



## NATIONAL STOCK EXCHANGE OF INDIA LIMITED

### DEPARTMENT : CAPITAL MARKET SEGMENT

Download Ref No : NSE/CMTR/21793

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### **Sub: Consolidated Circular for trading through Decision Support Tools/Algorithms**

All NSE Members,

Algorithmic trading *means* any order that is generated using automated execution logic through the trading member front end.

#### **Guidelines on Decision Support Tools / Algorithms trading:**

Trading members desirous of placing orders generated using algorithms are required to ensure compliance to the following:

- The Algorithmic orders are routed through broker servers located in India.
- Proper procedures, systems and technical capabilities are in place to carry out trading through the use of algorithms
- Algorithms are safeguarded from misuse or unauthorized access. Additionally, procedures and arrangements are in place to safeguard algorithms from misuse or unauthorized access.
- The system has the capabilities to monitor algorithms real-time to identify those algorithms that may not behave as expected and bring it to the notice of the Exchange immediately.
- The system maintains logs of all trading activities including record of control parameters, orders, trades and data points emanating from trades executed through algorithm trading to facilitate audit trail.
- The system releases further order(s) only after accounting for all executed, unexecuted and unconfirmed orders placed earlier. Further, system shall have pre-defined parameters for an automatic stoppage in the event of Algo execution leading to a loop or a runaway situation.
- Any modifications / Change to the approved decision support tool / Algorithm to be effected only on prior approval of Exchange.
- All Algorithmic orders emanating from the system to be tagged with the unique identifier as specified by Exchange from time to time.
- Adhere to the guidelines for identification of dysfunctional Algo for orderly trading and market integrity as specified by SEBI / Exchange. Further, members shall take necessary measures / action as mandated by the Exchange.

- All orders generated by the Algorithmic trading products are offered to the market for matching and no cross trades are generated.

### **Procedure for granting permission to trading members:**

Applications for trading through Decision Support Tools / Algorithms are categorized as follows:

#### **a) ‘Approved algorithms’ through CTCL**

This procedure will be applicable for granting approval to trading members for a particular strategy under ‘Approved Algorithms’ category supplied by vendors approved by the Exchange.

Members desirous of seeking approval for ‘Approved Algorithms’ are required to make an application to the Exchange through the electronic interface provided in ENIT. On verification of the documents and fulfilment of the conditions as satisfactory and meeting SEBI / Exchange minimum requirements, the Exchange shall grant permission to the member for the usage of ‘Approved Algorithms’ through CTCL.

#### **b) ‘Non-approved algorithms’ through CTCL**

This procedure will be applicable for granting approval to trading members for a particular strategy under category ‘Non Approved Algorithms’. These Algorithms may be In-House developed by the member or vendor supplied.

Members desirous of seeking approval for ‘Non-approved Algorithms’ are required to make an application to the Exchange through the electronic interface provided in ENIT. Members shall be required to give demonstration of the Automated Risk Management features for each Decision Support Tool / Algorithmic trading product. On verification of the documents and fulfilment of the conditions as satisfactory and meeting SEBI / Exchange minimum requirements, the Exchange shall grant permission to the member for the usage of ‘Non-Approved Algorithms’ through CTCL.

Further, members shall be required to seek approval before effecting any changes to the software.

#### **c) DMA Algorithms – Trading Member / Institutional Client Algorithms**

This procedure will be applicable for granting approval to trading member for a particular strategy under category ‘DMA Algorithms – Trading member or Institutional client Algorithms’. These algorithms may be in-house developed by member, vendor supplied or institutional client proprietary algorithms.

Members desirous of seeking approval of algorithms through Direct Market Access facility as approved by the Exchange shall make an application through ENIT. Members shall be required to give demonstration of the Automated Risk Management features for each Decision Support Tool / Algorithmic trading product. On verification of the documents and fulfilment of the conditions as satisfactory and meeting SEBI / Exchange minimum requirements, Exchange shall grant permission to the member for the usage of DMA Algorithms.

Further, members shall be required to seek approval before effecting any changes to the software.

The procedure for submitting the application through ENIT for the above categories is detailed in **Annexure A**.

**2. Procedure for Identification of Decision Support Tools / Algorithms as ‘Approved Algorithm’:**

Vendors offering Decision Support Tools / Algorithmic trading products to trading members and desirous of having their Decision Support Tools / Algorithmic trading products identified as ‘Approved Algorithms’ are required to apply to the Exchange. The format of the Application is enclosed (Annexure B).

On fulfilment of the conditions as satisfactory and meeting SEBI / Exchange minimum requirements, the Exchange may identify the vendor’s Decision Support Tools / Algorithmic trading product as ‘Approved Algorithm’. The Exchange may request for any additional information as it deems fit.

Further, vendors shall be required to seek approval before effecting any changes to the software.

**Risk controls:**

Trading member shall ensure that all algorithmic orders are routed through electronic / automated risk management system and meets the minimum levels of risk controls as specified below:

<b>S No</b>	<b>Risk Control</b>	<b>Applicability</b>
<b>At Individual Order Level :</b>		
1.	Price Check	Algo orders shall not be released in breach of the price bands /dummy filters as defined by the Exchange in respective segments.
2.	Quantity Check	Algo orders shall not be released in breach of order quantity limit per order as defined by the Exchange in respective segments.
3.	Order Value Check	Algo orders shall not be released in breach of the “value per order” ( combination of price and quantity checks) as defined by the Exchange for the security in respective segments
4.	Trade Price Protection Check.	Algo orders shall not be released in breach of the bad trade price as defined by the Exchange for the security in respective segments
5.	Market price protection	Market orders emanating from Algo system shall not be released beyond a pre-set percentage of LTP. The limit thus set shall be less than the applicable circuit limits as prescribed above

<b>At Client Level :</b>		
6.	Cumulative Open Order Value Check	Algo orders shall not be released in breach of Individual client level cumulative open order value check at the client level. Open order value for a client is the total value of its unexecuted orders released from trading members system. System shall not permit the user to set “Unlimited values”
7.	Automated Execution Check	Algo to account for all executed, unexecuted, and unconfirmed orders placed by the system before releasing further orders. Algo system to have pre - defined parameters for an automatic stoppage in event of Algo execution leading to a loop or a runaway situation.
8.	Net Position Vs. available margin	Algo orders shall not be released in breach of Net positions as against the available margin defined by the trading member for the client.
9.	RBI Violation checks for FII Restricted stocks.	Algo orders shall not be released for security restricted by RBI from time to time.
10.	MWPL violation check	Algo orders shall not be released in breach of market wide position limit as defined by the Exchange for the security in respective segments.
11.	Position Limit Checks	Algo orders shall not be released in breach of position limit as defined by the trading member for the client.
12.	Trading Limit Checks	Algo orders shall not be released in breach of overall trading limits as defined by the trading member for the client.
13.	Exposure Limit check at individual client level and at overall level for all clients	Algo orders shall not be released in breach of exposure limit as defined by the trading member for the client.

**Annual Compliance:**

With a view to ensure that the risk controls specified by Exchange /SEBI from time to time are adhered to, yearly Annual System audit report shall include a specific report on algo checks implemented by the trading members. The format of the Algo report is attached as **Annexure C**.

Members may please note that this circular is in consolidation of all the previous circulars issued by the Exchange on Decision Support Tools/Algorithms for trading through Non Neat Front end.

**For National Stock Exchange of India Limited**

**Suprabhat Lala**  
**Vice President**

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## Annexure A

### Guidelines for submitting Algo application through ENIT

#### a) 'Approved algorithms' through CTCL

Members desirous of seeking approval for 'Approved Algorithms' shall make an application to the Exchange by furnishing the required details as given below

The screenshot shows a web browser window titled "User Module - Microsoft Internet Explorer" displaying the NSE ENIT website. The main content area is titled "CTCL Approval" and contains a form with the following fields:

- Member Code \*
- Member Name \*
- CTCL Type \*:  In-House CTCL Application  Algo Application
- Product Type \*:  ALGO
- Category \*:  CTCL  DMA
- Tick By Tick (TBT) \*:  TBT  NON TBT
- Sub Category \*:  Approved Algo CTCL  Non Approved Algo CTCL
- Algo Type \*: --- SELECT ----
- Segment \*:  GM  F&O  CDS
- Vendor Name \*: --Select--
- Name of the Algo Strategy \*
- Version \*: --Select--

At the bottom of the form are three buttons: "Certify Data", "Submit", and "Cancel".

The left sidebar contains a navigation menu with the following items:

- Users
- Exchange
- Member
- Trade
- Pro Enablement/Disablement
- Digital Certificate
- Tools
- Short Selling Disclosure
- NMF Process** (circled in blue)
  - Undertaking Submission
  - Audit Report Submission
  - MIS Report
  - CTCL Approval
- Downloads
- Communication Log
- Inspection
- Internal Audit Report
- FAQ
- PDF Signing Demo
- Accounts
- PAN Card Details
- Document Management
- Disclaimer
- Help

**b) ‘Non-approved algorithms’ through CTCL**

Members desirous of seeking approval for ‘Non Approved Algorithms’ shall make an application to the Exchange by furnishing the required details as given below:

The screenshot shows the NSE ENIT web portal interface. On the left is a navigation menu with 'CTCL Approval' highlighted. The main content area is titled 'CTCL Approval' and contains a form with the following fields:

- Member Code\*:
- Member Name\*:
- CTCL Type\*:  In-House CTCL Application  Algo Application
- Product Type\*:  ALGO
- Category\*:  CTCL  DMA
- Tick By Tick (TBT)\*:  TBT  NON TBT
- Sub Category\*:  Approved Algo CTCL  Non Approved Algo CTCL
- Algo Type\*: (Dropdown menu)
- Segment\*:  CM  F&O  CDS

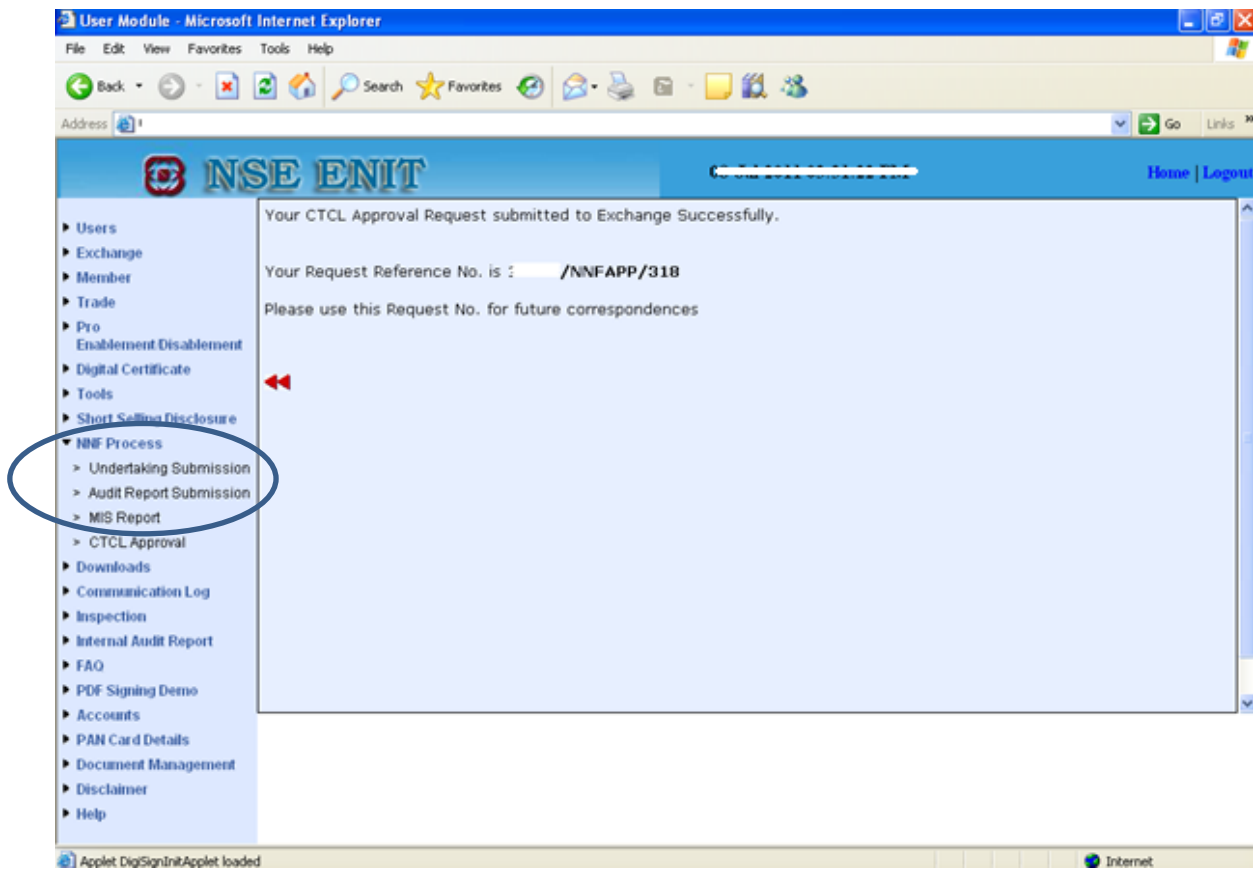
Below these fields is a section for 'Vendor Details' with input boxes for Vendor Name\*, Vendor Contact Name\*, and Vendor Contact No\*.

