9. MARGIN REQUIREMENT

9.1 Marginable Position

SEOCH requires margin for open option positions and pending stock positions. This is calculated and collected, where necessary, on a daily basis using routine procedures which are carried out overnight.

SEOCH may also collect margin at other times, even during trading on a Business Day, as it sees necessary (see Intra-day Margin, below).

9.2 Portfolio Risk Margining System

SEOCH will use Portfolio Risk Margining System ("PRiME") to calculate margin.

The philosophy behind PRiME works on the basis of projecting separately for each SEOCH Participant a variety of hypothetical -- but realistic -- market scenarios and determining, out of all these scenarios, which one of them would leave the value of the SEOCH Participant's portfolio in the worst position financially. The margin that SEOCH then demands is the amount which would be required to meet all the SEOCH Participant's obligations if its entire portfolio were liquidated at that worst case scenario.

The Total Margin Requirement resulting from this process consists of two components: the "Mark-to-Market" margin and the "Risk Margin". (Please refer to Appendix D or the *PRiME Margining Guide* for an illustration of the calculation.)

9.2.1 Mark-to-Market Margin

Each day, after the close of trading, SEOCH marks the marginable positions to market with the fixing price of each option series determined by SEOCH. The resulting amount is called the Mark-to-Market Margin, which will be a credit for a long option position and a debit for a short option position.

Unless otherwise determined by SEOCH under special circumstances, the fixing price of an option series shall be calculated as follows:

i. Subject to paragraph v, if there was a trade during the final fifteen-minute period, the following will apply:

   (a) if the last trade was at or below the best bid price amongst the last bid price(s) that had any corresponding offer price(s) during the final fifteen-minute period, the fixing price will be such best bid price;

   (b) if the last trade was at or above the best offer price amongst the last offer price(s) that had any corresponding bid price(s) during the final fifteen-minute period, the fixing price will be such best offer price;

   (c) if the last trade was between the best bid price amongst the last bid price(s) that had any corresponding offer price(s) during the final fifteen-minute period and the best corresponding offer price, then the fixing price will be the price of such last trade; and

   (d) if no pairs of bid and corresponding offer prices were available during the final fifteen-minute period, then the fixing price will be the price of such last trade.

ii. If there was no trade during the final fifteen-minute period, the fixing price will be calculated as the midpoint between the best bid price amongst the last bid price(s) that had any corresponding offer price(s) during the final fifteen-minute period and the best corresponding offer price, rounded to the nearest tick. However, if SEOCH determines that the bid-offer spread is not consistent with those of other expiry months with similar strike prices, and the resultant fixing price does not reflect the true market conditions, SEOCH will disregard this fixing price and proceed to the procedures laid down in paragraph iii.

iii. If neither a trade nor a pair of bid and offer prices was available during the final fifteen-minute period, or if SEOCH determines according to paragraph ii that the procedures laid down in this paragraph iii should be followed, the fixing price of an option series shall be calculated by SEOCH using a model as prescribed by SEOCH with the volatility determined with reference to the following:

(a) the prices of the option series of the same expiry month during the final fifteen-minute period;

(b) the prices of the option series of the same expiry month prior to the final fifteen-minute period if no sufficient prices of the option series of the same expiry month during the final fifteen-minute period were available to determine the volatility of such option series;

(c) the volatility and skewness of the option series of the same expiry month on the previous Business Day if no sufficient prices of the option series of the same expiry month prior to the final fifteen-minute period were available to determine the volatility of such option series; and

(d) other information provided by the Market Makers if no volatility or skewness of the option series of the same expiry month on the previous Business Day was available.

iv. SEOCH will adjust, where appropriate, the fixing price of an option series calculated under paragraph i, ii or iii according to the following and rounded to the nearest tick:

(a) if the fixing price so determined is smaller than the intrinsic value of the option series, it will be adjusted to such intrinsic value;

(b) if the fixing price so determined is greater than the upper boundary set by SEOCH based on a prescribed percentage of the theoretical price of the option series calculated according to the procedures laid down in paragraph iii, it will be adjusted to such upper boundary;

(c) if the fixing price so determined is smaller than the lower boundary set by SEOCH based on a prescribed percentage of the theoretical price of the option series calculated according to the procedures laid down in paragraph iii, it will be adjusted to such lower boundary;

(d) starting from the at-the-money to the most in-the-money option series of the same underlying, month and call/put type, if the fixing price is smaller than or equal to the fixing price of the preceding option series, it will be adjusted to a value not lower than the fixing price of such preceding option series;

(e) starting from the at-the-money to the most out-of-the-money option series of the same underlying, month and call/put type, if the fixing price is greater than or equal to the fixing price of the preceding option series, it will be adjusted to a value not higher than the fixing price of such preceding option series; and

(f) starting from the spot month to the most distant month option series of the same underlying, strike price and call/put type, if the fixing price is smaller than or equal to the fixing price of the preceding option series, it will be adjusted to a value not lower than the fixing price of such preceding option series.

v. Block Trade prices will not be used by SEOCH in determining the fixing price.

vi. Notwithstanding the above, SEOCH may, in its discretion, adjust or otherwise determine the fixing price of an option series.

9.2.2 Margin Interval and Risk Margin

SEOCH will determine the margin interval based on its judgement about the potential volatility of the underlying over the period up to the collection of the *next* margin call, by reference to the historical volatility of the underlying. This margin interval is used to construct the upper and lower limits of the risk array based on the last available closing price of the underlying.

The risk array price level at which the greatest loss would occur if the market were to move to that level is compared to the mark-to-market value. If this theoretical liquidating value is greater than the Mark-to-Market Margin, the difference is called Risk Margin.

The sum of Mark-to-Market and Risk Margin is the Total Margin Requirement for the portfolio in a DCASS account. The actual amount of margin call demanded each day by SEOCH will be equal to this sum, minus the acceptable value of any collateral currently provided, including any premium income earned that day which, if necessary, will be retained to meet the margin requirement. The margin may be payable in cash or in an acceptable form of collateral.

If the result of the margin calculation is a credit for an account of the SEOCH Participant in DCASS, the Total Margin Requirement for that account is simply set to zero. The SEOCH Participant cannot realise the value of the margin credit. SEOCH never pays a SEOCH Participant for having a margin credit -- it can only redeliver excess collateral upon request.

9.2.3 Total Margin Requirement

The sum of Mark-to-Market Margin and Risk Margin is the Total Margin Requirement for the portfolio.

The daily margin requirements calculated during the DCASS day end batch processing for each SEOCH Participant for open option positions maintained in each of the accounts of the SEOCH Participant in DCASS are available for on-line screen inquiry and report printing on the next Business Day.

Please refer to Appendix D or the *PRiME Margining Guide* for an illustration of the calculation of the margin requirement.

9.2.4 Additional Margin

An additional margin will be imposed on a SEOCH Participant in respect of its open option positions and pending stock positions of the same or such similar underlying stock as determined by SEOCH and notified to SEOCH Participants from time to time in the event that when assessed by reference to the historical data from each of the realized stressed market conditions and/or hypothetical data for each of the unrealized stressed market conditions as SEOCH may determine:

i. the projected aggregate loss (less any margin) arising from such open option positions and pending stock positions ("Net Projected Loss") of the SEOCH Participant is greater than 30 percent of the total Net Projected Loss of all SEOCH Participants; and

ii. the total Net Projected Loss of all SEOCH Participants arising from such open option positions and pending stock positions based on the same or similar underlying stock exceeds HK$500 million.

The additional margin to be imposed shall be a percentage of the otherwise applicable margin requirement based on the following, or such other percentage as SEOCH may consider appropriate:

Net Projected Loss of the SEOCH Participant vs all SEOCH Participants	% of applicable margin rate
More than 30% and equal to or less than 40%	20%
More than 40% and equal to or less than 50%	25%
More than 50% and equal to or less than 60%	30%
More than 60% and equal to or less than 80%	40%
More than 80%	50%

Notwithstanding the above, a SEOCH Participant accounting for greater than 80% of the total Net Projected Loss is only required to pay 40% (instead of 50%) of the applicable margin rate during the first five (5) Business Days when such percentage remains greater than 80%. In the event that a SEOCH Participant's Net Projected Loss remains at a level greater than 80% of the total Net Projected Loss for six (6) consecutive Business Days or more, the SEOCH Participant must pay 50% of the applicable margin rate as additional margin from the sixth (6th) Business Days onwards.

For the avoidance of doubt, if additional margin is required under two or more stressed market conditions, the higher or highest (as the case may be) additional margin rate shall be imposed.

9.3 Margin Treatment of SEOCH Participant Positions

9.3.1 Margin Treatment of Open Options Positions

9.3.1.1 House Positions

For open option positions maintained in any account in DCASS which is margined on a net basis, the netting works as follows:

i. A long position in an options series will be netted against a short position in the same option series to create a net long or net short position for margining.

ii. The Mark-to-Market Margin and Risk Margin of the option class is calculated separately based on the net long and net short positions of all series within the same option class. Where the option class produces a Mark-to-Market Margin credit, it can be used to offset the Risk Margin of that same option class. The resulting balance represents the Total Margin Requirement of that option class.

iii. If the Total Margin Requirement is a credit for this option class, this credit can be used to offset the margin debits resulting from other option classes with the same Currency of the Contract.

iv. If a margin credit results after offsetting the margin credits against the margin debits from the different option classes with the same Currency of the Contract, such margin credit can be used to further offset margin debits resulting from the margining of other option classes with a different Currency of the Contract. Before the offset, the margin credit will be converted into the Currency of the Contract in which the margin debit is denominated at such exchange rate as may be determined by SEOCH from such source and on such basis as it shall consider appropriate.

After netting under (i) to (iv) above, the Total Margin Requirements of all the option classes will be aggregated to form the Total Margin Requirement of the portfolio.

For margin calculation purpose, other than positions in the Market Maker Account of a designated trader, which will be margined separately, and other than positions in the Market Maker Account of an NCP of a SEOCH Participant, which will be aggregated with those in the relevant Individual Client Account of the SEOCH Participant maintained for such NCP as if they were positions in such account, positions in the SEOCH Participant's Market Maker Account will be aggregated with those in its House Account and margin will be calculated on a net basis. Open option positions comprised in the Daily Account and the Sink Account are margined on a gross basis according to the same algorithm as that adopted for the Omnibus Client Account described in 9.3.1.2.

For more details on net margining, please refer to Appendix D or the *PRiME Margining Guide*.

9.3.1.2 Client Positions

Open option positions maintained in the Omnibus Client Account are margined on a gross basis. Open option positions maintained in an Individual Client Account or a Client Offset Claim Account are margined on a net basis.

Margin credits of long positions in the Omnibus Client Account cannot be used to offset the margin debits of any short positions in that account, whether the positions are of the same option series, within an option class or across option classes. For details of gross margining, please refer to Appendix D or the *PRiME Margining Guide*.

Open option positions comprised in an Individual Client Account are margined on a net basis according to the same algorithm as the House Account described in 9.3.1.1. However, any margin credit associated with an Individual Client Account will not be used to offset the margin debit of any other Individual Client Account or any other open option positions maintained in any other account of a SEOCH Participant.

Open option positions comprised in a Client Offset Claim Account are margined on a net basis. For more details on net margining, please refer to Appendix D or the *PRiME Margining Guide*. Only positions that are of an offset nature and that are transferred by a SEOCH Participant from its Omnibus Client Account to its Client Offset Claim Account on the following basis will be eligible for margin offset (please refer to 1.5.1):

(a) only open short positions which the SEOCH Participant can identify as belonging to the same beneficial owner may be allocated; and

(b) offset on short put and uncovered short call positions may be claimed on a one-to-one basis if their underlying securities are the same.

As no long positions shall be allocated to the Client Offset Claim Account, there will not be any margin credit for such account. Short positions allocated by a SEOCH Participant to a Client Offset Claim Account, same as those in other accounts of the SEOCH Participant in DCASS, may be assigned during the process of random assignment each day after the start of AB (please refer to 6.2). Such assigned positions will not be margined and cannot be utilised to offset the margin debits of the remaining short positions in the Client Offset Claim Account.

The margin requirement on open option positions maintained for clients of a SEOCH Participant is the aggregated total of margin requirements on all Individual Client Accounts plus the margin requirements in respect of all Omnibus Client Accounts and all Client Offset Claim Accounts.

9.3.1.3 Margin Treatment of Covered Options Positions

A SEOCH Participant may allocate via the Cover Call Window of DCASS securities collateral available as General Collateral in its CCMS Collateral Account as Specific Securities Collateral to cover short call positions of a particular series maintained in its accounts in DCASS. For operational details of allocating securities collateral to cover/de-cover a particular series via DCASS terminals, please refer to the *DCASS Terminal User Guide*.

All open short call positions so covered by securities collateral will be treated as non-marginable positions hence no margin will be required.

A SEOCH Participant may de-cover the securities collateral previously allocated to cover a particular series, in which case, the previously covered position will not be covered and will become marginable. SEOCH Participants should ensure that they have sufficient funds in their bank accounts maintained with the Designated Bank or Settlement Bank, as the case may be, to meet margin call requirements in the morning of the next Business Day.

9.3.1A Margin Treatment of Pending Stock Positions

All pending stock positions are margined independent of other options positions. The following paragraphs describe the margin treatment of pending stock positions settled under different mechanisms (as referenced in Chapter 8).

9.3.1A.1 Margin Treatment of Pending Stock Positions to be Settled via CCASS under the CNS System

No margin will be required by SEOCH on pending stock positions to be settled via CCASS under the CNS System, but such pending stock positions will be subject to the Marks, Margin and Concentration Collateral requirements of HKSCC pursuant to the CCASS Rules and the SEOCH Participant in its capacity as a CCASS Clearing Participant or the CCASS GCP, where applicable, will be responsible for the relevant Marks, Margin and Concentration Collateral demanded by HKSCC.

If a SEOCH Participant has made an arrangement with SEOCH to collect and pay Marks, Margin and Concentration Collateral to HKSCC through a designated SEOCH House CCMS Collateral Account in respect of pending stock positions to be settled via CCASS under the CNS System, SEOCH will collect from the SEOCH Participant on T such amount as may be required to satisfy the Marks, Margin and Concentration Collateral notified to SEOCH by HKSCC as the Marks, Margin and Concentration Collateral payable by the SEOCH Participant (in its capacity as a CCASS Clearing Participant) in respect of these pending stock positions.

The Marks, Margin and Concentration Collateral payable by the SEOCH Participant would be determined by HKSCC pursuant to the CCASS Rules and would represent any additional Marks, Margin and Concentration Collateral requirement resulting from the netting of the relevant exercised options trades of the SEOCH Participant with the trades to be cleared by the SEOCH Participant under the CNS System (in its capacity as a CCASS Clearing Participant) in the cash market.

Such Marks, Margin and Concentration Collateral will be collected and paid in the relevant currency specified by the SEOCH Participant pursuant to the CCASS Rules. If the SEOCH Participant does not have a bank account in the relevant currency for money settlement under SEOCH and does not have sufficient amount of the relevant currency in the designated House CCMS Collateral Account of the SEOCH Participant, the Marks, Margin and Concentration Collateral to be collected will, after deducting any excess cash collateral balance in such relevant currency in the designated House CCMS Collateral Account of the SEOCH Participant, be settled in Hong Kong dollars in such equivalent amount as may be converted from the relevant currency based on such exchange rate as may be determined by SEOCH. Unless the amount of excess cash collateral standing to the credit of the designated House CCMS Collateral Account of the SEOCH Participant is sufficient to meet the amount of Marks, Margin and Concentration Collateral required by HKSCC, a demand for the shortfall will be made by SEOCH on T through the money settlement process of SEOCH.

On T+1, SEOCH will, on behalf of the SEOCH Participant, effect a transfer from the SEOCH Participant's designated House CCMS Collateral Account to HKSCC's CCMS Collateral Account an amount which is required to settle the obligations of the SEOCH Participant (in its capacity as a CCASS Clearing Participant) to pay Marks, Margin and Concentration Collateral demanded by

HKSCC in respect of the pending stock positions. The amount to be transferred would comprise excess cash collateral balance that would have been available for withdrawal by the SEOCH Participant had no arrangement been made with SEOCH for it to pay Marks, Margin and Concentration Collateral on its behalf and any amount demanded by SEOCH for this purposes as mentioned above. No transfer will be made if there are insufficient funds in the designated House CCMS Collateral Account of the SEOCH Participant for this purpose or if the pending stock positions are not accepted by HKSCC for settlement under the CNS System. Upon such transfer being effected, any obligation of SEOCH to release to the SEOCH Participant any amount so transferred shall be discharged.

9.3.1A.2 Margin Treatment for Pending Stock Positions to be Settled via CCASS under the IT System

Pending stock positions of a SEOCH Participant to be settled under the IT System will be margined by SEOCH until the stock positions are fully settled by the SEOCH Participant. As the pending stock positions are no longer maintained in DCASS, the margin requirement on all pending stock positions to be settled under the IT System will be computed separately by SEOCH.

9.3.1A.3 Margin Treatment for Pending Stock Positions to be Settled by Specific Securities Collateral

Delivery obligations arising from covered pending stock positions are deemed to be settled by Specific Securities Collateral already deposited with SEOCH. Such positions are not marginable as they are covered by the relevant securities collateral.

9.3.2 Repealed

9.3.2.1 Repealed

9.3.2.2 Repealed

9.3.3 Repealed

9.3.3.1 Repealed

9.3.3.2 Repealed

9.3.3.3 Repealed

9.3.3.4 Repealed

9.3.3.5 Repealed

9.3.4 No Margin Offset between House, Omnibus or Individual Client Accounts

Where there is a credit for the total margin in the House, Omnibus Client or Individual Client Account of a SEOCH Participant, the margin credit in that account will **not** be used to offset any margin debit of either of the other two accounts.

9.4 Obtaining Reports & Margin Parameters

The POSTING COLLATERALISATION RESULT REPORT in CCMS gives details of the total margin requirement for each account of a SEOCH Participant in DCASS and CCMS.

9.5 Interest On Cash Delivered As Margin Collateral

Interest may be payable or levied on cash provided for margin requirements and other cash amounts provided at a rate prescribed by SEOCH from time to time (see Appendix I). The total amount of interest earned or levied up to and including the last day of the month will be posted to the SEOCH Participants' respective CCMS Collateral Accounts on the first Business Day of the following month.

The interest rate SEOCH is paying or levying can be enquired on-line through an enquiry function in CCMS. However, as the interest rate is only updated in the afternoon by SEOCH, the interest rate inquired during trading hours may not be the one used in the current day's interest calculation. In addition, there is a CCMS report generated on a monthly basis which lists the total interest earned or levied for the period. Please refer to the *CCMS Terminal User Guide* for details.

9.6 Collection of Margin Requirement

The daily margin requirement is settled not later than 9:15 a.m. the next Business Day in clear funds through the SEOCH money settlement process. However, due to the time required for DCASS day end processing, the margin amount required by SEOCH will only be known **after** normal banking hours. This in turn means that the SEOCH Participant must have a good estimate of the total cash requirement that SEOCH will demand before the close of the bank.

Failure to meet margin requirement will cause SEOCH to consider the commencement of default proceedings.

9.7 Intra-Day Margin

SEOCH has full discretion to call for intra-day margin from all SEOCH Participants and/or selected SEOCH Participants.

Please refer to Section 10.5 - The Intra-Day Cash Settlement Process for a description of how an intra-day margin call can be met.

Failure to meet an intra-day margin call within one hour may cause SEOCH to consider the initiation of the default proceedings.

9.8 Special Block Trade Margin

SEOCH has full discretion to call for Special Block Trade Margin from the relevant SEOCH Participant in respect of a Block Trade or a trade adjustment in respect of such Block Trade. The SEOCH Participant will be notified of a Special Block Trade Margin call within 30 minutes after the execution of the Block Trade or after the submission of a trade adjustment request in respect of such Block Trade.

Please refer to Section 10.5A – The Special Block Trade Margin Settlement Process for a description of how Special Block Trade Margin can be met.

A Block Trade will not be subject to the process of substitution and novation in accordance with the First Schedule to the Clearing Rules or be cleared by SEOCH unless any Special Block Trade Margin in respect of the Block Trade has been paid or otherwise considered by SEOCH to have been satisfied. Any trade adjustment request in respect of a Block Trade will not be accepted by SEOCH unless any Special Block Trade Margin arising from such trade adjustment has been paid or otherwise satisfied.