



## 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/62971-4

### TEST REPORT

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#### 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	FCC Part 15: 2007 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.	EMI Receiver	R&S	ESCI	21/10/2014
2.	V network	R&S	ESH3Z5	04/06/2015
3.	EMI Receiver	R&S	ESCI7	12/12/2014
4.	Bi-Log Antenna	Electro-metrics	EM-6917B-1	04/06/2015

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Date of Release: 16/05/2014



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Test Parameter : 1) Conducted Emission measurement on power line  
2) Radiated Emission measurement @ 3mts. Distance  
Test Specification : FCC Part 15: 2007 Class B  
Detector used : Quasi Peak (QP) / Average (Avg)  
Detector Bandwidth

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

Limits:

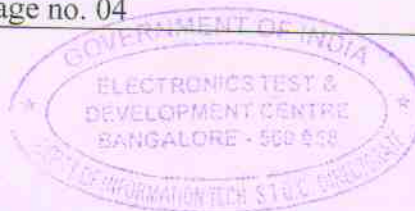
Class B				
Conducted Emission measurement on power line			Radiated Emission measurement @ 3mts. distance	
Freq (MHz)	QP (dB $\mu$ V)	AVG (dB $\mu$ V)	Freq (MHz)	QP (dB $\mu$ V/m)
0.15 - 0.5	66-56	56-46	30 - 88	40
0.5 - 5	56	46	88-216	43.5
5 - 30	60	50	216-960	46
			960-1000	54

**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 Emission measurement are shown in Annexure 'A' and 'B' respectively. The graphs for Conducted Emission measurement on power line and Radiated Emission measurement tests are shown in Annexure 'C' and 'D' respectively.

Summary of test results:

Conducted Emission measurement on power line:  
Meets the Class B Limits of FCC Part 15:2007.  
Few Significant emission are reported in page no. 03  
Radiated Emission measurement @ 3mts. Distance  
Meets the Class B Limits of FCC Part 15:2007.  
Few Significant emission are reported in page no. 04







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**Results:** (1) Conducted Emission measurement on power line.

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/S



MS



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### Results: (2) Radiated Emission 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')

*Dr. 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.

*[Signature]*  
Issued By  
CO-ORDINATOR  
TESTING SERVICES,  
E.T.D.C., BANGALORE







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Annexure "A"

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### Image of EUT



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ELECTRONICS TEST AND DEVELOPMENT CENTRE  
BANGALORE  
DEPT. OF COMMUNICATIONS & INFORMATION TECHNOLOGY

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EP





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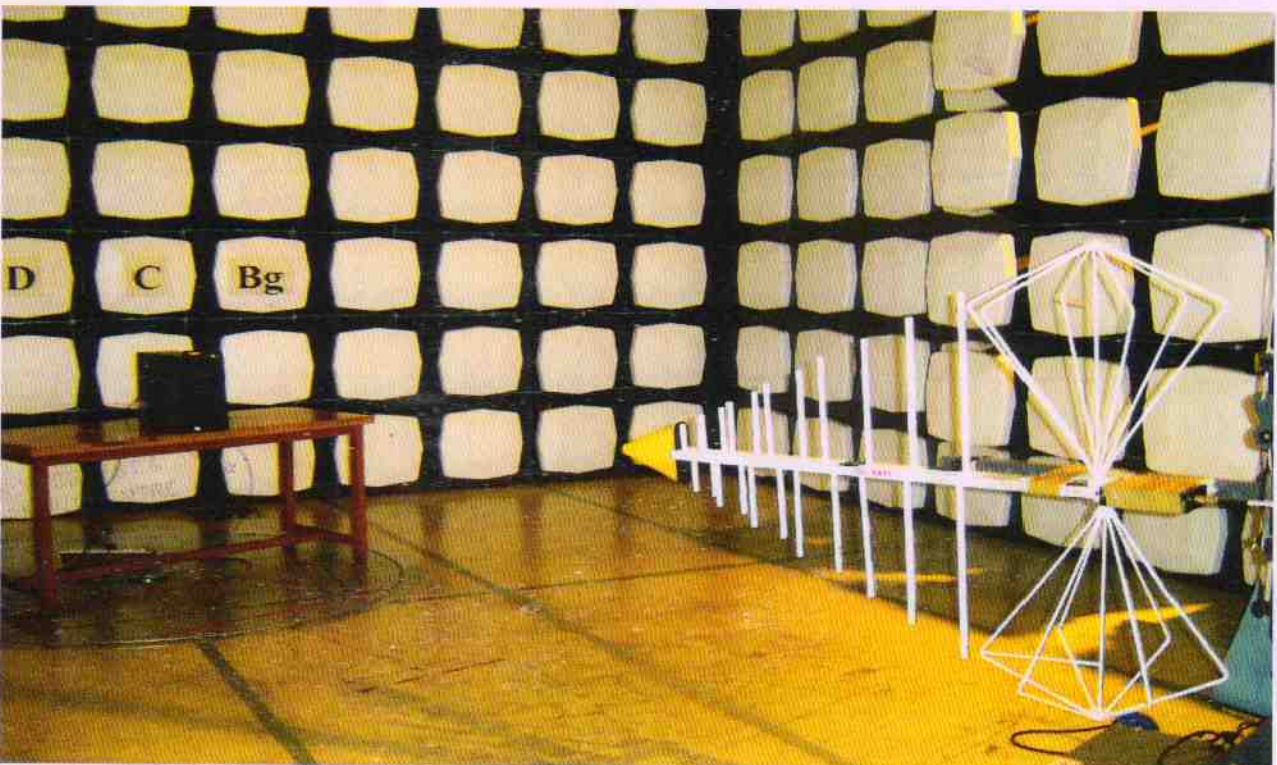
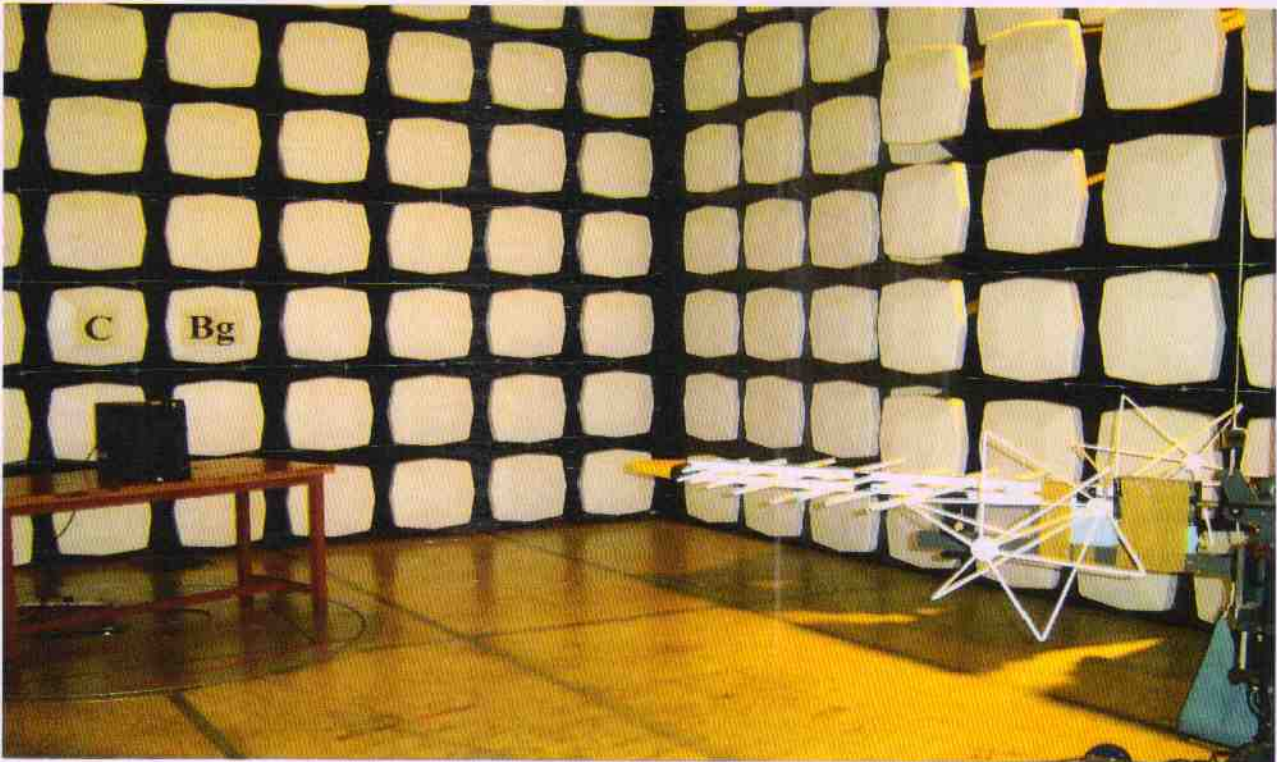
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Annexure "B"

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### EUT Test Setup for Radiated disturbance measurement

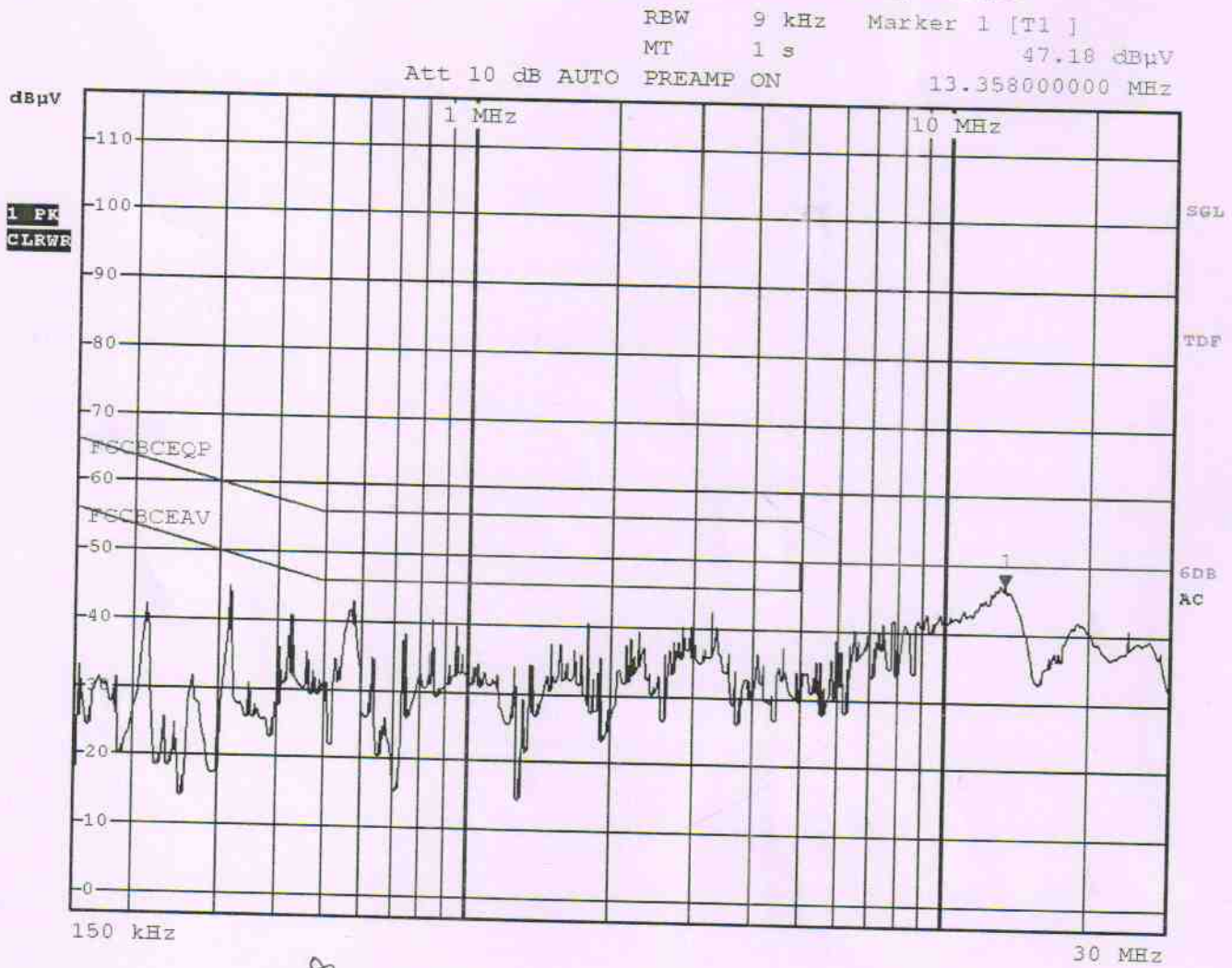


148

149



Annexure 'C' (Continued...)  
Graphs of Conducted Emission measurement on power line

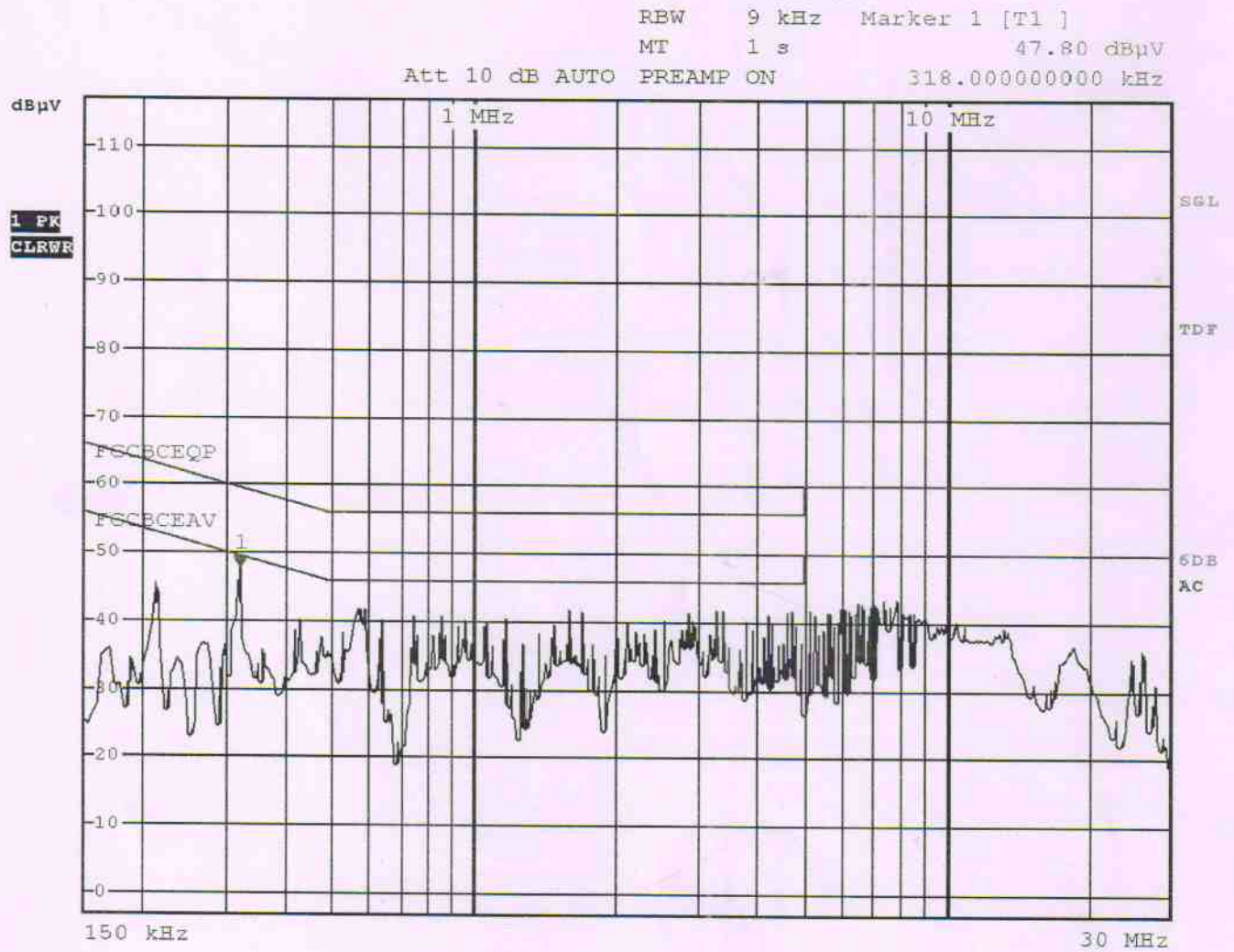


SRF NO:62971, CE test on 2nd Gen 1/2/4 port PRI PCI/PCIe+LEC  
card, Model : 2aCP1/2/4/e/L on LINE

Date: 8.SEP.2014 11:49:46



Graphs of Conducted Emission measurement on power line



ND

GP

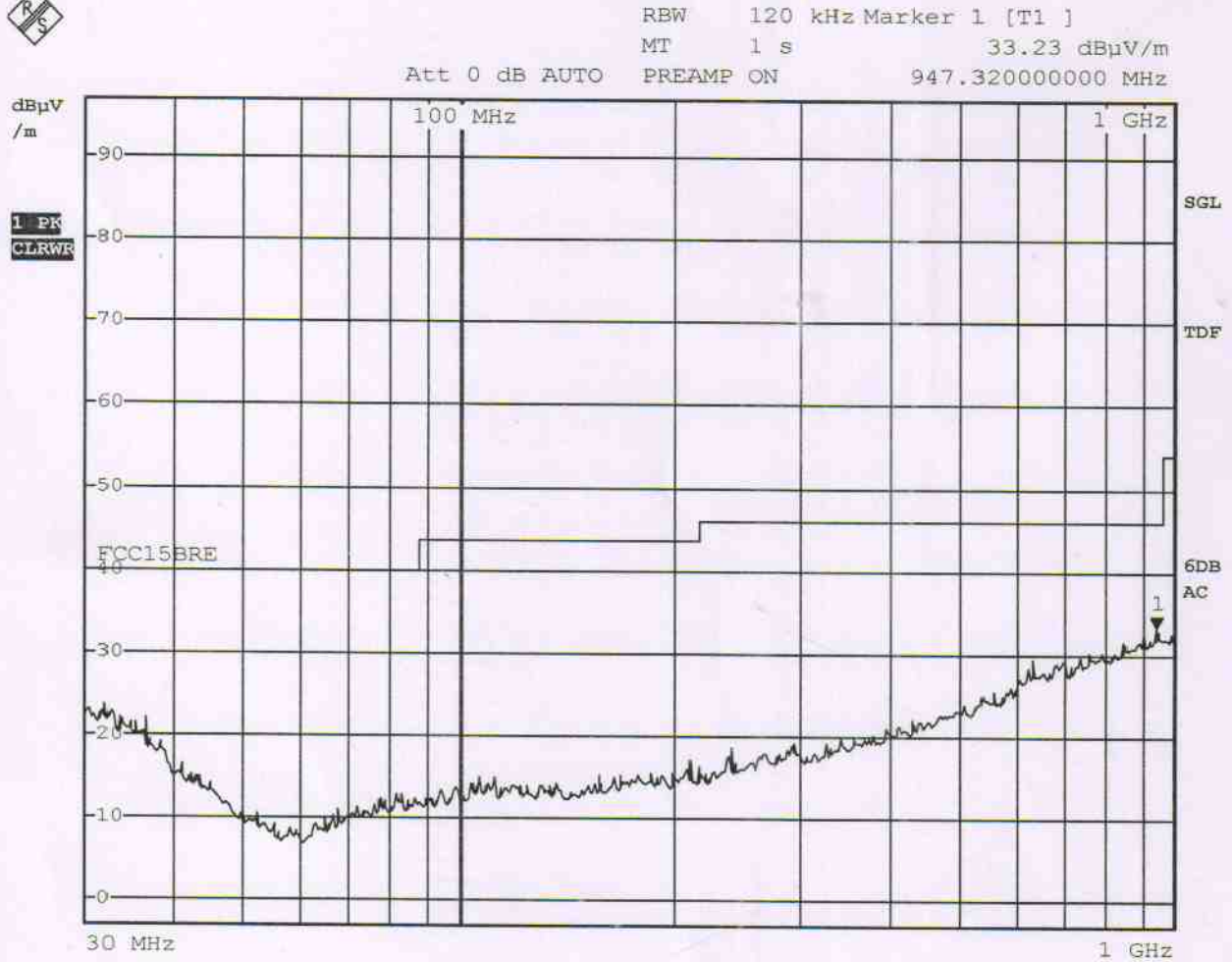
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Date: 8.SEP.2014 12:04:00





Graph of Radiated emission measurement @ 3mts. Distance



MB

W

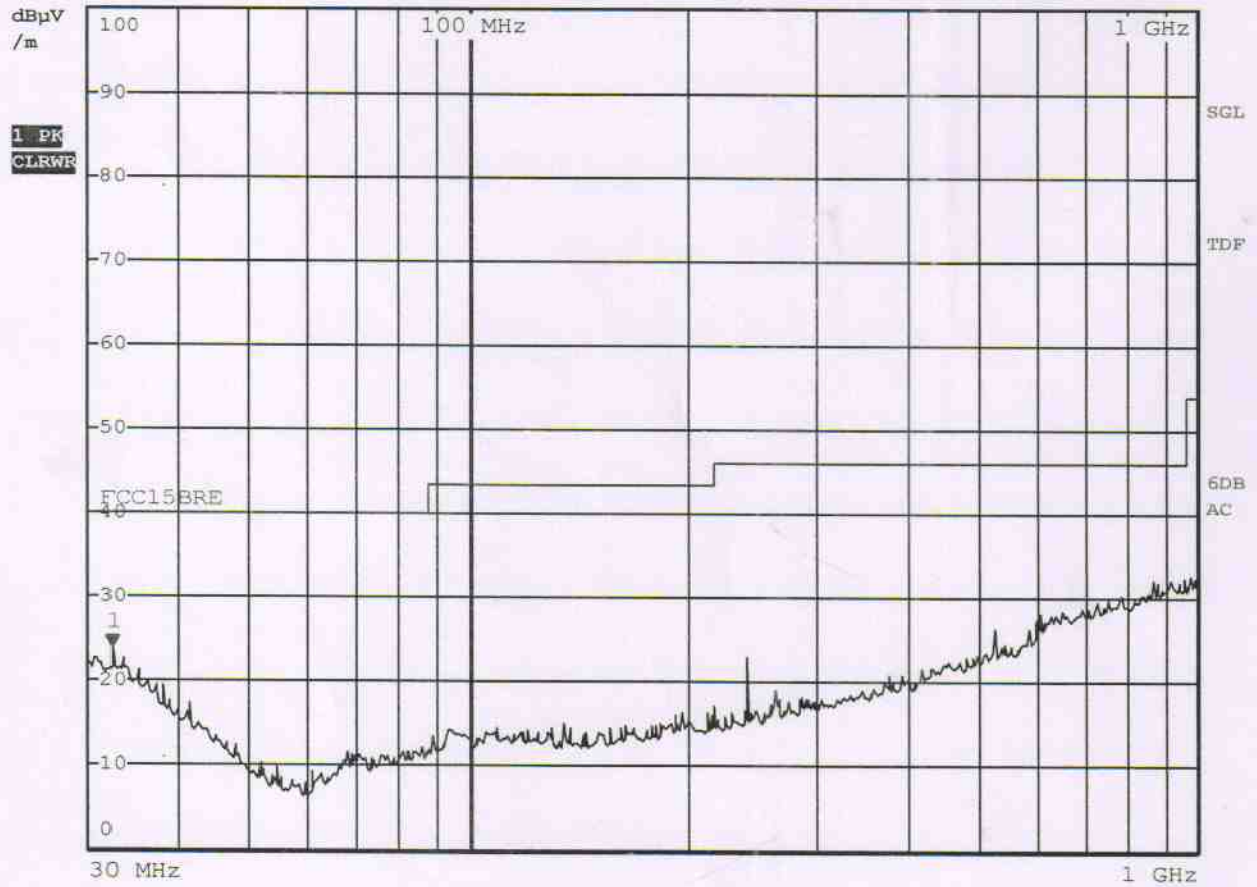
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Date: 9.SEP.2014 11:22:56



Graph of Radiated emission measurement @ 3mts. Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 24.01 dB $\mu$ V/m  
Att 0 dB AUTO PREAMP ON 32.40000000 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:90 deg,Antenna:HP  
Date: 9.SEP.2014 11:52:47

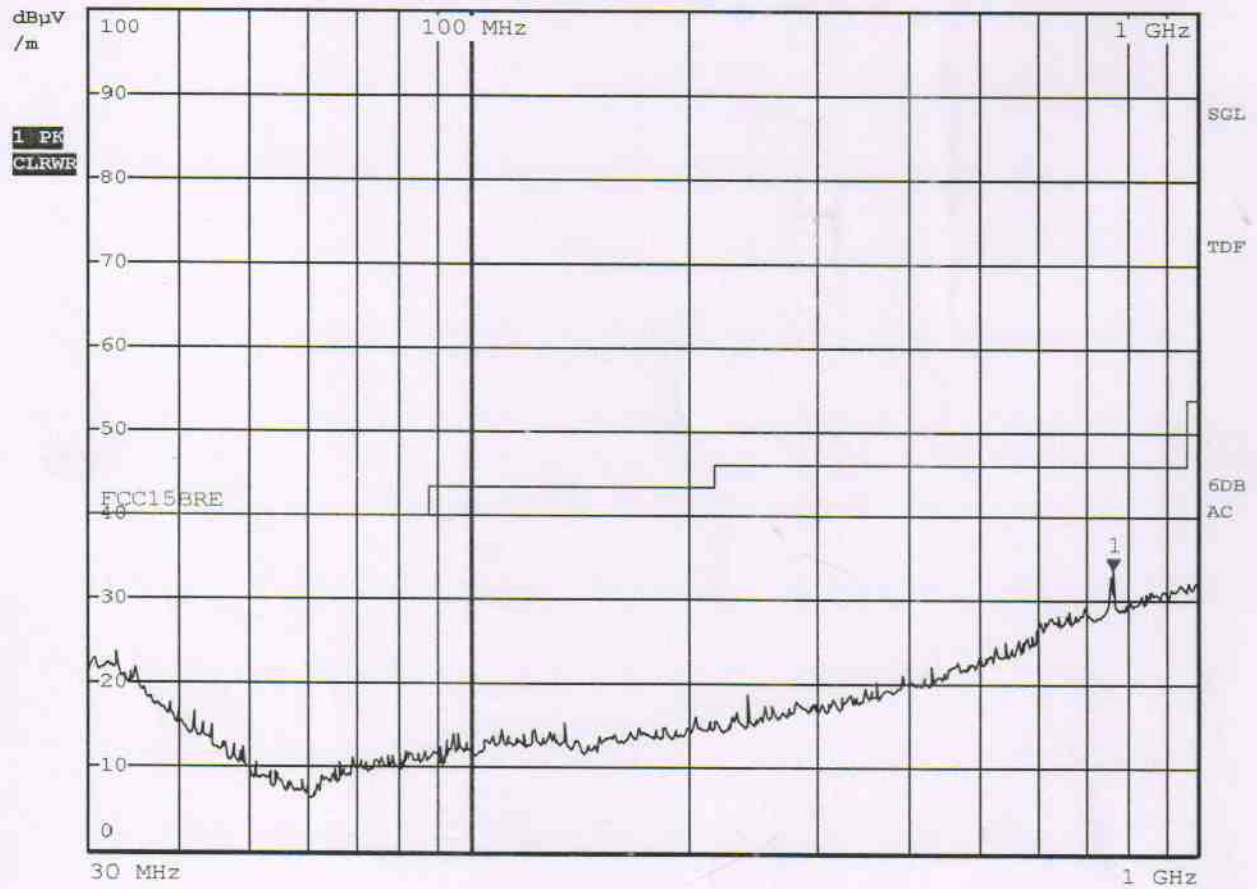




Graph of Radiated emission measurement @ 3mts. Distance



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



MS

W

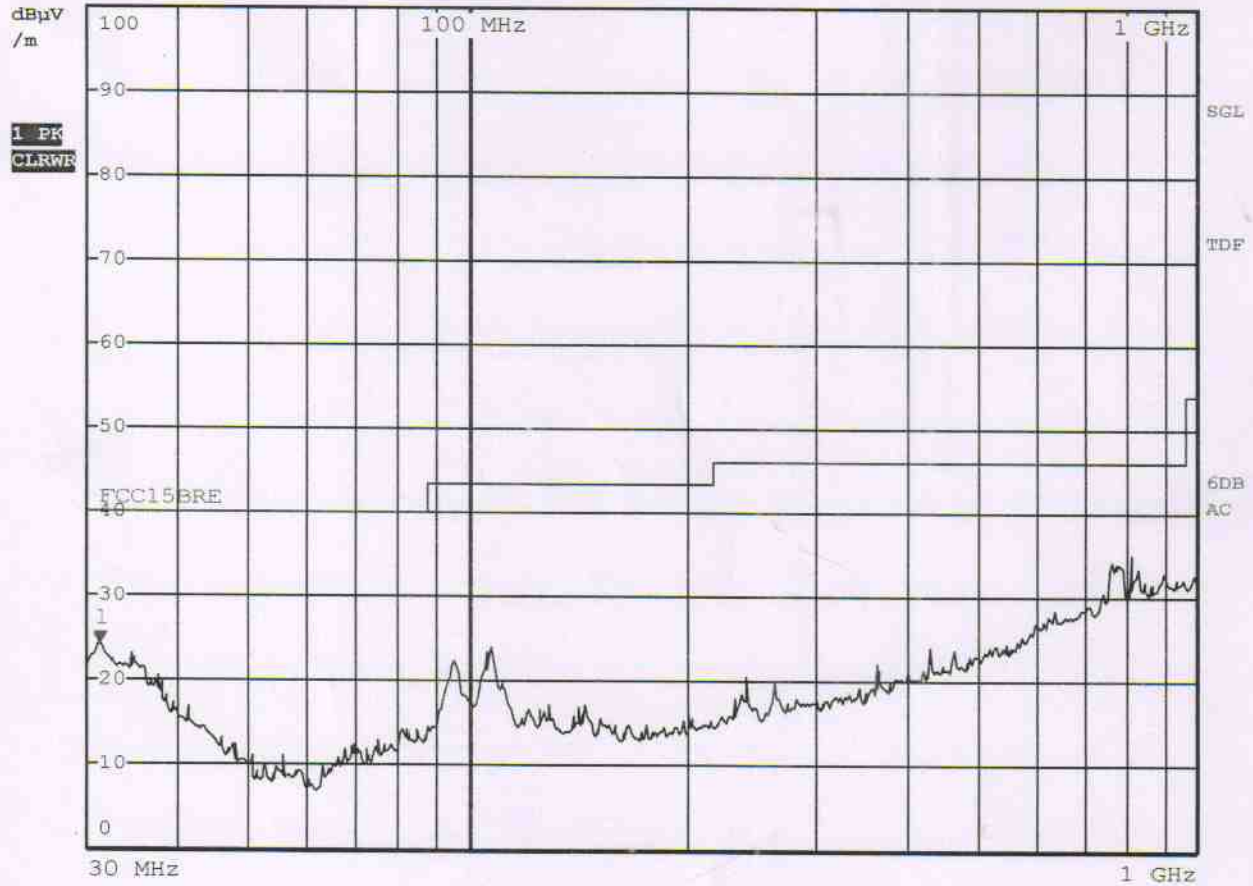
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Date: 9.SEP.2014 12:09:16



Graph of Radiated emission measurement @ 3mts. Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 24.37 dBuV/m  
Att 0 dB AUTO PREAMP ON 31.16000000 MHz



MSZ

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:0 deg,Antenna:VP  
Date: 9.SEP.2014 12:17:28

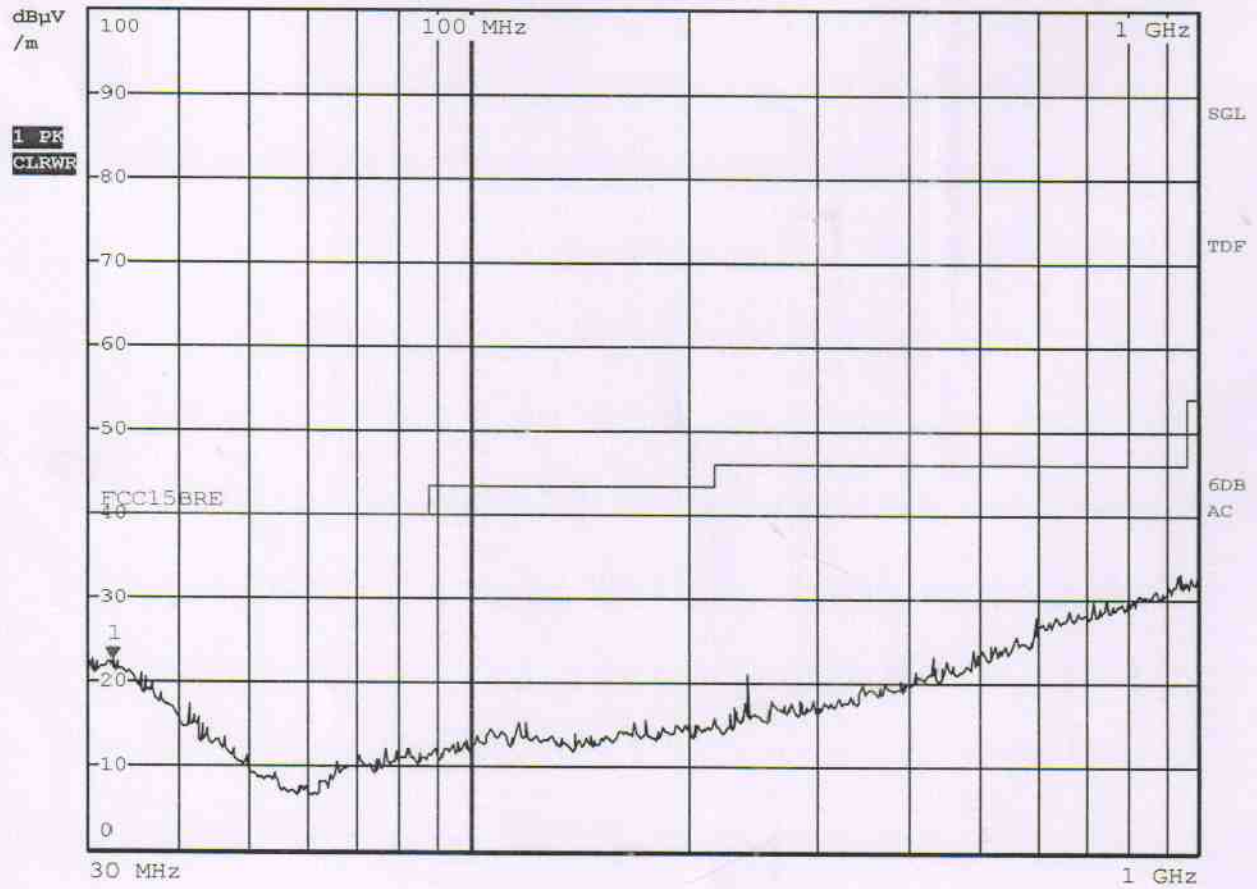




Graph of Radiated emission measurement @ 3mts. Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 22.67 dBμV/m  
Att 0 dB AUTO PREAMP ON 32.36000000 MHz



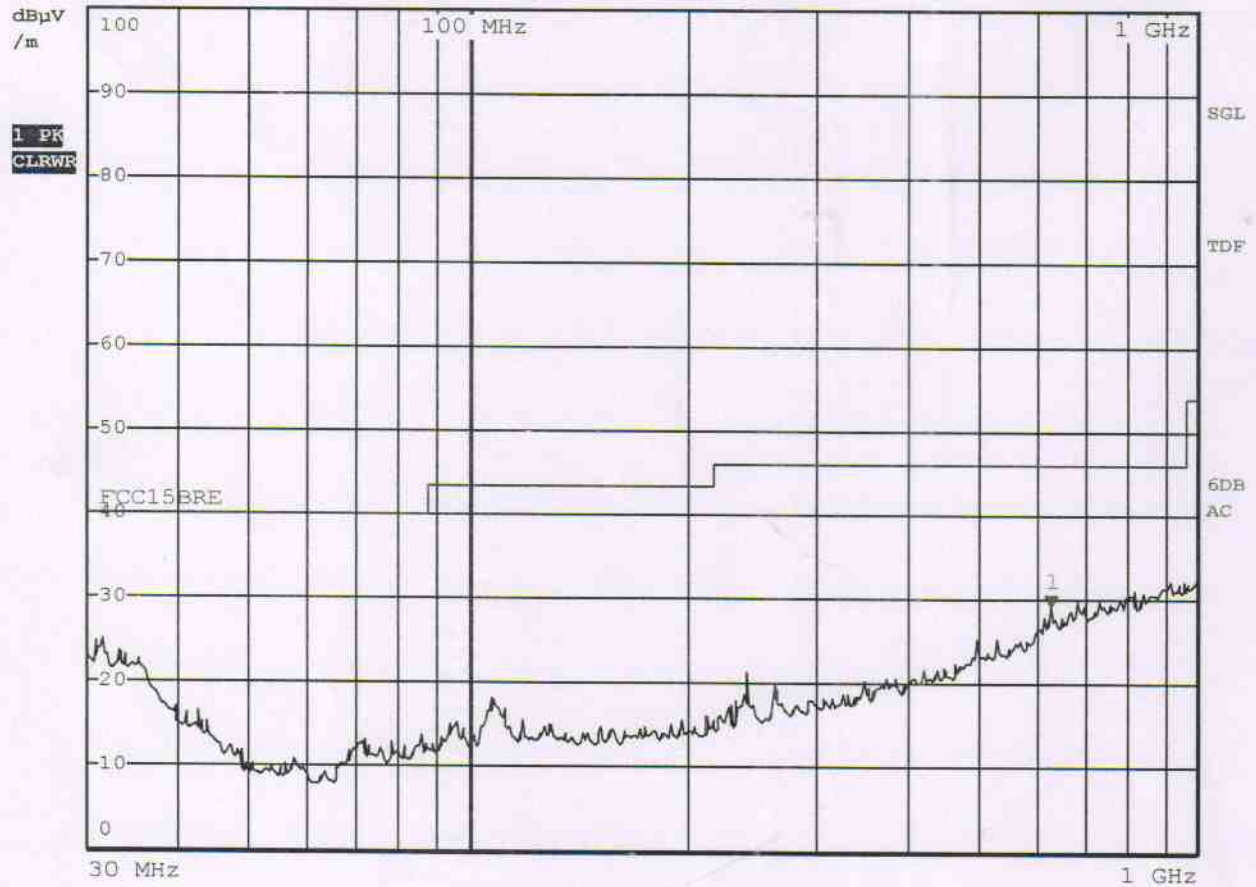
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Date: 9.SEP.2014 12:02:37



Graph of Radiated emission measurement @ 3mts. Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 29.26 dBuV/m  
Att 0 dB AUTO PREAMP ON 630.440000000 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:VP  
Date: 9.SEP.2014 12:21:36

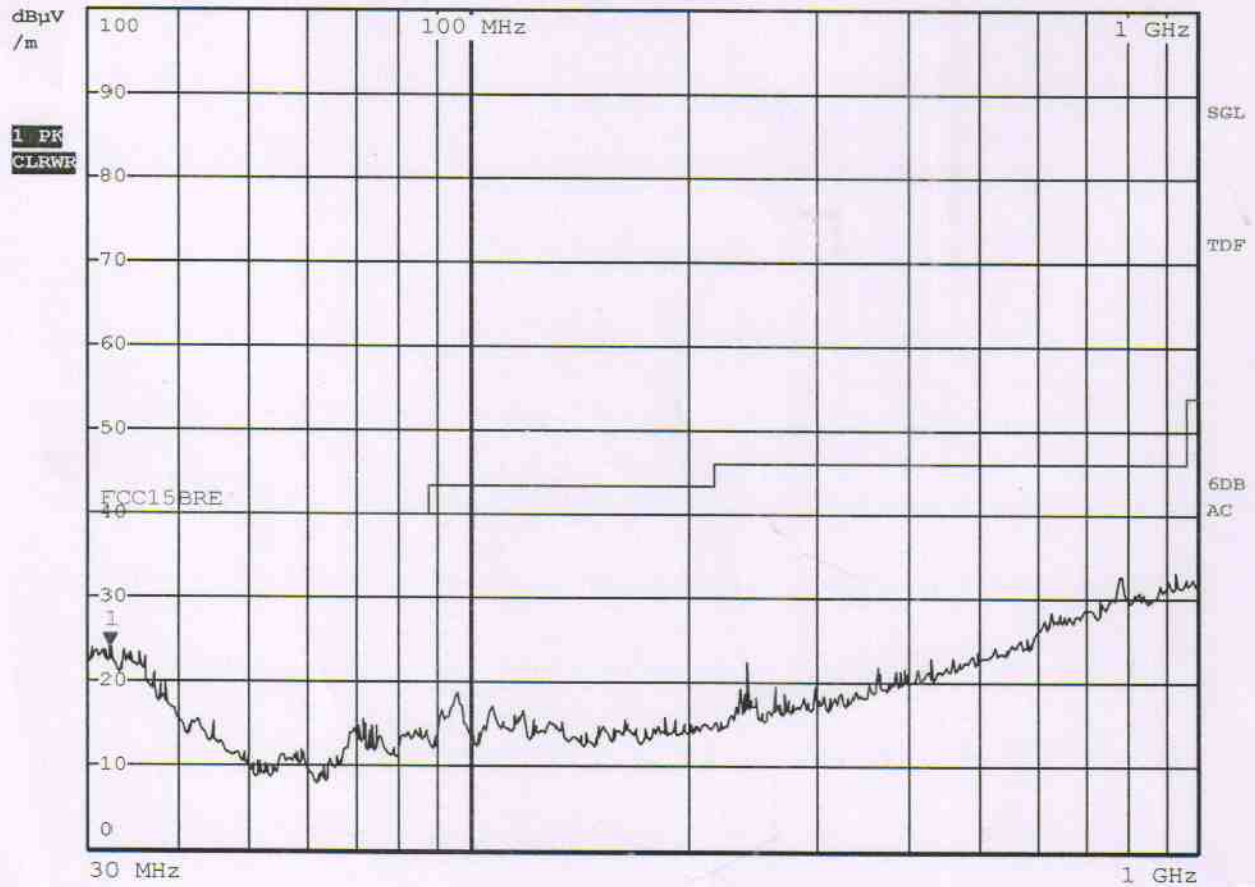




Graph of Radiated emission measurement @ 3mts. Distance



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



MS

MS

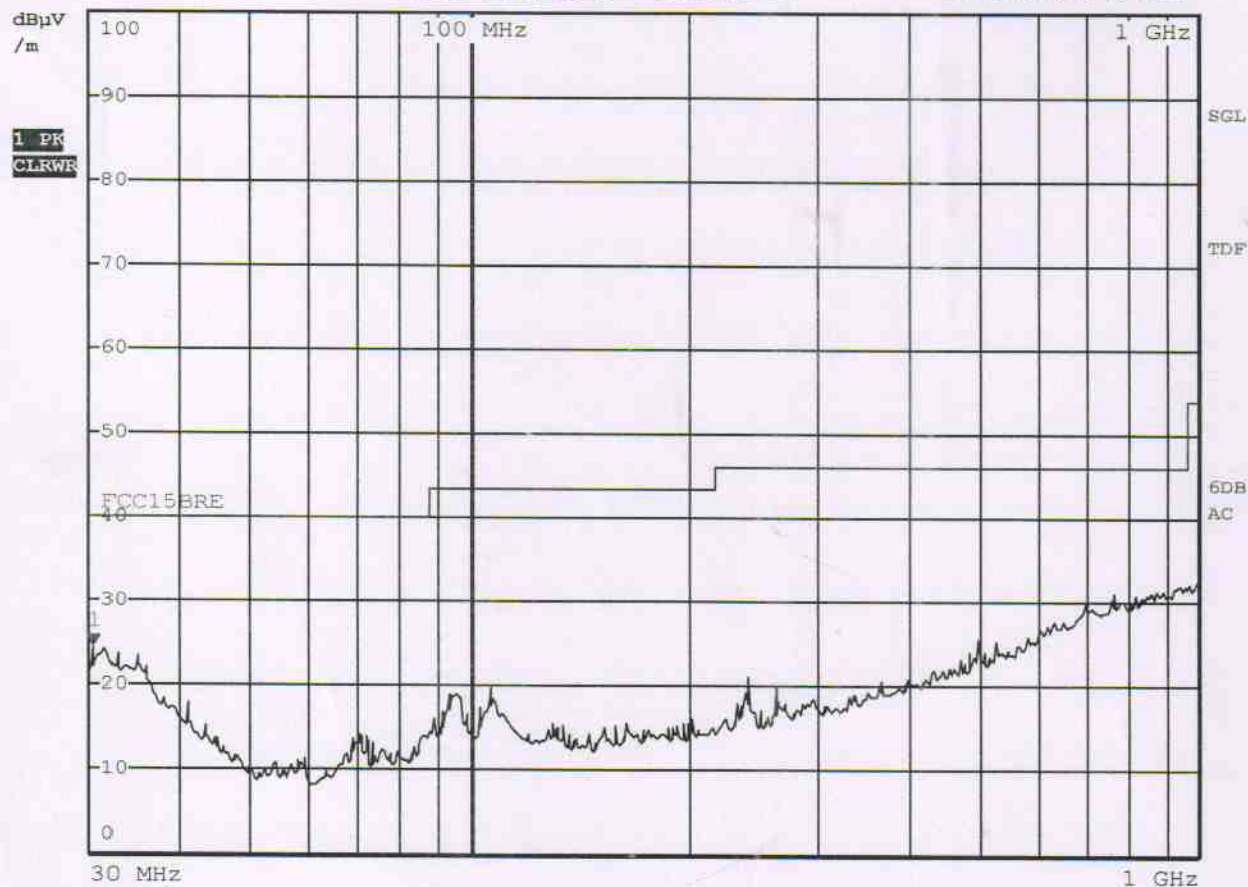
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Date: 9.SEP.2014 12:25:34



Graph of Radiated emission measurement @ 3mts. Distance



RBW 120 kHz Marker 1 [T1 ]  
MT 1 s 24.62 dB $\mu$ V/m  
Att 0 dB AUTO PREAMP ON 30.400000000 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:270 deg,Antenna:VP  
Date: 9.SEP.2014 12:29:15

