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**NATIONAL COMMODITY & DERIVATIVES EXCHANGE LIMITED**

Circular to all Trading and Clearing members of the Exchange

Circular No : NCDEX/TECHNOLOGY-021/2013/279  
Date : September 6, 2013  
Subject : System Audit of Algorithmic Trading Facility

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Members of the Exchange are requested to refer to circular no. NCDEX/TRADING-027/2013/084 dated March 18, 2013 on Guidelines on Algorithmic Trading/ High Frequency Trade (HFT) and are hereby notified as under.

Members of the Exchange having Exchange Approved ATS are required to undertake system audit of their Algo Trading software on yearly basis. Such system audit shall be conducted by Certified Information System Auditors (CISA) empanelled by the Exchange.

List of Exchange Empanelled System Auditors is given in Annexure 1. The member may select any audit firm from the empanelled list of auditors. The audit fee shall be decided mutually by the member and the audit firm. The audit fee is to be paid directly by the member to the audit firm. Members are required to submit first audit report latest by October 31, 2013. Subsequently system audit reports shall be submitted by June 30 every year.

The detailed scope of audit & format of audit report to be submitted to the Exchange is provided in Annexure – 2 & Annexure – 3 respectively.

Members are requested to take note of the above.

For and on behalf of

**National Commodity & Derivatives Exchange Limited**

Jayant Nalawade  
Chief - Operations & Compliance

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For further information / clarifications, please contact

1. Customer Service Group on phone: 022 6640 6613 -15, 011 2334 4795
2. Customer Service Group by e-mail to: [askus@ncdex.com](mailto:askus@ncdex.com)

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**Annexure 1****List of Empanelled Auditors with contact details**

Sr. No.	Name of the Auditor	Contact Person	Contact Details	Email ID
1	Auditime Information Systems (I) Ltd.	Madhav Bhadra	9320253902	<a href="mailto:mmb@auditimeindia.com">mmb@auditimeindia.com</a>
2	Kochar Consultants Pvt. Ltd.	Pranay Kochar	9819846198 9869402694	<a href="mailto:pranay@kocharconsultants.com">pranay@kocharconsultants.com</a>
3	Secmark Consultancy Pvt. Ltd.	Ravi Ramaiya	9869036804	<a href="mailto:rramaiya@secmark.in">rramaiya@secmark.in</a>
4	ANB Consulting Co. Pvt. Ltd.	Prasad Pendse	9833915964	<a href="mailto:prasad.pendse@anbglobal.com">prasad.pendse@anbglobal.com</a>

## **Annexure - 2**

Auditors are expected to check all the controls specified in the scope mentioned below.

### **Scope of Audit:**

- Review of Automatic Trading product and compliance with FMC/Exchange guidelines issued for Algo Trading
- Review of Algo write up document of strategy submitted to the Exchange
- Review of Approval letter for using strategy on ATS user id given by the Exchange
- Strategy impact on liquidity of the Market
- Review of order level checks in Algo trading software
- Dealer / Client management & user control mechanism
- Review of Risk Management checks
- Review of all event logs & messages
- Review of version up gradation of ATS trading software
- Review of Password policy
- Review of report & backup process
- Security controls like network firewalls & virus protection measures
- Review the process to identify the dysfunctional Algos
- Any other area/aspect which may be material for inclusion in the audit certificate and/or which may be specified by the Exchange / FMC from time to time

**Annexure 3**

**(To be on the letterhead of the auditor)**

**Compliance Report for Algorithmic Trading (Algo) System of Member**

To,

**CTCL Department**

National Commodity & Derivatives Exchange Limited

Akruti Corporate Park, 1st Floor

Near G.E.Garden, L.B.S. Marg

Kanjurmarg (West), Mumbai-400078

This is to certify that the following Algorithms trading strategies approved by the Exchange for the Member < TM Name><TM code>, were audited by me / us.

Sr.No	Name of Algo Software	Version Number	Strategy Name	ATS user Id	Developed by (Empanelled ATS Vendor/ In-House)	Date of Approval

It is hereby confirmed and certified that the Algorithmic Trading Facility software and systems used by (Member Name) (Member Id), a member of National Commodity & Derivative Exchange Limited (Exchange) is reviewed and audited by me and are found to be in compliance with the requirements stipulated in Broad Guidelines on Algorithmic Trading as issued by FMC and relevant Exchange circular on ATS. It has capacity to meet all requirements of the Exchange & FMC as on date.

(Name of the auditor & auditing Firm)

Signature

CISA Reg. No. :

Date

Place

Stamp /Seal

Encl –

**Part A – Summary of Audit Findings**

**Part B - Detailed Audit Findings**

**Part C – Compliance Letter from Member**

Countersigned, sealed & delivered by the Authorized representative of the Member.

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**Part A - Summary of Audit Findings**

Sr.No.	Area of Audit	Observations/ Non-Compliance	Audit Rating
1	Review of Automatic Trading product and compliance with FMC/Exchange guidelines issued for Algo Trading		
2	Review of write up document of strategy submitted to the Exchange		
3	Review of Approval letter for using strategy on ATS user id given by the Exchange		
4	Strategy impact on liquidity of the Market		
5	Review of order level checks in Algo trading software		
6	Dealer / Client management & user control mechanism		
7	Review of Risk Management checks		
8	Review of all event logs & messages		
9	Review of version up gradation of ATS trading software		
10	Review of Password policy		
11	Review of report & backup process		
12	Security controls like network firewalls & virus protection measures		
13	Review the process to identify the dysfunctional Algos		
14	Any other area/aspect which may be material for inclusion in the audit certificate and/or which may be specified by the Exchange / FMC from time to time		

### Part B - Detailed Audit Findings

The detailed findings with Audit result should be classified as 'Strong', 'Medium' & 'Weak' and overall audit rating should be given as per the format provided below. The control & processes mentioned against each area are inclusive in nature. Auditors may verify additional points and add in detailed report.

Sr.No	Area of Audit	Controls & Processes	Observations & Remarks	Audit Result Rating
1	Review of Automatic Trading product and compliance with FMC/Exchange guidelines issued for Algo Trading	<ul style="list-style-type: none"> <li>• Undertaking submitted for ATS as per relevant circular</li> <li>• Application letter , network diagram , list of approved persons provided for ATS as per relevant circular</li> <li>• Copy of Approval letter issued by NCDEX for ATS</li> <li>• Check if same strategy is being used in ATS for which approval is issued</li> <li>• Check if member is using approved ATS user id</li> <li>• Check if member is using ATS user id at location for which approval is issued.</li> </ul>		
2	Review of write up document of strategy / submitted to the exchange strategies	<ul style="list-style-type: none"> <li>• Check whether strategy is working as per write up provided by the member.</li> <li>• Check whether testing is done by the member to check the performance of the strategy document provided to the Exchange.</li> </ul>		
3	Review of Approval letter for using strategy on ATS user id given by the Exchange	<ul style="list-style-type: none"> <li>• Check whether the Approval letter holding by the member is on Exchange letterhead with authorized signature</li> <li>• Check if ATS user id &amp; Strategy which member is using is mentioned in the Approval letter</li> <li>• Any modifications/changes to the approved Algorithm has been effected only on prior approval of the Exchange.</li> </ul>		
4	Strategy impact on liquidity of the Market	<ul style="list-style-type: none"> <li>• Whether Algo document submitted to the Exchange mentions the justification why the particular algo strategy will infuse liquidity into the market and reason why system will not take away liquidity from the market.</li> </ul>		

5	Review of order level checks in Algo trading software	<ul style="list-style-type: none"> <li>• Orders are routed through Member's Server located in India and only through User-id approved by Exchange for Algo trading.</li> <li>• Whether system has checks to restrict orders in mini, micro contract</li> <li>• Whether system allows Market order</li> <li>• Whether system allows IOC order</li> </ul>		
6	Dealer / Client management & user control mechanism	<ul style="list-style-type: none"> <li>• Does the system have the provisions to shut down the Algorithm immediately on command</li> <li>• Whether system follows the order per second criteria per Exchange user id on which ATS is approved</li> <li>• Whether system has checks to ensure: <ul style="list-style-type: none"> <li>• Trading limit on dealer/client level</li> <li>• Exposure limit on dealer/client level</li> <li>• Open order value limit on dealer/client level</li> </ul> </li> <li>• Whether system has check to control contact-wise open position limit on client / member level</li> <li>• Whether system has check to control symbol-wise open position limit on client/member level</li> </ul>		
7	Review of Risk Management checks	<ul style="list-style-type: none"> <li>• Whether system allows only orders that are within the parameters specified by the risk management systems are allowed to be placed</li> <li>• Whether system has risk &amp; Control checks at Order Level i.e. before order generation to ensure following are not violated: <ul style="list-style-type: none"> <li>• Maximum order limit</li> <li>• Daily Price limit</li> </ul> </li> <li>• Whether system accounts executed &amp; unexecuted orders.</li> <li>• Price protection check</li> <li>• Order to trade ratio check</li> </ul>		
8	Review of all event logs & messages	<ul style="list-style-type: none"> <li>• Whether system has facility to write all event log that performs on system</li> <li>• All trading activity logs are stored/ maintained at member end for audit purpose</li> <li>• Whether system generates logs of changes in Master, risk &amp; strategy parameters</li> </ul>		



		<ul style="list-style-type: none"> <li>• Whether all logs generated are secured from unauthorized modification</li> </ul>		
9	Review of version up gradation of ATF trading software	<ul style="list-style-type: none"> <li>• Whether upgraded version is informed to the Exchange.</li> <li>• What is the process of version up gradation &amp; patch upgradation</li> <li>• Give details of the version numbers released since last audit</li> </ul>		
10	Review of Password policy	<ul style="list-style-type: none"> <li>• Whether system asks for password for login</li> <li>• Whether system has check for automatic expiry of password at the end of a reasonable duration &amp; re initialization of access on entering fresh password</li> <li>• Whether system generates password automatically.</li> </ul>		
11	Review of report & backup process	<ul style="list-style-type: none"> <li>• Whether back up logs are maintained by member</li> <li>• Whether all backup is available for minimum period of 3 years</li> <li>• Whether data backup is tested &amp; verified</li> <li>• Whether Disaster management system is tested &amp; implemented</li> <li>• Whether history report is available for any unforeseen events</li> </ul>		
12	Security controls like network firewalls & virus protection measures	<ul style="list-style-type: none"> <li>• Whether member has procedures &amp; arrangements to safeguard ATS from misuse or unauthorized access</li> <li>• Whether security control is available for admission of personnel into server room/place where algo servers are located or any audit trails are maintained for entry /exist at the server room/location.</li> <li>• Whether detailed network diagram is available to review</li> <li>• Is latest anti-virus patch updated on relevant server</li> <li>• Is firewall implemented</li> </ul>		
13	Review the process to identify the dysfunctional Algos	<ul style="list-style-type: none"> <li>• Whether system has facility to check dysfunctional Algos</li> <li>• Whether any alert or pop up generates when Algo behaves in a dysfunctional manner.</li> <li>• Whether the system has pre-defined parameters to shut down automatically when Algo does not behave in expected way.</li> </ul>		

14	Any other area/aspect which may be material for inclusion in the audit certificate and/or which may be specified by the Exchange / FMC from time to time	<ul style="list-style-type: none"> <li>• Whether ATS facility is withdrawn by Exchange/member in past &amp; reason of the same</li> <li>• Whether ATS user id is deleted by member in case ATS facility is withdrawn on that user id</li> </ul>		
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**Part C- Compliance Letter from Member**

**(To be letterhead of the member)**  
**Compliance Letter on Algorithmic trading facility**

To,

Date

**CTCL Department**

National Commodity & Derivative Exchange  
Akruti Corporate Park, 1st Floor,  
Near G.E. Garden, L.B.S. Marg,  
Kanjurmarg (West), Mumbai-400078

1. I/We have proper procedures, systems and technical capability to carry out trading through the use of algorithms & approved by the Exchange
2. I/We confirm that we are using strategy which is approved by the Exchange.
3. I/We have real-time monitoring systems to identify algorithms that may not behave as expected and shall keep the Exchange informed of such incidents immediately.
4. I/We shall obtain prior approval of the Exchange on any modification or change to the approved algos or systems used for algos.
5. That we shall ensure that the AT Facility is used only by the persons in the manner as approved in writing by NCDEX.
6. That algorithmic strategy will not be abnormal, manipulative, dysfunctional, liquidity taking and shall be not be detrimental towards efficient price discovery or fair play.
7. I/We shall be limiting the total order flow rate to not more than 20 orders per second or as specified by FMC throughout the trading duration.
8. I/We are using the user IDs allotted by the Exchange for ATS in compliance with the details/documents of the strategy submitted to the Exchange.
9. That NCDEX, at its absolute discretion, may suspend/withdraw the Automated Trading facility available to me/us at any time.

Seal &amp; Signature

Authorized person of the member

Name of the member

Member ID

Date :

Place: