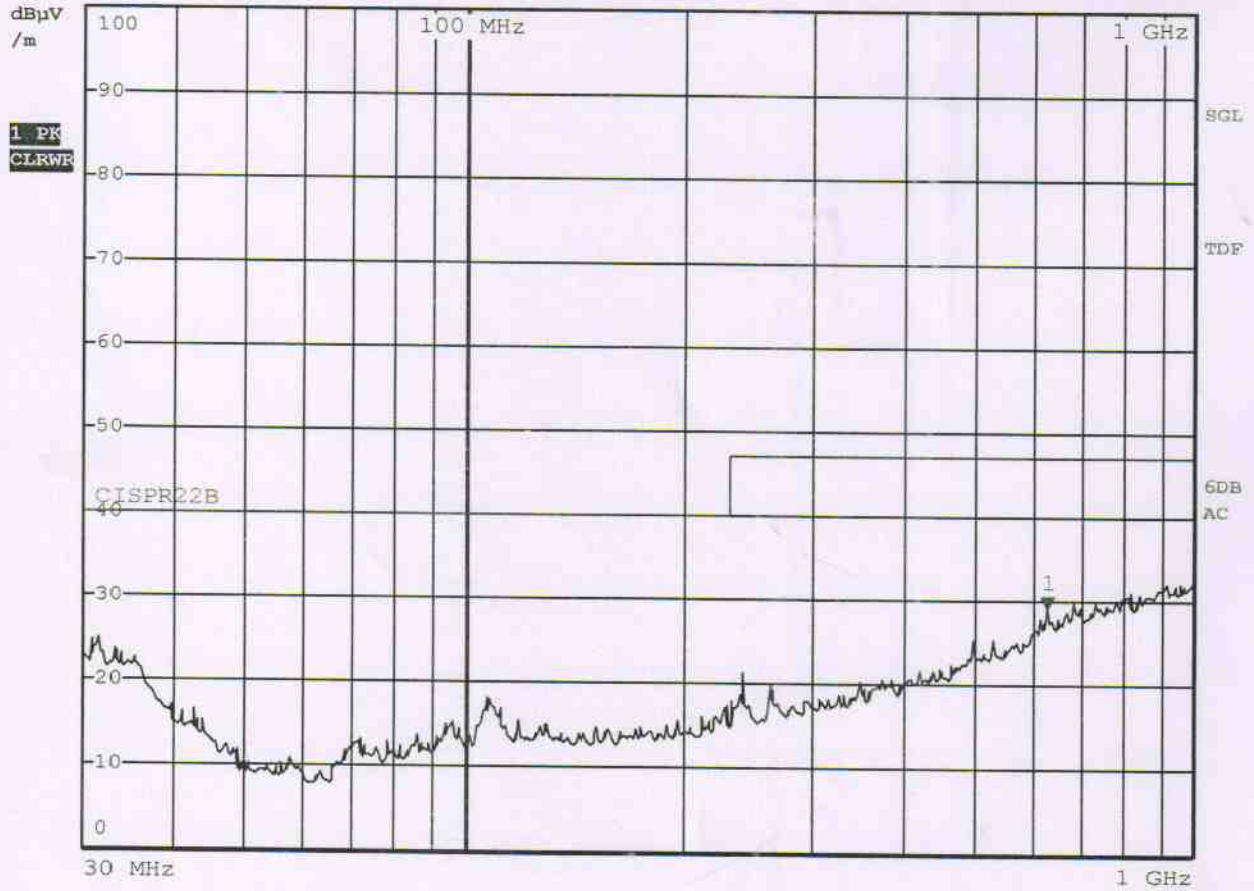
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Date: 9.SEP.2014 12:17:19



Graphs of radiated disturbance measurement @ 3mts Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 29.26 dBμV/m  
Att 0 dB AUTO PREAMP ON 630.44000000 MHz



MS

MS

SRF No:62971,RE Test on 2nd Gen 1/2 port PRI PCI/PCIe+LEC Lo  
w Profile Card,Model:2aCP1/2/e/L-H, Angle:90 deg,Antenna:VP  
Date: 9.SEP.2014 12:21:49

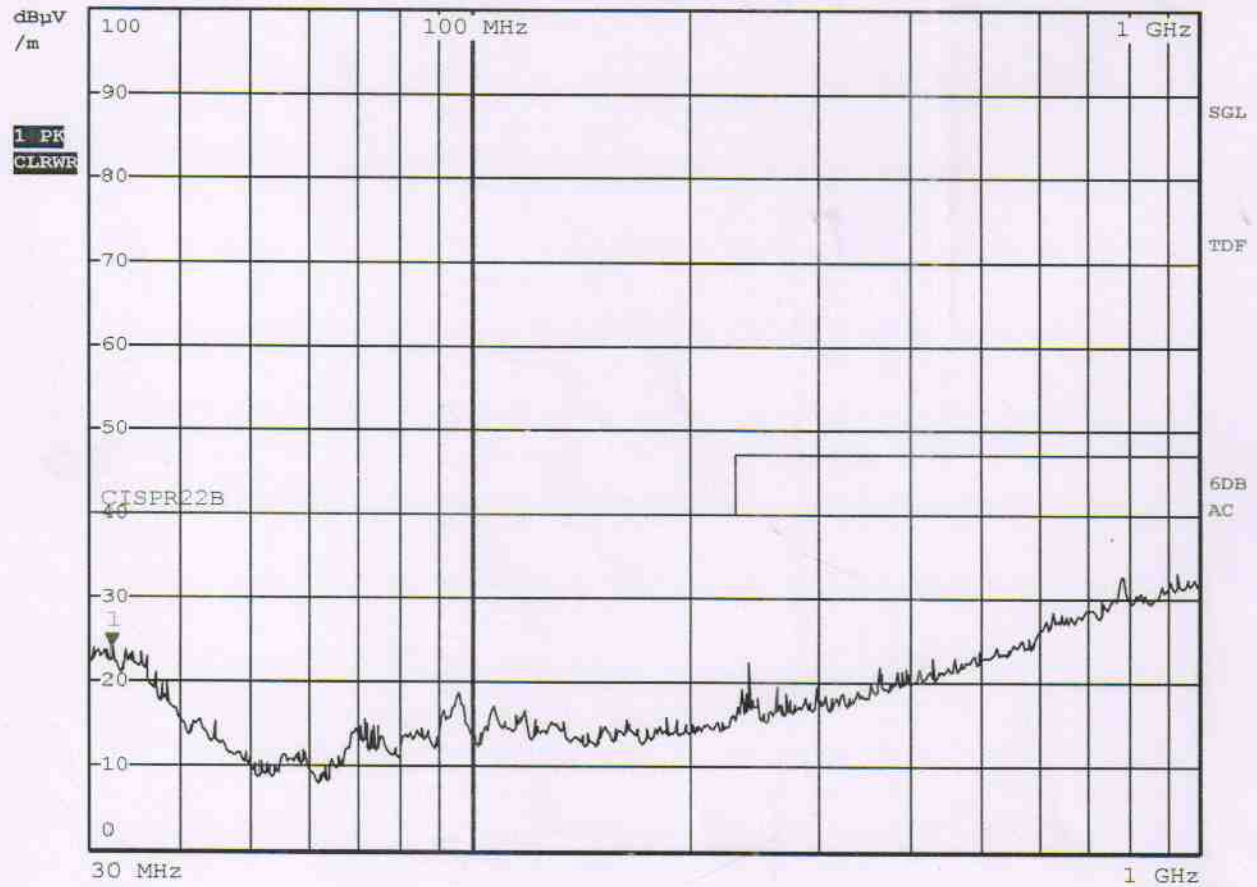




Graphs of radiated disturbance measurement @ 3mts Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 24.25 dBuV/m  
Att 0 dB AUTO PREAMP ON 32.12000000 MHz



MS

MS

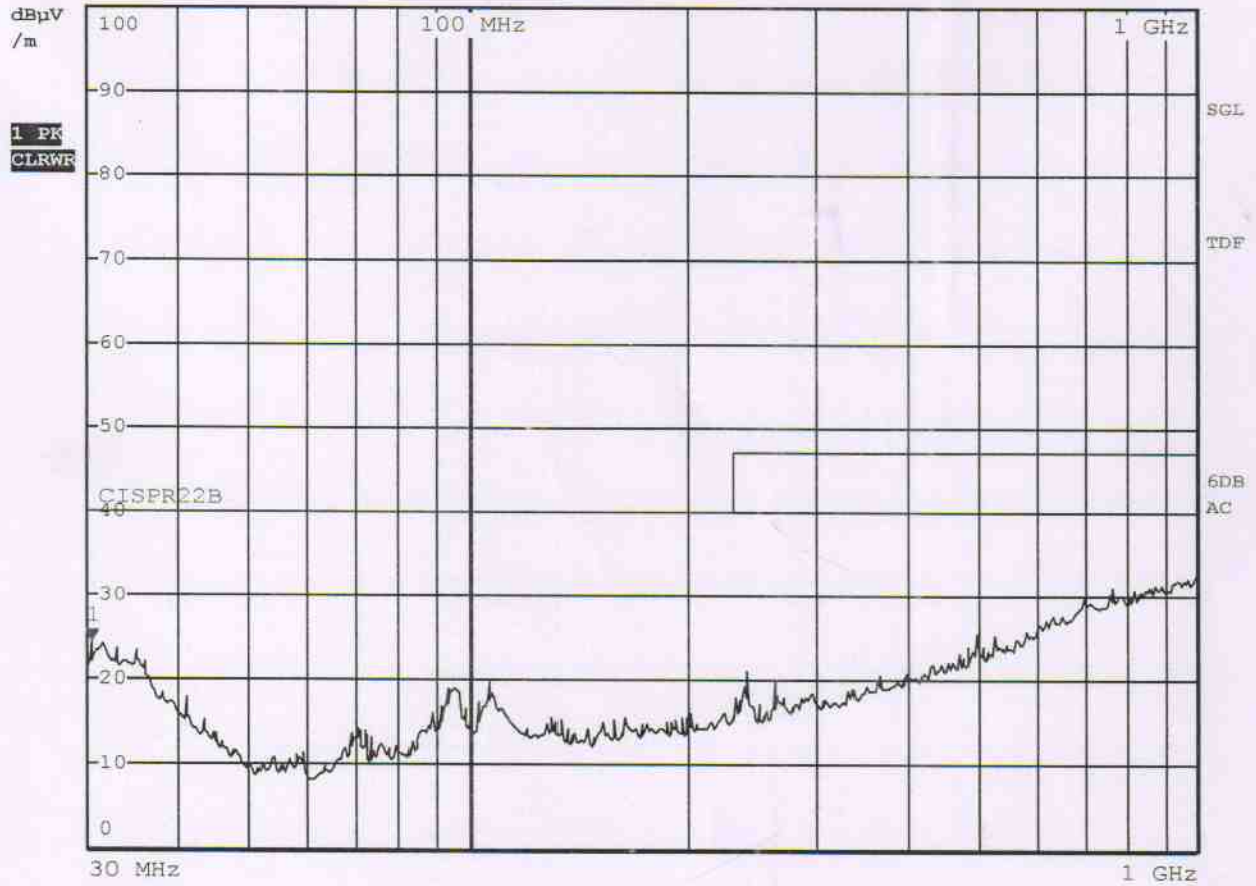
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Date: 9.SEP.2014 12:25:23



Graphs of radiated disturbance measurement @ 3mts Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 24.62 dB $\mu$ V/m  
Att 0 dB AUTO PREAMP ON 30.40000000 MHz



*MSR*

*MSR*

SRF No:62971,RE Test on 2nd Gen 1/2 port PRI PCI/PCIe+LEC Low Profile Card,Model:2aCP1/2/e/L-H, Angle:270 deg,Antenna:VP  
Date: 9.SEP.2014 12:29:38