**c) DMA Algorithms – Trading Member / Institutional Client Algorithms**

The screenshot shows the NSE ENIT web portal interface for DMA Algorithms. The navigation menu on the left has 'CTCL Approval' highlighted. The main content area is titled 'CTCL Approval' and contains a form with the following fields:

- Member Code\*:
- Member Name\*:
- CTCL Type\*:  In-House CTCL Application  Algo Application
- Product Type\*:  ALGO
- Category\*:  CTCL  DMA
- Sub Category\*:  TM DMA Algo  Client DMA Algo
- Tick By Tick (TBT)\*:  TBT  NON TBT
- Algo Type\*: (Dropdown menu)
- DMA set up Name using which the algorithm orders shall be released to the Exchange\*:
- DMA Version number using which the algorithm orders shall be released to the Exchange\*:
- DMA Approval Date using which the algorithm orders shall be released to the Exchange\*:
- Segment\*:  CM  F&O  CDS

On successful submission of the required documents member would receive a reference number for all future correspondence with respect to the request furnished. Members would be able to view the requests with updated status in **MIS report**.



**Annexure B**  
**Application form for identification of Decision Support Tools / Algorithms trading as**  
**‘Approved Algorithms’**

(To be executed on letterhead of the Vendor)

I / We \_\_\_\_\_, an individual / a firm registered under the Indian Partnership Act, 1932 / a Company / Body Corporate incorporated under the Companies Act of 1956/ \_\_\_\_\_ Act, \_\_\_\_, and residing at / having our registered office at \_\_\_\_\_. We are desirous of making available Decision Support Tools/Algorithms to trading members of the Exchange in Capital Markets/ Future & Options Segments/ Currency Derivative Segments for the purpose of Algorithmic Trading; hereby apply for the permission of the Exchange for identification of Decision Support Tools / Algorithms trading as ‘Approved Algorithm’

S No.	Particulars	Details
1.	Name of the Software Vendor	
2.	Registered Office/ Office address : Telephone : Fax No. :	
3.	Name of the Authorised Signatory and Designation	
4.	Contact address of the Authorised Signatory : Telephone No. : Fax No. :	
5.	Strategy Name and Version number	
6.	Type of algorithm	<ul style="list-style-type: none"> <li>• Execution Algorithm</li> <li>• Arbitrage Algorithm</li> <li>• Alpha seeking Algorithm</li> <li>• High Frequency Trading</li> <li>• Others</li> </ul>
7.	Whether CTCL / adapter and automated risk management system using which the Decision Support Tools / Algorithmic trading product shall connect to the Exchange Trading system is developed by the vendor on his own	YES / NO
8.	If not, name of vendor who has developed CTCL / adapter automated risk management system to which the Decision Support Tools / Algorithmic trading product is integrated	

**Signature of Authorized Signatory of the Vendor**

**Name of the Vendor**

**Date :**

**Place:**

**Stamp/Seal :**



### Annexure B1

NOTWITHSTANDING the generality of the above, the software provided complies with the following provisions in particular as directed by SEBI /Exchange.

S No.	Requirement	Whether complied (Yes / No)
1.	<p>The software provides for routing of orders through electronic / automated risk management systems of the broker to carry out appropriate validations of all risk parameters before released to the Exchange trading system including</p> <p><b>Individual Order Level:</b></p> <ul style="list-style-type: none"> <li>• Quantity Limits check</li> <li>• Price Range checks</li> <li>• Trade price protection checks</li> <li>• Order value checks</li> <li>• Automated Execution Check</li> <li>• Cumulative Open Order Value Check</li> <li>• Market price protection check</li> </ul> <p><b>Client Level:</b></p> <ul style="list-style-type: none"> <li>• Net position v/s available margins</li> <li>• RBI violation checks for FII restricted stocks</li> <li>• MWPL violation checks</li> <li>• Position limit checks</li> <li>• Trading limit checks</li> <li>• Exposure limit checks at individual client level and at overall level for all clients</li> </ul>	YES / NO
2.	The orders generated by Decision Support Tools / Algorithmic trading products are identified as 'Algorithm orders' while releasing to the Exchange	YES / NO
3.	Proper procedures, systems and technical capabilities are in place to carry out trading through the use of algorithms	YES / NO
4.	The Algorithms are safeguarded from misuse or unauthorized access. Additionally, procedures and arrangements are in place to safeguard algorithms from misuse or unauthorized access.	YES / NO
5.	The system has the capabilities to monitor algorithms real-time to identify those algorithms that may not behave as expected and bring it to the notice of the Exchange immediately.	YES / NO
6.	The system maintains logs of all trading activities including record of control parameters, orders, trades	YES / NO

	and data points emanating from trades executed through algorithm trading to facilitate audit trail.	
7.	The system releases further order(s) only after accounting for all executed, unexecuted and unconfirmed orders placed earlier. Further, system shall have pre-defined parameters for an automatic stoppage in the event of Algo execution leading to a loop or a runaway situation	YES / NO
8.	Any modifications / Change to the approved decision support tool / Algorithm to be effected only on prior approval of Exchange.	YES / NO
9.	All Algorithmic orders emanating from the system to be tagged with the unique identifier as specified by Exchange from time to time.	YES / NO
10.	The system adheres to the guidelines as specified by SEBI / Exchange to identify dysfunctional Algo for orderly trading and market integrity. Further, members shall take necessary measures as mandated by the Exchange.	YES / NO
11.	All orders generated by Decision Support Tools /Algorithmic trading products are offered to the market for matching and no cross trades are generated	YES / NO
12.	The system has sufficient security features including password protection for the user ID, automatic expiry of passwords as the end of a reasonable duration and re-initialisation of access on entering fresh passwords	YES / NO

**Signature of Authorized Signatory of the Vendor**

**Name of the Vendor**

**Date :**

**Place:**

**Stamp/Seal :**

## Annexure C

### ‘ALGO Audit Report’

(All pages to be signed and stamped by System Auditor)

This is to certify that the following Decision Support Tools / Algorithms trading systems as approved by the Exchange for the Trading Member <TM code> < TM Name>, were audited by me / us.

S. No	Name of Strategy	Version no.	Vendor Name	Date of Approval
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Following is the status of compliance of the guidelines governing Decision Support Tools / Algorithms laid down by SEBI / NSE :

S. No.	Particulars	Whether Complied (Yes / No)
1.	All the Decision Support Tools / Algorithms being used are approved by the Exchange	Yes / No
2.	Algorithmic orders are routed through broker servers located in India	Yes / No
3.	The automated Risk Management System has following checks in place to restrict the value to defined limit, as per the guidelines given in circular NSE/CMTR/20662 dated April 30, 2012 :	
	<b>Order Level Checks</b>	
	a. Quantity check	Yes / No
	b. Price check	Yes / No
	c. Trade price protection check	Yes / No
	d. Order Value check	Yes / No
	<b>Client Level Checks</b>	
	e. Cumulative Open Order Value check	Yes / No
	f. Net Position v/s Available Margins check	Yes / No
	g. RBI violation checks for FII restricted stocks	Yes / No
	h. MWPL violation checks	Yes / No
	i. Position Limits checks	Yes / No
	j. Trading Limits checks	Yes / No
	k. Exposure Limits checks at individual client level and at overall level for all clients	Yes / No
4.	All Algorithmic orders emanating from the system are tagged with the unique identifier as specified by Exchange	Yes / No
5.	Automated Execution check – The system releases further order(s) only after accounting for all executed, unexecuted and unconfirmed orders placed earlier.	Yes / No
6.	All orders generated by algos are offered to the Exchange for matching and system does not execute cross trades internally	Yes / No
7.	The system has sufficient security features including password	Yes / No

	protection for the user id, automatic expiry of passwords as the end of a reasonable duration and re-initialisation of access on entering fresh passwords	
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8.	The system maintains logs of all trading activities including record of control parameters, orders, trades and data points emanating from trades executed through algorithm trading to facilitate audit trail	Yes / No
9.	The system adheres to the guidelines as specified by SEBI / Exchange to identify dysfunctional algos for orderly trading and market integrity	Yes / No

Signature

(Name of the Auditor & Auditing firm)

CISA/CISSP/ISA/DISA Reg. No. :

Date:

Place:

Stamp/Seal: