

**CEM Solutions**  
research | development | manufacturing

## DECLARATION OF CONFORMITY

**Application of Council Directives:** Radio Equipment and Telecommunication Terminal Equipment Directive (R&TTE) 1999/5/EC.

**Name of Equipment:** NANO2 PBX  
**Model Number:** CPX-003

**Description:** Nano2 PBX is 8Port PBX equipment used for Voice and data call.

**Manufacturer's Name:** CEM Solutions Pvt. Ltd.,  
**Manufacturer's Address:** 143-A1, Bommasandra Industrial Area, Hebbagodi Village, Anekal Taluk, Bangalore 560099.

**Test Lab Name and address:** Electronics Test and Development centre, 100ft Road, Peenya industrial Area, Bangalore 560058

**Test Report No:** TR/EMC/62250

**Confirms the following standard:**

EMC Standards	CISPR22:2008 Class B	TR/EMC/62242-2
<b>Emission standards</b>		
1. Harmonics Current	IEC61000-3-2:2009	
2. Voltage Fluctuation and flicker test	IEC61000-3-3:2008	TR/EMC/62250
<b>Immunity Standards</b>		
1. ESD	IEC61000-4-2:2008	
2. RS	IEC61000-4-3:2010	
3. EFTB	IEC61000-4-4:2004	
4. SURGE	IEC61000-4-5:2005	
5. Conducted RF	IEC61000-4-6:2008	
6. Magnetic Field	IEC61000-4-8:2009	TR/EMC/62250
7. DIP	IEC61000-4-11:2004	

When installed and operated in accordance with the manufacturers installation and operation instructions.

Rajneesh Vasu  
Signature



Director  
Position

Bangalore, 18/04/2013  
Place & Date of Issue





## 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)

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Report No.: TR/EMC/62250

### TEST REPORT

T-0044

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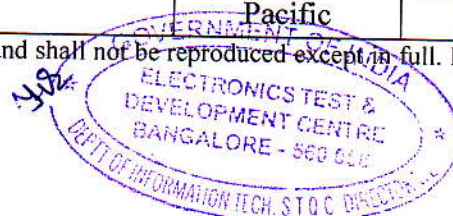
#### 1. Scope

1.	Service request number	62250
2.	Requested by (Name & Address of the Organization)	M/s. CEM Solutions Pvt. Ltd. Akarsh Eco Place, Ground Floor, 176, EPIP, Industrial Area, Kundalahalli, Whitefield, Bangalore-560066
3.	Description of the equipment:	
	a) Nomenclature	NANO2 PBX
	b) Manufactured by	CEM Solutions Pvt. Ltd.
	c) Model / type no.	CPX-003
	d) Serial no.	001
4.	Date of submission of test samples	18/04/2013
5.	Condition of test samples on receipt	Good
6.	Date of start of tests	18/04/2013
7.	Date of completion of tests	18/04/2013
8.	Applicable test specification	IEC 61000-4-series
9.	Test category	Performance Test
10.	Environment condition	Temp: 25±5 °C RH: 40 to 75% except for ESD test For ESD test RH: <60%.

#### 2. Major equipment used

SN	Nomenclature	Make	Model	Cal. Due
1.	ESD Gun & Simulator	EM Test	30C/P30C	18-06-2013
2.	Signal Generator	R&S	SML03	01-05-2013
3.	Bi-Log Antenna	Electro-metrics	EM-6917B-1	02-07-2013
4.	Ultra compact simulator	EM Test	UCS500-M4	25-07-2013
5.	Surge Generator	Keytek	801-Plus	04-05-2013
6.	Continuous Wave Simulator	EM Test	CWS500C	30-07-2013
7.	Electromagnetic field survey meter	Holaday	HI3604	25-09-2014
8.	AC Power Source	Pacific	140TMX	23-07-2013

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### Performance Criteria

Performance criterion A: The apparatus shall continue to operate as intended **during and after the test**. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.

Performance criterion B: The apparatus shall continue to operate as intended **after the test**. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed.

Performance criterion C: Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

### Performance level specified by the manufacturer:

- EUT Front LED's 1 to 6 No's (Orange Color) should glow continuously.



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### Results:

Test Parameter : Radiated, radio-frequency, electromagnetic field immunity  
Test Specification : IEC 61000-4-3:2010  
EUT Configuration : Refer Page No.03

Wave shape / severity	Performance criteria	Test results
R.F Freq: 80 MHz-1GHz Sweep rate:1% Dwell time :3Sec Mod Freq: 1kHz Amplitude modulation : 80% in depth Angle: 0°/90°/180° / 270°  Polarization: 1) Horizontal 2) Vertical  Test Level : 2 Field Strength : 3 V/m	Performance criterion "A"          -During and after the test, EUT Front LED's 1 to 6 No's (Orange Color) should glow continuously.	Meets the performance criteria "A".          -During and after the test, EUT Front LED's 1 to 6 No's (Orange Color) was glowing continuously.





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Report No.: TR/EMC/62250

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### Results:

Test Parameter : Electrical fast transient / burst immunity  
Test Specification : IEC 61000-4-4:2004  
EUT Configuration : Refer Page No.03

Wave shape / severity	Performance criteria	Test Results
<p>Pulse Rise time: 5nS Pulse Duration: 50nS Burst Duration: 15mS Burst period: 300mS Repetition rate of impulse:5kHz</p> <p><u>Coupling on AC Power supply port</u> <u>Coupling type: Asymmetrical</u></p> <p>Test Level: 2 Test Voltage: 1 kV Peak Polarity: +ve &amp; -ve Test duration: 1 minute in each polarity.</p>	<p>Performance criterion "B"</p> <p>-After the test, EUT Front LED's 1 to 6 No's (Orange Color) should glow continuously.</p>	<p>Meets the performance criteria "B".</p> <p>-After the test, EUT Front LED's 1 to 6 No's (Orange Color) was glowing continuously.</p>













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### Results:

Test Parameter : Power frequency magnetic field immunity.

Test Specification : IEC 61000-4-8:2009

EUT Configuration : Refer Page No.03

Wave shape / severity	Performance criteria	Test Results
<p><u>Coupling on Enclosure port</u></p> <p><i>Continuous field:</i></p> <p>Test Level : 1 Magnetic Field Strength: 1 A/m</p> <p>Axis: X, Y &amp; Z</p> <p>Duration: 1 min each axis</p>	<p>Performance criterion "A"</p> <p>-During and after the test, EUT Front LED's 1 to 6 No's (Orange Color) should glow continuously.</p>	<p>Meets the performance criteria "A".</p> <p>-During and after the test, EUT Front LED's 1 to 6 No's (Orange Color) was glowing continuously.</p>





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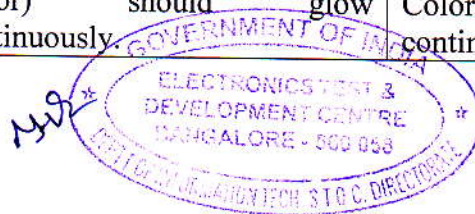
Report No.: TR/EMC/62250

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### Results:

Test Parameter : Voltage dips and short interruptions.  
Test Specification : IEC 61000-4-11:2004  
EUT Configuration : Refer Page No.03.

Wave shape / severity	Performance criteria	Test Results														
Test Conditions : Standard Test Frequency : 50.00 Hz Test Voltage : 230.00 V Waveform : Sine No. of Dips : 3 Interval between Dips: 10 sec Mode : Synchronous Angle : 0 deg  Test Level : Class 3 Voltage Dips : <table border="1"><thead><tr><th>Voltage Dips %</th><th>Cycle</th></tr></thead><tbody><tr><td>0</td><td>1</td></tr><tr><td>40</td><td>10</td></tr><tr><td>70</td><td>25</td></tr><tr><td>80</td><td>250</td></tr></tbody></table> Voltage interruption: <table border="1"><thead><tr><th>Test Level %</th><th>Cycle</th></tr></thead><tbody><tr><td>0</td><td>250</td></tr></tbody></table>	Voltage Dips %	Cycle	0	1	40	10	70	25	80	250	Test Level %	Cycle	0	250	Performance criterion "B" for Voltage dips. Performance criterion "C" for Voltage interruption.	Meets the performance criteria "B" for Voltage dips. Meets the performance criteria "C" for Voltage interruption.
Voltage Dips %	Cycle															
0	1															
40	10															
70	25															
80	250															
Test Level %	Cycle															
0	250															
	-After the test, EUT Front LED's 1 to 6 No's (Orange Color) should glow continuously.	-After the test, EUT Front LED's 1 to 6 No's (Orange Color) was glowing continuously.														



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### Results:

Test Parameter : Harmonic Current Emission  
Test Specification : IEC 61000-3-2:2009  
EUT Configuration : Refer Page No.03

Classification	: CLASS - A	Test Volts	: 230.00 V
Test type	: Steady State	Test Frequency:	50Hz
Test time	: 2.5 min	Waveform	: Sine

Harmonic No.	Amps	Limit	Results	Harmonic No.	Amps	Limit	Results
1	0.046	---	PASS	21	0.024	0.107	PASS
2	0.001	1.080	PASS	22	0.001	0.084	PASS
3	0.038	2.300	PASS	23	0.022	0.098	PASS
4	0.001	0.430	PASS	24	0.001	0.077	PASS
5	0.037	1.140	PASS	25	0.020	0.090	PASS
6	0.001	0.300	PASS	26	0.001	0.071	PASS
7	0.037	0.770	PASS	27	0.018	0.083	PASS
8	0.001	0.230	PASS	28	0.001	0.066	PASS
9	0.035	0.400	PASS	29	0.016	0.078	PASS
10	0.001	0.184	PASS	30	0.001	0.061	PASS
11	0.034	0.330	PASS	31	0.014	0.073	PASS
12	0.001	0.153	PASS	32	0.001	0.058	PASS
13	0.032	0.210	PASS	33	0.012	0.068	PASS
14	0.001	0.131	PASS	34	0.001	0.054	PASS
15	0.030	0.150	PASS	35	0.011	0.064	PASS
16	0.001	0.115	PASS	36	0.001	0.051	PASS
17	0.029	0.132	PASS	37	0.009	0.061	PASS
18	0.001	0.102	PASS	38	0.001	0.048	PASS
19	0.026	0.118	PASS	39	0.008	0.058	PASS
20	0.001	0.092	PASS	40	0.001	0.046	PASS





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### Results:

Test parameter : Voltage fluctuation and flicker  
Test Specification : IEC 61000-3-3:2008  
Test Voltage : 230.00 V  
Test Frequency : 50.00 Hz  
Waveform : Sine  
Test time : 120 min  
T-short : 10 min  
EUT Configuration : Refer Page No.03

Voltage fluctuation and flicker	EUT DATA	LIMIT	RESULT
Pst max	0.008	1.00	PASS
Plt max	0.008	0.65	PASS
dc%	0.000	3.30	PASS
d max%	0.000	4.00	PASS
d(t) sec	0.000	0.50	PASS

**Remark:** The Details of Accessories used in the Testing and Image of EUT are shown in Annexure 'A' and 'B' respectively.

*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.

*Dr. N.C. Joshi*  
Issued By

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**TESTING SERVICES,**  
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### Annexure "A"

Details of Accessories used in the Testing of EUT

Sr.No.	Accessories name	Make	Model/Part No.	Serial No.
01.	Adapter	NetBit Switch Mode Power Supply	KSAH1200350T1M2	----



MS



## ELECTRONICS TEST AND DEVELOPMENT CENTRE

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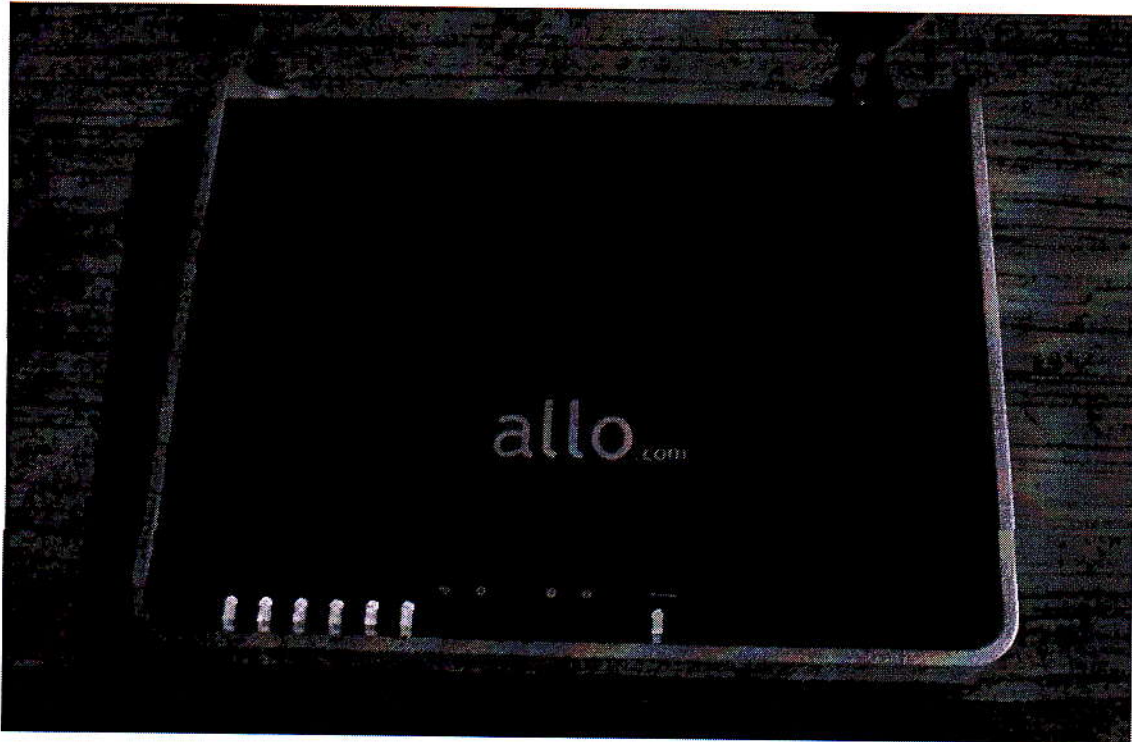
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Annexure "B"

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### Image of EUT



MD





# ELECTRONICS TEST AND DEVELOPMENT CENTRE

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T-0044

Report No.: TR/EMC/62242-2

## TEST REPORT

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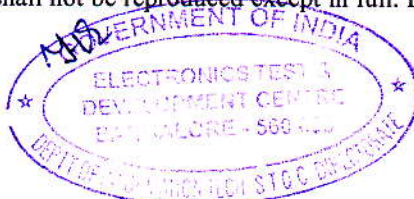
### 1. Scope

1.	Service request number	62242
2.	Requested by (Name & Address of the Organization)	M/s. CEM Solutions Pvt. Ltd. Akarsh Eco Place, Ground Floor, 176, EPIP, Industrial Area, Kundalahalli, Whitefield, Bangalore-560066
3.	Description of the equipment:	
	a) Nomenclature	NANO2 PBX
	b) Manufactured by	CEM Solutions Pvt. Ltd.
	c) Model / type no.	CPX-003
	d) Serial no.	001
4.	Date of submission of test samples	12/04/2013
5.	Condition of test samples on receipt	Good
6.	Date of start of tests	12/04/2013
7.	Date of completion of tests	12/04/2013
8.	Applicable test specification	CISPR22:2008 Class B
9.	Test category	Performance Test
10.	Environment condition	Temp: 25±5 °C RH: 40 to 75%

### 2. Major equipment used

SN	Nomenclature	Make	Model	Cal. Due
1	EMI Receiver	R&S	ESCI7	06-12-2013
2	V-Network	R&S	ESH3-Z5	26-07-2013

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Report No.: TR/EMC/62242-2

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Parameter : Conducted disturbance at the mains ports  
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		
Freq (MHz)	QP (dBµV)	AVG (dBµV)
0.15- 0.5	66-56	56-46
0.5- 5	56	46
5 - 30	60	50

**UT Configuration:** The EUT is a NANO2 PBX, powered by 12V DC through adapter. It has 6 ports, 2 Fxo ports, 1 LAN port and 1 WAN port.

**Remark:** The Details of Accessories used in the Testing of EUT is shown in Annexure 'A'. The layout of EUT is shown in Annexure 'B'. The graphs for Conducted disturbance at the mains ports are shown in Annexure 'C'.

Summary of test results:

Conducted disturbance at the mains ports:  
Meets the Class B Limits of CISPR 22  
No Significant emission are reported in page no. 03



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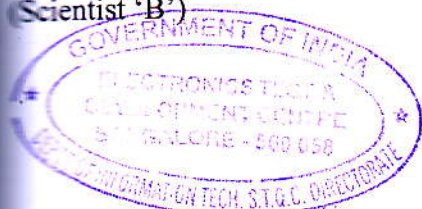
Report No.: TR/EMC/62242-2

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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>Line</b>				
0.206	35.55	64.29	27.21	54.29
0.230	35.17	63.71	24.37	53.71
0.478	33.32	56.57	25.86	46.57
14.71	33.76	60	31.14	50
15.938	36.32	60	34.05	50
23.806	39.90	60	33.65	50
24.574	41.53	60	35.68	50
<b>Neutral</b>				
0.210	37.63	64.29	29.10	54.29
0.234	36.14	63.71	26.82	53.71
0.470	34.18	56.86	27.68	46.86
15.326	37.89	60	35.72	50
15.934	38.15	60	34.29	50
23.422	41.90	60	35.37	50
24.574	42.07	60	36.18	50

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



Approved By

Dr. N.C. JOSHI  
Scientist 'E'

Electronics Test & Development Centre  
Ministry of Comm. & IT, STQC Directorate  
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### Annexure "A"

Details of Accessories used in the Testing of EUT

Sr.No.	Accessories name	Make	Model/Part No.	Serial No.
01.	Adapter	NetBit Switch Mode Power Supply	KSAH1200350T1M2	----







# ELECTRONICS TEST AND DEVELOPMENT CENTRE

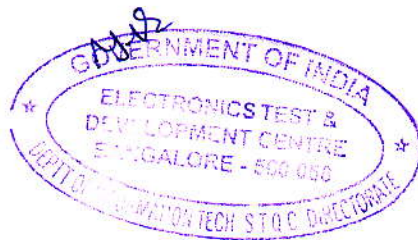
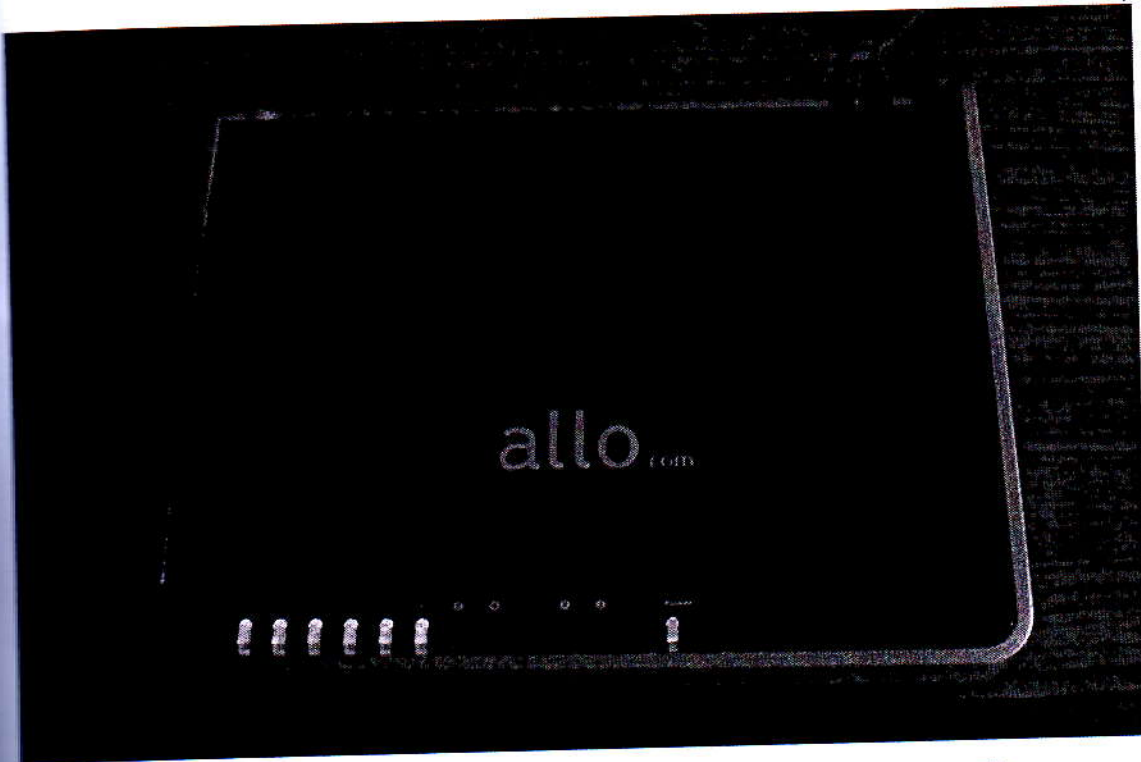
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E-mail: mailetcd29@yahoo.com

Report No.: TR/EMC/62242-2

## Annexure "B"

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### Image of EUT

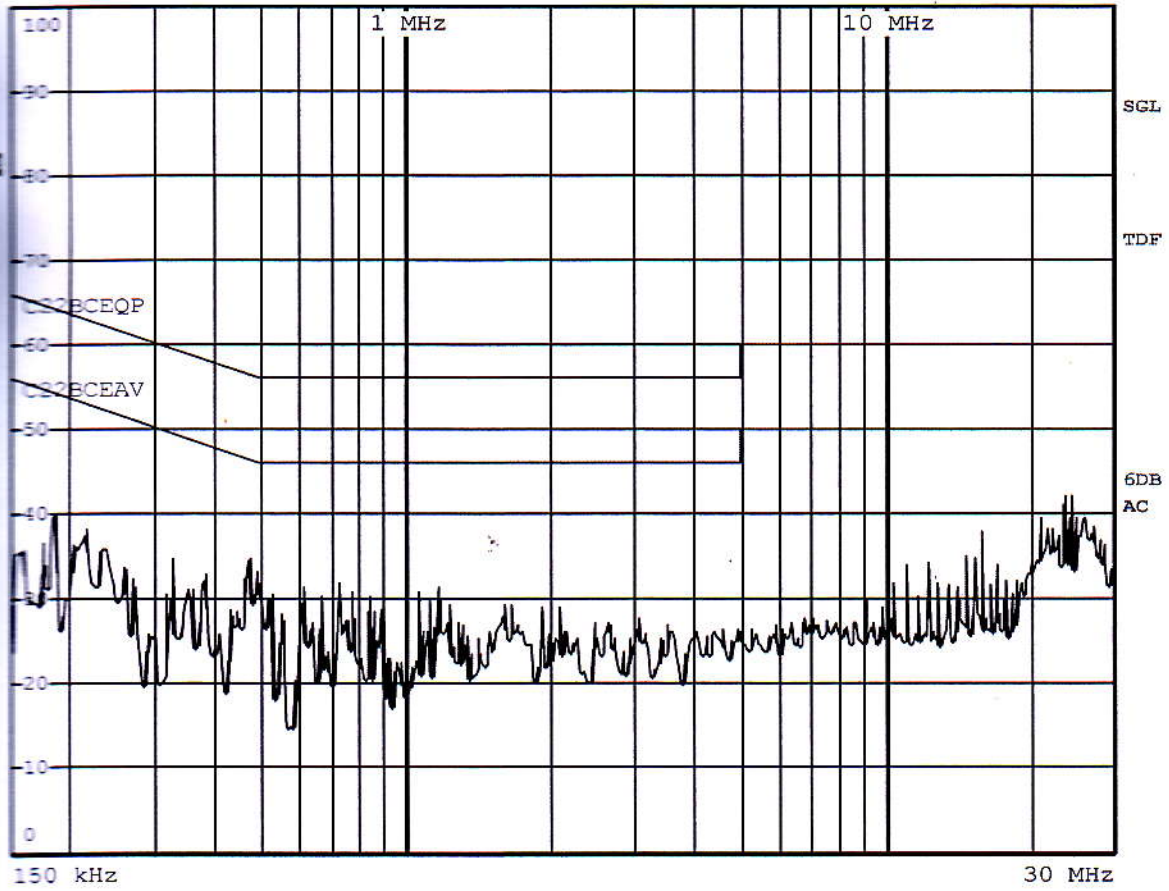


RBW 120 kHz

MT 10 ms

Att 10 dB

PREAMP OFF



62242 CE Test (CISPR22) on Line

Date: 12.APR.2013 13:35:25



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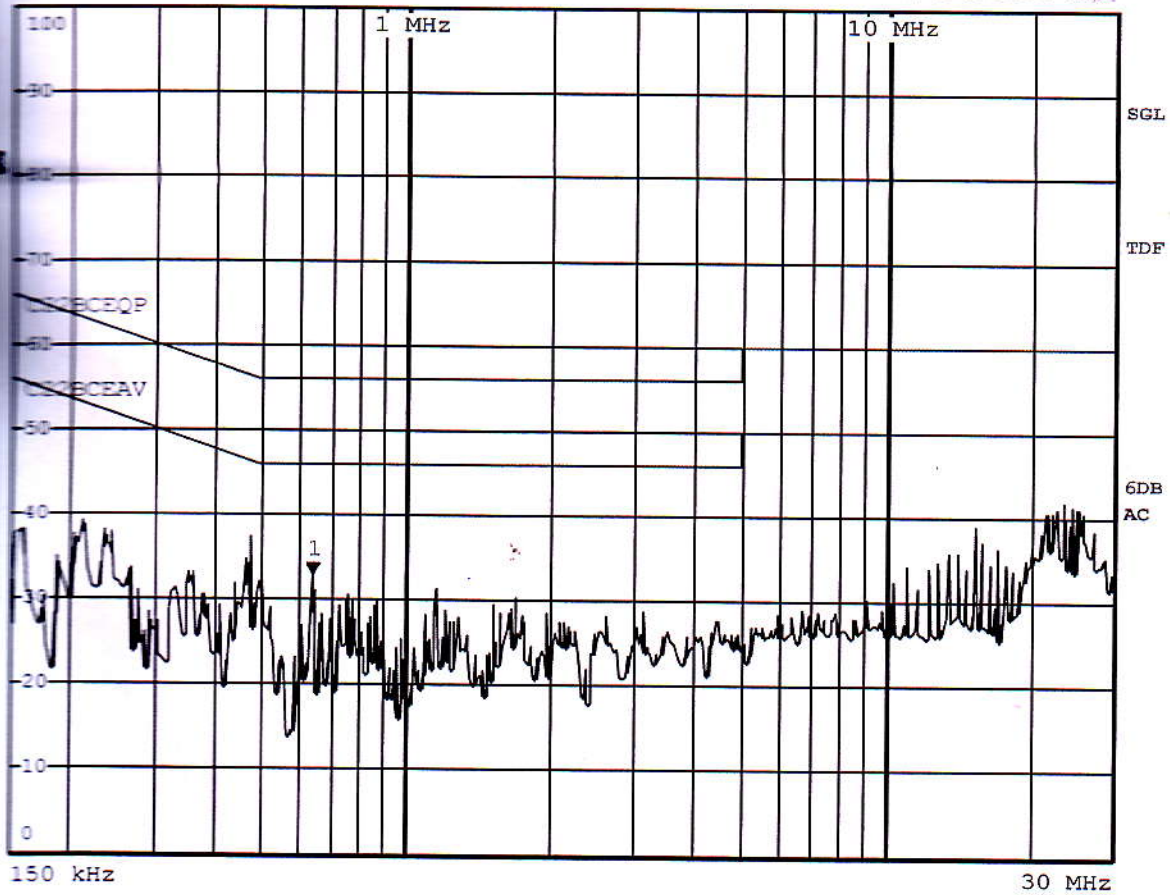


### Annexure 'C'

Conducted disturbance at the mains ports

RBW 9 kHz Marker 1 [T1 ]  
MT 1 s 32.87 dBuV  
PREAMP OFF 638.000000000 kHz

Att 10 dB



62242 CE Test (CISPR22) on Neutral  
Date: 12.APR.2013 13:40:58



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