CFTC Technical Questionnaire

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Introduction

The U.S. Futures Exchange, L.L.C. (hereinafter "EUREX US") trading system will operate on an identical platform as the Eurex trading system and will be either the current version of the software or a recent version that was successfully implemented by Eurex. As you are probably aware, Eurex continuously upgrades its trading software, releasing and installing significantly upgraded versions about every fifteen months.
EUREX US intends to exploit this cycle of continuous improvement to the extent that is possible.

The EUREX US trading system will be technically designed, installed and operated by Deutsche Boerse Systems (DBS), which provides similar services to Eurex. Whatever version of the Eurex software is operated by EUREX US it will be modified to correspond to US business and regulatory requirements in accordance with its rules as approved by the Commission. EUREX US will set operating and service standards, which will be enforced in accordance with the vendor contract and service level agreements, which will be agreed between EUREX US and DBS.

EUREX US itself will not only install the electronic futures trading system on which more futures and futures options have been traded than on any other electronic exchange, but it will also piggyback on testing and development performed on the Eurex trading system which is intended originally for Eurex. Accordingly, many of the answers provided below will make extensive reference to Eurex.

Finally, it is EUREX US's plan to operate a dedicated trading system, with completely independent hardware and software installations. To the extent rational and economically desirable, EUREX US will share communication network with Eurex and other marketplaces running the Eurex trading system.

1. Describe and/or illustrate the hardware, software and network architecture for your system.

EUREX US is based on a 3 (optional 4) tier technical architecture
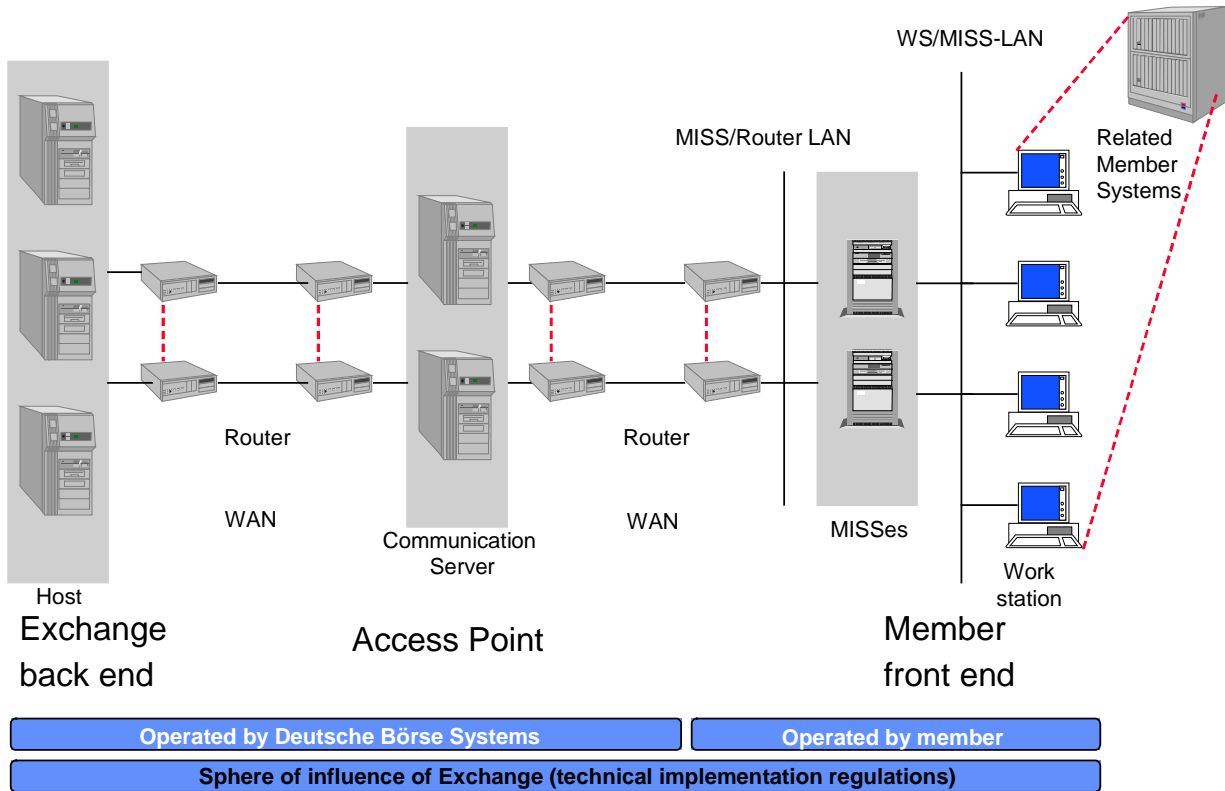
Base Structure of the EUREX US Trading Systems

EUREX US is a wide area distributed system, where the workstations and the Member Integration Systems Servers (MISS's) are owned and operated by the exchange members. The exchange members run the exchange-provided trading software. MISS's and workstations can be either Intel/Windows2000 or Sun Solaris systems. Additionally EUREX US supports Windows XP for workstations. The MISS's are connected via private leased lines or alternatively via Virtual Private Networks (VPNs) to the access points distributed worldwide.

At the access points (set up at two independent sites in each city in order to be disaster tolerant) the communication servers (OpenVMS AlphaServers) are responsible for concentrating messages, distributing broadcasts and transferring of files. The

communication servers act as fire walls between the members and the exchange. The access points are connected to the backend systems via leased lines only.

The backend systems are also OpenVMS AlphaServers in a disaster tolerant cluster configuration. They are responsible for the transaction handling and the data storage.

2. Describe the functional capabilities of your system within each of the following categories:
   - Quotation
   - Indications of Interest
   - Order placement (types, limits, cancellation)
   - Order matching (including a description of the order-matching algorithm)
   - Clearing and settlement
   - Account and member management

Quotation

The system provides various features for quotation. At EUREX US, quotes are always binding bids or offers - no indicative quoting is available in the system - entered by market makers into the trading system.

The market-maker facility exists to provide additional liquidity to the market. It is the task of the market-maker to bridge temporary imbalances between supply and demand in traded products. There is generally more than one market-maker for a product. In general, for options, any Exchange Participant can act as a market-maker after an application for a market-maker license in one or more products has been approved by the Exchange. On the application, the Member nominates specific traders who should be authorized to enter quotes (i.e. act as a market-maker) for the licensed products. For futures, for selected products only, so-called designated market-making may exist.

Market-Making in Options

Any Member may indicate interest to buy and/or sell an option or option combination by entering so-called quote requests (although members are excluded from issuing quote requests for products in which they act as a market-maker). Licensed market-makers take on the

obligation to supply quotes in response to quote requests. For option combinations such obligation does not exist.

Only one outstanding quote per option is allowed at one time per trader subgroup[1]. The quote contains both bid and ask limits, as well as a quantity on each side, and must be entered within a specified time after the quote request has been issued, as determined by the Exchange. There is also a maximum spread between the bid and ask price (which may vary depending on the price) to ensure that market-makers supply appropriate quotes.

Also, minimum contract sizes for both bid and ask quotes, and a minimum period for maintaining quotes in the system are stipulated. The entered bid and ask quotes are treated as two separate orders. The two orders differ in their buy/sell indicator, limit price and order number; different quantities in both legs are also possible.

Single leg option market making is supported by so-called Mass Quote functionality, which allows market makers to enter quotes for up to 24 option series within one request.

While there is no obligation for market-makers to respond to option combination quote requests, they are free to enter quotes for option combinations. Option combination quotes are written to a separate order book.

Designated Market-Making

For futures any Exchange Participant may enter quote requests. For certain selected futures products, designated market-makers take on the obligation to submit corresponding quotes, although anybody wishing to submit a quote can do so. In this case too, only one quote per futures contract is allowed per trader subgroup. The quote may either contain the bid limit or the ask limit only, or both prices. The exchange determines a maximum admissible spread between bid and ask prices at any time. Quotes may also be entered for futures combinations, but this facility is not available for Inter-Product Spread products.

The quote function is an easy means to quickly supply liquidity. The trader only needs to specify the prices and the quantity of the desired futures contract before a quote is sent into the market.

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[1] The term "subgroup" is explained in the reply to question 9.

Indications of interest

Members can indicate interest in trading a specific contract by entering a quote request. ("RFQ"). All RFQs are anonymous. The RFQ may specify buy, sell or buy and sell as well as the quantity. This information containing the request is distributed via the network to all trading workstations. Market makers often have software, which identifies RFQ's and automatically enters appropriate quotes. Responses take the form of normal quotes or orders in the order book, which are firm for the sizes indicated at the prices indicated. The member who initiated the RFQ may enter an order or ignore the responses.

Order placement

As soon as an order or quote, entered into the Electronic Data Processing (EDP) system of EUREX US, and another order or quote may be executed during the Trading Period, these orders or quotes will automatically be matched. The EDP system of EUREX US generally ranks the orders or quotes as the case may be, according to their price. The highest bid price and the lowest ask price are ranked first. If prices are identical, the chronological order of entry is determinative. Market orders will at all times be executed before all other orders or quotes.

Order Types

Orders must be identified upon their entry as either orders as principal or on behalf of customer accounts and, for purposes of recording them, as opening or closing transactions. In the event of a closing transaction, a purchase position and a corresponding sell position shall be cancelled against each other.

After the matching of an order or quote, as the case may be, the transaction shall be recorded in the relevant position account.

The following types of orders may be entered by Exchange Participants into the EDP system of the EUREX US:

Overview of Order Types

Order Types	Options	Option Combinations	Futures	Future Combinations
Limit Order				
Restricted				
IOC (Immediate-or-Cancel)	Y	Y	Y	Y
FOK (Fill-or-Kill)	Y	Y	N	N
Unrestricted				
GFD (Good-for-Day)	Y	N	Y	
GTC (Good-till-Cancelled)	Y	N	Y	Y
GTD (Good-till-Date)	Y	N	Y	Y
Market Order	Y	N	Y	N
Stop Order				
Stop Buy Order	N	N	Y*	N
Stop Sell Order	N	N	Y*	N

Y = Yes, order type possible

N = No, order type not possible

* = Not for pro rata matched products

a) Limit Orders

Limit orders are carried out at the specified limit or better price. Limit orders can be restricted or unrestricted.

a.a) Restricted Limit Orders

Immediate-or-Cancel (IOC): IOC orders are filled immediately, either completely or to the extent possible. The part of the order that cannot be matched is cancelled. EUREX US allows this for options and futures

Fill-or-Kill (FOK): FOK orders are filled immediately and completely or, if this is not possible, they are cancelled. EUREX US allows this type of order for options only.

a.b) Unrestricted Limit Orders

Unrestricted limit orders (i.e. orders without FOK or IOC) are valid for futures and options. Depending on their qualifier, these order types have a duration in the order book as follows:

Good-for-Day (GFD) – This is the default for order entry. Unexecuted orders that were entered without a time limit are cancelled from the order book at the end of the EUREX US trading day.

Good-till-Cancelled (GTC) – With GTC orders, the duration of the order validity is not definite. A GTC order is valid until execution, until the Exchange Participant cancels it, until the contract expires, or until one year after order entry.

Good-till-Date (GTD) – GTD orders are valid until the given date (maximum one year forward), until execution, until cancelled by the Exchange Participant, or until the contract expires, whichever happens first.

b) Market Orders

Market orders have no limit price. They are matched immediately at the best available market price. Hence, with Market orders, there is no guaranteed trade price. However, there are some safeguards within the principle of immediate matching, which differ for options and futures, as outlined below:

For options trading, Market orders are matched as soon as possible at the best possible price, but not below (for a "Sell") or above (for a "Buy") the lowest or highest (respectively) available quote in the order book. Market orders that cannot be executed are written to the order book until further quotes or tradable Limit orders arrive. A Market order takes precedence when there are also two opposite Limit orders which could be executed against each other, i.e. with a buy limit equal to, or higher than, the sell limit (crossed book).

In futures trading, Market orders are matched as soon as possible at the best possible price, but only within a maximum range around the reference price (best bid/offer price defined by existing limit orders, last trade price or opening price). The size of the range is product specific and determined by EUREX US. Market orders that cannot be executed immediately (because there is no corresponding order/quote or the price would be outside the fixed range) are written to the order book.

c) Stop Orders

Stop orders may be entered only for futures trading, but not for pro-rata matched Futures, nor futures combinations. Stop orders are triggered and turned into Market orders only when the market price for the contract has reached, or exceeded the price limit specified in the order. With stop-buy (sell) orders, the price limit is set above (below) the current market price. As soon as the pre-determined price level is reached or exceeded (a lower value is reached), it is either matched directly, or it will be written to the order book.

Cancellations

Orders in the order book may be amended or cancelled by the Exchange Participant that entered the order. Individual quotes or all quotes for one product may be amended or cancelled; likewise, all quotes for one product may be temporarily withdrawn from trading. All quotes as a whole, or all quotes and all orders as a whole, of a given Exchange Participant contained in the order book may be cancelled by the Exchange upon the request of such Exchange Participant.

Order matching

Options and futures trading begin with the determination of an opening price for each option series and each futures contract. The Opening Period comprises the Pre-Opening Period and the netting process. For the purpose of determining a particular opening price, additional orders and quotes may be entered until a time established by the Management of EUREX US; a preliminary opening price will be continuously displayed during this
period (the "Pre-Opening Period"), but no quantity is displayed. Quotes may be individually canceled or amended during the Pre-Opening Period, but all quotes for an individual product may not collectively be changed, canceled or withdrawn from trading during this period. During the subsequent netting process, the maximum possible number of contracts from orders and quotes contained in the system shall be matched for the purpose of determining a final opening price of each option series and futures contract (principle of highest execution quantity). The EUREX US does not guarantee the execution of any order or quote at such opening price. The Opening Period with respect to a product shall end as soon as the netting process has been completed for all option series and/or all futures contracts based on such product.

If no market orders exist for any option series or futures contract and matching between limit orders or limit orders and quotes is not possible, the Opening Period shall end without the determination of an opening price.

The system provides three different matching procedures. One of them is used for options matching, whereas two different algorithms may be used for futures matching depending on the type of underlying product.

Price /Time Priority Matcher

The Price/Time matching algorithm conforms to the price and time priority rule. This matching algorithm is used for all EUREX US options and some futures if these futures are assigned to this matcher. When a new order is entered, the EUREX US system first checks the limits of the orders in the electronic order book and executes the orders with better limits before the orders with worse limits. A timestamp is assigned to all orders entered into the EUREX US system to determine the chronological priority of the order for matching purposes. This timestamp is used to prioritize orders in the book with the same price.

Market orders have the highest priority for matching. If several market orders are booked in the order book the EUREX US System takes into account the timestamp of the orders as a further criterion for establishing matching priority. Consequently, the first market order entered receives the highest priority. In the case of limit orders, orders with the best possible prices (i.e. highest price limit for buy orders and lowest price limit for sell orders) take precedence in the matching process over other orders with worse prices. Again, if the limit orders have the same price limit, the extra criterion used for establishing matching priority is the order timestamp.

The orders already present in the order book are always executed at the given limit price – never at a worse price. Orders going into the order book are always matched at the appropriate prices available in the order book, up to the specified limit price.

Pro Rata Futures Matching

When matching against an incoming order, the pro rata matching algorithm takes into account each book order at the inside market price according to its percentage of the overall volume bid or offered at the price, regardless of its time stamp. The elimination of time priority results

in a larger number of book orders contributing to a trade, since an incoming order is partially matched against a proportion of all orders in the book at the current inside market price. Market orders for pro rata matched products must be entered with the restriction code IOC (mandatory). Therefore, no market orders are stored in the order books for products associated with pro rata matching. When a market order, or part of it, can only be matched outside the defined price range, the remaining quantity is cancelled (see *Market Orders*). When market orders are entered and no reference price is available, the market order is cancelled. The restriction FOK is not supported for futures; it is available only for options. Stop Orders are not available for pro rata matched products.

Opening Auction: The opening auction for pro rata products is conducted with price/time priority following highest execution principle.

Spread trading for pro rata products is available for combination pairs of consecutive expiration months. This means that the maximum number of spreads possible is equal to the number of expiration months minus one.

Safeguards

Prior to matching, each order is checked by the system for reasonability. Primarily if an order would be matched outside a pre-defined price range around the last traded price this order would fail the reasonability check. For futures, this range is identical to the Market Order Matching Range: the maximum divergence from the reference price (usually the last traded price) that is permitted for the matching of market orders. For options, the maximum spread for market-makers (at the relevant price) is used.

To override a failure of reasonability check, the user has to confirm the order by resubmitting it (users must verify the correctness of the order before doing so).

Quantities above the "maximum order quantity" defined by the Member's security coordinator also cause an authorization check to fail. In this case there is no "override" function.

Additional safeguards for futures trading at the Exchange back end include product specific maximum order quantities for market and stop orders, and a maximum divergence for order limits from the best ask limit (for buy orders), or from the best bid limit (for sell orders). There is no "override" for this check.

As a supplementary safety function for price/time-matched futures products, the EUREX US system also supports volatility interruptions: these involve the interruption of trading in a product in the event of a defined price movement within a short period of time. In the case of interruption, the product is set automatically into an auction phase, which technically starts with the pre-opening, and the usual sequence of order book balancing is performed before the product is set back to the "trading" state.

Strategy Trading

The combination trading function of the EUREX US system allows the trader to enter combination orders for futures and options. Combinations are the simultaneous purchase and/or sale of two or more different options series with the same underlying or the simultaneous purchase and sale of two different futures contracts of the same product.

In combination trading, the order is carried out for the same quantity for all components of the combination.

Options

EUREX US supports option combination trading for up to four options series. In the following "basic" two-sided combination trading as well as more complex multiple leg strategy trading are addressed.

Two sided Option Combination Orders

The EUREX US system supports the following two sided combinations:

Name	Abbreviation
Vertical Call Spreads	BUL
Vertical Put Spreads	BER
Horizontal Call Spreads	BLT
Horizontal Put Spreads	BRT
Straddles	STD
Strangles	STG
Conversions/Reversals	CNV

Due to the large number of different combinations admissible in options trading, the EUREX US system does not maintain a separate order book for option combination orders. When

entering an option combination order, traders can indicate if they would like the order to match against the regular order book or the option combination quote book (see below).

The EUREX US system only accepts restricted (FOK or IOC) option combination orders. The system defaults to I (for IOC) but this value can be overwritten with F (FOK) at order entry. FOK and IOC combination orders are executed and confirmed as two separate orders. For both orders of the combination, however, an identical number of contracts will be filled or cancelled.

Option Combination Quotes (OCQ)

For two-sided option combination quotes (OCQs) the EUREX US trading system maintains a separate quote book. OCQs can be entered by Market-Makers only, and must include both a bid and an ask price. An OCQ entry will have no impact on the outright options trading.

A daily book is created containing unmatched OCQs. These are deleted at the end of the business day.

Multiple Leg Strategy Trading

"Multiple Leg Strategy Trading" enables market participants to create an individual strategy based on predefined strategy types (Straddle, Butterfly, Condor etc.) and to announce this to the entire market. Thus, the created and published strategies are visible on the whole market and can be traded via public strategy order books.

For the Strategy Trading separate order books are defined. The matching algorithm for Strategy Orders is based on the Price-Time-priority principle.

The following strategies are defined:

Call Butterfly, Put Butterfly, Call Spread, Put Spread, Call Calendar Spread, Put Calendar Spread, Call Diagonal Calendar Spread, Put Diagonal Calendar Spread, Guts, 2x1 Ratio Call Spread, 2x1 Ratio Put Spread, Iron Butterfly, Combo, Strangle, Call Ladder, Put Ladder, Straddle Calendar Spread, Diagonal Straddle Calendar Spread, Conversion/Reversal, Straddle, Condor, Box, Call Spread versus Put, Put Spread versus Call, Straddle versus Call, Straddle versus Put, Call Spread versus Underlying, Put Spread versus Underlying, Straddle versus Long Underlying, Straddle versus Short Underlying, Call Spread versus Short Put/Long Underlying, Call Spread versus Short Put/Short Underlying, Put Spread versus

Short Call/Long Underlying, Put Spread versus Short Call/Short Underlying, Call Ladder versus Long U/L, Call Ladder versus Short U/L, Put Ladder versus Long U/L, Put Ladder versus Short U/L, Combo versus Long U/L, Combo versus Short U/L, 2x1 Ratio Call Spread versus Short U/L and 2x1 Ratio Put Spread versus Long U/L.

Futures

From the perspective of the matching process, the regular and combination order books for futures products are integrated. Futures combination orders may be specified as either unrestricted or restricted. Market orders, Stop orders or Fill-or-Kill restricted orders, however, are not permitted for futures combinations. For unrestricted orders, a validity date may also be specified. Unrestricted futures combination orders that cannot match at initial order entry are automatically written to the combination order book.

If futures combination orders cannot be executed during the day, they are updated to a "hold" status during batch processing. The trader may re-activate the held order after the start of the trading period during the next or any subsequent trading day. If the combination order is not matched by the expiration date specified on the order, the order will be automatically deleted during the batch process.

Futures Combination Types
The EUREX US trading system accepts the following integrated futures combination types:

Calendar Time Spreads
A time spread is the simultaneous purchase and sale of two futures contracts of the same product but with different expiration dates. For futures trading (price/time priority matching), the following types of calendar time spread combinations (type = SPD) are supported:
- First Month and Second Month Spread (e.g. March/June)
- Second Month and Third Month Spread (e.g. June/September)
- First Month and Third Month Spread (e.g. March/September)
The buyer of the spread combination buys the first component and sells the second component. A purchase of the combination FXXX MAR/JUN means purchase of the FXXX March contract and simultaneous sale of the FXXX June contract.

Futures time spread combinations will automatically be matched against the outright order book or the separate combination order book, depending on which book will yield the better price.

Inter-Product Spreads (IPS)

The EUREX US system also supports Inter-Product Spreads (IPS) for futures. The buyer of an IPS buys the first and sells the second component similar to the futures Time Spread Combination, but the components refer to different financial instruments usually with the same expiration month. Inter-Product Spreads are treated as separate products in the EUREX US Trading System. Matched orders in IPS products are decomposed and posted to the two separate product legs. In a similar way to time spread combinations, a purchase of an IPS product results in a long position in one product and short position of another product.

The EUREX US system does not permit negative pricing except for futures time spreads and options combination trading.

In order to support the trading of Inter-Product spreads, a price offset may apply, where traded spread prices are added to a specified offset level.

Clearing and Settlement

EUREX US will use a Derivatives Clearing Organization registered as such by the CFTC to clear and settle all trades executed at the electronic trading system of EUREX US.   Eurex Clearing AG, will be used to assist the U.S. Derivatives Clearing Organization in its assignment and issuance of instructions for the delivery of European instruments. At present, BOTCC has entered into a Letter of Intent to provide clearing services to EUREX US.

Account and member management

The member and user data together with the resource access levels (e.g. right to enter orders) are stored in a central database. The database stores for every user the name, phone number, admission status (e.g. trader, trading assistant) detailed system rights and additional details for authentication in case of trading on behalf.

All changes are tracked in specific audit trail reports. These reports are stored on a separate device for long term access.

Every transaction effected by EUREX US members shall be recorded in the EDP system of EUREX US in internal Principal, Agent and M-position Accounts.

Principal Trading Accounts

Only transactions carried out by an Exchange Participant for its own account shall be recorded in the Principal Position Account.

Agent Trading Accounts

Only transactions carried out by a member on behalf of a customer shall be recorded in the Agent Position Account of such Exchange Participant.

M-Trading Accounts

Transactions resulting from quotes entered in the EDP system of EUREX US shall be recorded in the M-position accounts. Market-maker accounts are maintained on a net basis, i.e. the position in an option series or futures contract is either long or short; long or short positions in the same option series or futures contract are netted against each other.

3. What functions are restricted to a specific class of user and why?

Each system function is associated with a so-called Resource Access Level (RAL) which can be set on user or member level, whereby a user cannot have more privileges than the member with whom he or she is associated. With each request the EUREX US host validates whether the submitting user is allowed to perform this transaction. If not, the request is immediately routed back to the entering user with a corresponding message.

Whereas resource access levels for members are maintained solely by Market Supervision for security reasons, access levels on user level may be managed by the respective EUREX US member. Usually, EUREX US members will appoint security administrators for these tasks.

Several Resource Access Levels can only be assigned to EUREX US Market Supervision. These include functionality to control the market and members.

This security administrator can furthermore define on product level if a user is allowed to trade that product. The maximum order size by product can be defined, as well. The latter features serve to support the members' risk management. On EUREX US, there are no

differences in functionality depending on membership class. Market makers do not enjoy enhanced access or time priority privileges as a result of their status. The main difference among EUREX US users' access is related to the ability to enter quotes for options into the system. Only members that have been approved as market makers are allowed to enter quotes for options.

Availability of functions like OTC Block Trades can be regulated by the exchange for the different members using Resource Access Levels to allow for example in this specific case only members who are eligible contract participants to execute OTC Block Trade transactions.

4. What markets will be available to your system?

EUREX US contemplates listing futures contracts based on capital market and index products and commodities. Furthermore, listing of options on all EUREX US futures is considered.

No other market is available though the EUREX US trading system. Eurex uses a similar trading system with shared network. Although outside vendors may sell programs to place EUREX US on a single screen with other markets, they do not share the trading system.

5. Describe what other systems the trading system will connect with, e.g. order routing systems, clearing systems, surveillance systems, other trading systems.

The user interface is an open documented API, which allows member-written applications to connect to the system, like order routing, quote machines etc. The trading system will provide matched trade information on a near real-time basis through an interface directly to the clearinghouse for processing.

The system will have interfaces to the Consolidated Exchange Feed (CEF); a Deutsche Boerse owned system for dissemination of real-time price data to external users. It collects data from various sources like Eurex, EUREX US and Index (Deutsche Boerse's Index Calculation System) as well as from other sources like STOXX, Reuters and Bloomberg. It

allows users to receive different kinds of real-time price data from different data sources in a single feed. CEF will also provide EUREX US with dedicated underlying data.

Market surveillance will be done by NFA. Order, quote and login activity data are sent from the trading system to NFA. All other information's (e.g. trades) are coming from the clearinghouse.

6. Describe any problems that arise as a result of these interfaces and the steps taken to address these problems.

Currently no problems are known with these interfaces, because most of these interfaces are currently used and supported by DBS. The interface to NFA will be extensively tested during product test, release test and simulation. Although the interface to BoTCC is already in use and will not be changed for EUREX US it is tested extensively as well. When new functionalities are introduced, they will be tested extensively before production in several phases.

7. Describe the availability of your trading terminals:
   - Hours of operations
   - Physical location
   - User population

- Hours

20 hours of trading operations are foreseen for EUREX US. There has to be at least a period for batch processing of data and for other maintenance. The hours currently under consideration for batch processing are 16:00 – 20:00 Chicago time.

- Physical location

Chicago, Illinois. As stated in response to question 1, while the system is wide area distributed, the backend will be located at two independent sites to allow disaster tolerant operation. The two sites will be located in Chicago at least 4,5 miles from each other .

Both systems are built disaster tolerant, i.e. they consist of two totally equivalent sites. The load is shared among the systems across both sites. If any system or any site fails the surviving systems/sites just continue the operation without any manual interaction.

EUREX US does not have any dedicated backup computing centers. However, in case of disaster the Frankfurt/Germany Simulation environment is used, which would allow restart of trading on EUREX US within 24 hours ("cold stand-by").

EUREX US will store all trading data. Outsourcing of storage to a third-party provider is currently considered.

- User Population

A user population of 2,000 authorized traders registered trading users is expected for EUREX US.

8. Describe the physical safeguards and security measures used in the physical environment of the communications and central computer facilities and at the customer sites to protect system components.

The backend servers are to be located in two independent high security data centers, where access will be controlled by guards; locked cabinets ensure highest security standards. There are always (at least) two different routes of all network cables with two or more house entries per location and between the locations. If available, network lines are from different providers.

A Participant Front End System consists of at least one Exchange Participant's computer integrated into the Network of EUREX US, which is equipped with sufficient capacity and data security options in order to secure the technical basis on the part of the Exchange Participant for trading at EUREX US.

9. Describe the access controls and procedures that will be used to insure the identification and authentication of system users.

The backend network itself will be available only from defined offices with physical access restrictions (card readers) and is not connected to a public external network. Access to the

systems themselves is controlled by the proven security mechanisms of the OpenVMS operating system (personal user identification).

Authorized traders trading on EUREX US system must be allocated by the trader's member a special user identification code, which consists of a subgroup code and a user identifier. The subgroup code serves to separate traders into groups. The access restrictions inherent in subgroups are an essential security feature under the control of the member's security coordinator, who is responsible for defining user identification codes and thereby allocating individual traders to subgroups. Traders in one subgroup have no access to the orders, quotes and trades of another subgroup. The role of the EUREX US security system is to protect the data of members as well as that of their clients against unauthorized access and to restrict the access to specific windows for each user in line with their responsibilities.

10. Discuss the issues of minimum qualifications, review procedures, and supervision to ensure the competence and integrity of those with access.

EUREX US will outsource management and maintenance of the technical infrastructure to Deutsche Börse Systems (DBS), which is an affiliate of Eurex and a subsidiary of Deutsche Börse, one of EUREX US's ultimate parent companies. DBS is the Deutsche Börse affiliate that has managed and maintained the Eurex trading system and which currently manages and maintains a trading system in the U.S. under a joint venture. As compared to these current systems, there will be no differences in the standards of the service agreements between DBS and EUREX US. The relationship will be governed by a service contract. Employees of DBS, only after a learning period, have access to the production systems. Operators work in predefined captive menus only. Qualifications consist of OpenVMS (DCL) knowledge, EUREX US application (base programming and operation) and IT security knowledge. Direct access is guided by a 4 eyes principle, the application logs changes. DBS is an established company.

Persons who are to be authorized to enter into options and futures transactions at EUREX US on behalf of an admitted enterprise (Authorized Exchange Traders) shall be admitted upon

application by EUREX US if they are reliable and have the necessary professional qualifications. Technical training in the use of the Trading System will be offered.

The admission of an enterprise to options and futures trading requires that, among other things, the technical requirements for connection to the EDP system of EUREX US are satisfied.

11. Describe the administrative systems that will be employed to prevent or detect the unauthorized use of the system.

An independent IT security department evaluates logs of the various systems and of the application and generates a weekly management report. All deviations from the standards are documented, reported and analyzed.

The ticket-of-the-day key is modified for each transaction, thus preventing real-time hacking.

The exchange network is a private network; communication is via dedicated leased lines. For connectivity via the Internet a virtual private network channel is used to prevent unauthorized use of the system.

NFA or a similar contractor will be conducting T plus 1 review of all trading activity to determine if there has been unusual trading activity based upon profiles or if access is for unusual periods of time etc. They will alert EUREX US and/or members to any unusual activities.

12. Describe the ways that communications security features such as an encryption and data compression will be used to maintain data integrity. Also identify or describe the specific protocols that will be employed.

Transaction data records, sent over the network to the members are compressed and encrypted individually per logical link, where the key is negotiated on start-up on a daily base. To protect the backend system, the communication servers act as firewalls.

13. Describe the methods that will be employed to maintain data integrity on and between the various sub-systems in the event of failure of any one or all of these sub-systems.

All relevant data is stored on the backend servers. The member servers have functions to reload lost data.

The backend servers are configured as a disaster tolerant cluster, i.e. the surviving cluster nodes continue the complete service automatically after the failure of some nodes or even a complete site. The only impact would be a reduced system CPU capacity. Data is host based shadowed (OpenVMS operating system feature) across both sites, which ensures the data being always consistent - no resynchronization or replication is needed.

14. Describe the testing methodology that will be used to verify the system's availability to function as intended, including all interfaces to external systems such as those used for market information, audit trail, surveillance, and clearing.

The application development is organized to undergo stages of testing. The software has to pass all the stages listed below:

- Unit testing in the development environment
- Product testing by a development test team according to the specifications (incl. all interfaces - simulated)
- Release testing by the operational (technical and functional) departments, who are the ones to run the exchange in production (incl. all interfaces - simulated)
- Member simulation test, where under normal production environment conditions, exchange members and technical and functional operations run the simulation exchange (incl. all interfaces - real)

Only if all these tests have been finished successfully, the software will be introduced on the production environment.

15. What group is responsible for and what are their procedures for recording, correcting and retesting errors?

The first two stages (see question #14) are conducted by the application development team (various groups within DBS are responsible for testing), the other ones by the production teams. All errors and their fixing process are logged and maintained on a commonly used error database. The assignment of fixits, the review of the software is done by an independent DBS department, Quality Assurance and Configuration Management.

16. Describe your plans for ongoing testing once the system is operational. Will you retest on a scheduled periodic basis or will retesting be triggered by specific events? If triggered by events, please describe them.

Both situations are possible: During normal operation, DBS runs and supports a permanent simulation environment to which members has full access. It mirrors the production environment and can be used to get familiar with the trading screens and for testing purposes. In addition to the permanent simulation environment a release test (acceptance) environment will be made available with upcoming new software releases. Members have the possibility to migrate and test new hardware and front-end components, which ensures a smooth transition for both member and the exchange before the new release goes live. During release simulation a daily status report is generated to trace errors and problems.

17. What capacity and performance levels are the initial production system targeted to accommodate with respect to simultaneous workstations sessions, sustained and peak transaction levels, and response time? How were these levels determined?

The initial production system will provide the same levels in terms of capacity and performance as currently employed. Due to the inherent scalability of the three-tier client-server architecture, the number of simultaneous workstation sessions is not limited. The number of systems on each of the three tiers (central hosts, geographically distributed Access Points, MISS servers at the site of the member firm) can be increased to accommodate

additional load. There are sizing guidelines to advise the clients on the capacity of their MISS servers and the number of workstations that they can connect to them.

The following performance figures have been observed in the current Trading System operated in the U.S. under a joint venture production system with more than 180 active member firms and more than 2000 workstation sessions. A sustained transaction rate of more than 22 orders/sec (>1.6 million transactions over a 20 hour trading day) and peak transaction rates of more than 100 orders/sec have been observed. The average host roundtrip time has been observed at about 100ms with an average response time of about 300ms at the MISS server of the member firm.

18. Describe the method(s) that will be, or have been, employed to determine if the system is capable of supporting the target capacity and performance levels.

In its deployment as the Eurex trading platform the technical capacity is evaluated every day, new peak rates are analyzed and capacity adjustments are evaluated. EUREX US and its system provider and operator, Deutsche Boerse Systems, will respond to anticipate bottlenecks either by adjusting the hardware capabilities or by optimizing the software.

19. What are the absolute limits for the system's hardware and communication facilities?

We estimate the maximum throughput at about 150 Hz transaction rate and the daily total number of system transactions of about 5,000,000. The second limit is the bandwidth per line of the member connection, which is fixed at 64 kBit/s in light of competitive fairness issues. A member can have multiple lines to be connected to the trading system.

20. Is there a formal procedure for the ongoing review of capacity and performance levels?

The program at DBS consists of at least monthly performance statistics reports to the EUREX US Management. The system capacity is intended to be maintained at no less than 160% of the highest observed transaction levels as measured on a daily basis. When a breach of this

threshold is threatened, conditions are closely monitored by DBS staff and reported to responsible EUREX US staff on a permanent basis.

Mimicking this procedure, EUREX US will require DBS immediately to report any observed breaches of the 160% barrier and to advise EUREX US on alternative courses of action.

21. At what levels would the addition of new system resources be triggered to ensure adequate capacity and performance?

Currently, we plan to run the same technical software architecture for EUREX US as we do for Eurex. As the more established exchange, we expect that present system capacity levels will be challenged at Eurex well before they are reached at EUREX US. At that point we may ask DBS to upgrade EUREX US in parallel to Eurex or we may continue operation with the current release.   As with Eurex, the system should be sized to meet the performance requirements to serve 1.6 * (observed transaction maximum) and we will review potential constraints on performance due to capacity continuously.

22. Describe the controls and procedures that will be used to ensure proper configuration management (e.g. planning for and effecting hardware changes); software changes (including separation of function procedures); problem identification, reporting and resolution, system start-up and shutdown, system restarts and disaster recovery.

The base structure of the system hardware is a well-defined and tested disaster tolerant configuration, where cabling and system parameterization is well documented. Upgrade is simply possible by replacement of existing system components by more powerful versions, e.g. replacement of CPUs by newer models with higher clock speed. (AlphaServers are available in a wide range of performance.)

Concerning software changes, an independent department, Configuration Management and Quality Assurance (CMQA), controls, verifies and maintains the set-up of the application

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software. The CQMA department is organized in a separate exchange division, independent from software development / maintenance and operations department and directly reporting to the exchange's Chief Information Officer (CIO). For daily configuration management activities for the platforms UNIX and Windows 2000/XP the tool "CCC/Harvest" which is an industry standard configuration management tool provided by Computer Associates, while for the VMS platform the CMS code management system is used. Beside that all software changes are subject to the four-eye principle and are controlled and managed by a central Problem Tracking system, owned and controlled by the CMQA department.

All actions directly applied to the system, reboots, responses to application or hardware errors are reported and reviewed by an independent IT security department. This IT security department is organized such as the CMQA department in a separate exchange division as a staff unit and reporting directly to the exchange's CIO.

23. Identify the system's redundant components and the failover capabilities of all subsystems, including the communications network.

All components of the system are redundant; failover is implemented for the application software to allow uninterrupted exchange operation, in case of node failure, line failure, etc. Therefore, all components, including all (local and wide area) lines, are implemented at least twice, where under normal operation the system/network load is balanced over each existing server/line but in case of failure, the surviving component takes over the load of the failed one. (No unused backup component, everything is used.)

24. Identify any single points of failure in the hardware or communications systems

Referring to the previous question, all components of the system are redundant and failover is implemented in the application software. Therefore no single points of failure exist.

The contingency plans consist of either repair and restart of failed components or, in case of failure of whole sites, of continuing operation from the control room at the alternate site. The system allows for restart of nodes and rejoining operation during normal business hours. After repair, a system comes back online. In case of a site failure the operations personnel move to the alternate location and continue. All network connections are redundant anyway. Graphically this can be reviewed in the scheme for question #1, where the network connections start from both backend sites via alternate routes to the communication servers, which have a cross connection. Same applies to the member connection, where every member has a line to both access points' sites.

EUREX US will have a service level agreement in place with Deutsche Boerse Systems (DBS) which is responsible for all technical support services. DBS has contracts with providers e.g. HP, Oracle and CISCO with reaction times between 2 and 4 hours 24/7. These cover system hardware, network systems and operating systems. Internal support is provided by the department Application Development, System Programming and System Management which are on call 24/5.5 covering all trading and batch operations.

26. Describe any procedures for unwinding any contract positions, the restart of trading, and any proposed alternate trading procedures designed to be used during or after a failure and before the full recovery of all system components.

Unwinding of contract positions is a market operation transaction and is manually applied to a trade. The Management of EUREX US can cancel a transaction in order to ensure orderly and fair market conditions if:

- the price of the transaction effected by the erroneous entry deviates significantly from the reference price (miss trade regulations) or

- the Exchange Participant which entered the erroneous entry asserts to the Exchange without delay that it mistakenly entered the order or quote incorrectly (trading on behalf)

The Exchange Participant claiming an erroneous entry must assert such claim against EUREX US Market Supervision by telephone (recorded) or fax. Cancellation of the transaction by EUREX US Market Supervision is effected by means of entering a reversal of the trade into the System. EUREX US sends a confirmation to the parties concerned to the effect that the relevant transaction has been cancelled by EUREX US.

Restart of trading after a complete failure is possible via the additional trading phase "HALT" that puts the market for all participants on hold, which is automatically applied to a product state. After the system is restarted, the market opens with an auction phase for each product and it is guaranteed that all open orders will remain in the system. From that phase, normal trading can be resumed. The possibility of any intermediate procedure until recovery do not apply, because the disaster tolerant configuration continues and the data is secure on disk all the time on both sites.

Restart of trading after a volatility rule has been triggered is also possible via the additional trading phase "HALT" that puts the market for all participants on hold and the system automatically moves the respective product from "HALT" into the opening phase. The market opens with an auction phase for the respective product based on a decision of Market Operations when an orderly opening is ensured. From that point on, normal trading can be resumed.

27. Provide estimates for a return to an operational status under each of the foregoing scenarios.

Trade reversal is a market operation transaction, which takes less than 1sec per entry in the trading system. A complete restart of the application takes about 15 minutes plus the time to reconnect the members, which can be triggered by the exchange, resulting in a total of 30 to 60 minutes depending on member readiness.

28. Describe your strategy for testing the validity of your disaster recovery plans and the frequency with which you intend to retest those plans after becoming operational.

The EUREX US host consists of two physically separated sites, which operate side by side and balance out system load. Neither of these sites is a conventional hot-backup site, which runs stand-by only to takeover in a disaster recovery scenario. Each site is fully operational and is connected via two independent data communication lines each. In case of a complete loss of one location the system of the other location is still 100% functional.

Deutsche Boerse Systems performs several disaster recovery tests. A power shut down is simulated every month to ensure independence of public power supplies. In addition to this, power failure tests of other technical components like hosts, servers and routers will be performed to test the failover of the second production site. This ensures the non-existence of a single point of failure.

29. Describe the backup procedures and schedules for system software and data files.

The system software and the state of the application software is backed up once per week. The tapes are written on tape drives at both backend locations independently. The application data are backed up after each trading day and after the batch processing, i.e. the start database for the next trading day, additionally the log files and the member reports are backed up. All backups are written on both sites and are stored at both sites.

30. Describe the organization and operational procedures of your surveillance group.

Market surveillance will be conducted by NFA professional staff. The surveillance staff will operate in accordance with EUREX US Rules and will be supervised by the EUREX US Chief Regulatory Officer. As a fully electronic trading environment, the EUREX US trading system captures and records all transaction information. NFA market surveillance staff will have online access to the trading system and will be able to view at all times the complete order books for all listed futures and futures options.   NFA software will notify staff of

suspicious price behavior and warn of potential trading abuses. Market surveillance staff will be able to reconstruct all trading with complete accuracy.

Additionally, NFA staff will reconcile position information provided by the clearing house regarding large positions. In general market surveillance staff is able to monitor the development and subsequent liquidation of large positions to assure fair and orderly markets especially with regard to deliveries.

Under the supervision of the responsible EUREX US officer, market surveillance will prepare regular reports about price behavior and position development in EUREX US markets. Staff members will be responsible for identifying possible instances of market congestion and communicating such to the responsible EUREX US officer. The responsible officer will report such information in a timely fashion to the Board and/or take such action as may be appropriate in light of both the authority that may have been delegated to him and the severity of the problem.

31. Describe and/or provide the audit trail reports or files that would be generated by the system for both internal programs and for submission to the Commission.

On EUREX US, audit trail files will be generated automatically by the trading system during the daily batch run. They will provide order and quote maintenance information as well as the price information that was sent to the market. Intra-day audit trails can be generated from the systems synclog where every transaction together with ID of the sending MISS and user is stored. The synclog analysis enables immediate audits. At the moment on Eurex the analysis is performed by Eurex operations staff in special cases (e.g. member claims that he did not enter an order). It is possible to create tools for frequent analysis. As an example here is an extract from the daily price movement summary report for the product FGBL (Future on long term German bonds, the "BUND"):

```
(A) TELNET (nfi010) - PowerTerm 525

PRODUCT:  FGBL

                                                                        --------------INSIDE------------ POTL
                             ORDER        -ORDER- B/    ORDER                TRADE  ------PRICE------  ----SIZE----- OPEN
     TIME    TRANS TYPE    NUMBER  CONTRACT  TYP RES S SIZE  PRICE  MEMBR TRADER PRICE  BID    ASK    BID   ASK   PRICE
   --------  ----------    ------  --------  --- --- - ----  -----  ----- ------ -----  ---    ---    ---   ---   -----
   08:01:36 ORD ADD      122576878 MAR02     L       S   10  109.09 LBYMU MXXA11
   08:01:37 STP ADD      122576885 MAR02     M   S   S  135  109.02 CAFLO UCAA13
   08:01:38 ORD ADD      122576888 MAR02     L       B   10  109.01 ADMLO TYL001
   08:01:39 ORD ADD      122576891 MAR02     L       B  100  109.02 HFDMU JLO044
   08:01:39 ORD ADD      122576892 MAR02     L       B    1  108.50 KLBLO TRD020
   08:01:39 ORD ADD      122576893 MAR02     L       S   50  109.04 BATNU TRD001
            TDE MATCH    122576850 MAR02     L       B    3  109.04 GNILO ORS002 109.04
            TDE MATCH    122576859 MAR02     L       B   20  109.04 EDFLO ARU001 109.04
            TDE MATCH    122576893 MAR02     L       S   50  109.04 BATNU TRD001 109.04
            TDE PARTL MATC 122576862 MAR02   L       B   27  109.04 KDTFR KDA001 109.04
            SER                    MAR02                                            109.04 109.05   3    206
   08:01:39 ORD ADD      122576894 MAR02     L       S   15  109.04 REOLO INSB22
            TDE MATCH    122576862 MAR02     L       B    3  109.04 KDTFR KDA001 109.04
            TDE PARTL MATC 122576894 MAR02   L       S    3  109.04 REOLO INSB22 109.04
            SER                    MAR02                                            109.03 109.04  139   12
   Buffer: ...................................................LIS                          Insert   Forward

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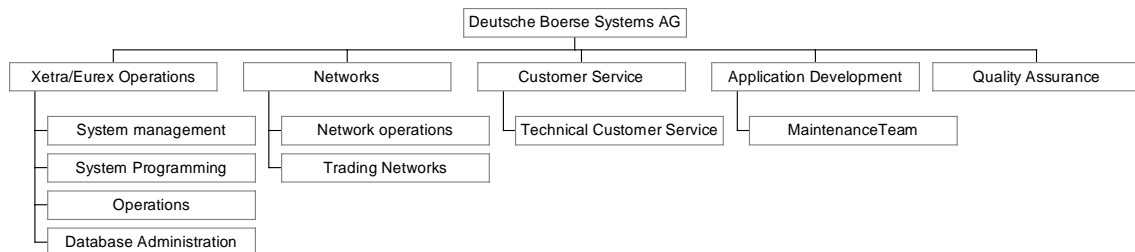
32. Describe the technical support services that will be provided. Please include an organizational chart and descriptions of the functions provided by each division.

Technical support services comprise 1) System Management (+ service contracts by Compaq, Microsoft and Sun), 2) Network Management (+ service contracts by Compaq, Cisco), 3) Production Operations, 4) Customer Service, 5) System Programming, 6) Database Administration, 7) Application Development and 8) Quality Assurance. Below the relation of these involved groups are shown (this is not a complete organization chart of Deutsche Boerse Systems AG).

```
                              Deutsche Boerse Systems AG
        ┌──────────────┬──────────────┬──────────────┬──────────────┐
  Xetra/Eurex Operations    Networks      Customer Service   Application Development   Quality Assurance
        │                      │                 │                 │
   System management     Network operations  Technical Customer Service   MaintenanceTeam
        │                      │
   System Programming     Trading Networks
        │
     Operations
        │
   Database Administration
```

Customer Technical Support provides a single entry point to exchange members for all technical services provided by the exchange.

Technical helpdesk activities include:

- Support of exchange members concerning all technical questions related to the offered trading and clearing systems
- Test management for all exchange members
- Call resolution co-ordination with internal exchange units as Xetra/Eurex Operations, Application Development or Networks if needed
- Call prioritization, tracking and reporting
- Change and release management
- On-site support on an as needed times and material basis

In addition to the described services above, the exchange offers technical training and consulting services.

Technical training on an as required basis is offered to exchange members. The following aspects may be covered:

- Overview of the technical architecture in particular the front-end
- Connectivity options of exchange and member front-ends
- Sizing of exchange and member front-ends
- Installation, configuration and administration of exchange and member front-ends
- Operation of exchange and member front-ends
- Overview of the front-end interface concept (VALUES API)
- Integration of member front-end with member in-house applications
- Introduction to VALUES API programming

33. What are the expected service levels for responsiveness to the various anticipated problems?

Software (operating system and application) and hardware problems are addressed with immediate responses during trading hours from all groups. Members of all teams are onsite, including service engineers from Compaq for the production backend servers. During the remaining time intervals, the Operations team is onsite (5 days, 24 hours) and members from all groups are available on call within 30 minutes.

34. Who will oversee these processes to ensure that service levels are being met?

Service levels are documented and reported in a monthly availability and performance report. Risk management, market supervision and quality assurance are reviewing the quality of service. The account manager responsible for EUREX US oversees the processes of the delivery of service. The management of EUREX US will oversee the fulfillment of the DBS contract.

35. Describe generally the documentation that has been created in connection with the development of the system.

The documentation covers the internal programming, data structure, overview, installation and functional user manuals as well as the external manuals, such as installation and user guides and programming manuals. It consists of 1000+ documents, which are maintained in a formally controlled document management system.

36. Who is responsible for each of those sets of documentation?

The process of the document management is controlled by the DBS quality assurance and configuration management department. Each document has an owner, i.e. a department or project which is to deliver updates (e.g. customer technical service maintains the member installation manuals, application development projects maintain programming and data

structure manuals). The management of EUREX US assigns the DBS management to take responsibility for this process.

37. What is the status of each of those sets of documentation?

The status of the documents is always state of the current production release, where there is a 2nd level reserved for the development of the next release to come. The documents in that level become effective, when the release is introduced. The process of software changes includes the maintenance of the appropriate documentation as well; addition of new modules requires the addition of documentation as well.

38. Please provide the Commission an overview description and/or diagram of the system architecture and detailed descriptions and/or diagrams of the hardware, software, and communications environments

For more details, Please see answer to question #1 and the "Technical Description of the Trading System".

39. What type of training will be provided to the users of the system?

All EUREX US members are required to have at least one registered trader available during exchange hours. In order to become registered, each individual trader must be familiar with the EUREX US trading system.
Exams and preparatory courses are offered on a regular basis in Chicago, New York and – based on demand - in other US cities.

40. What type of training will be required for system operators and how often, if at all, will refresher training be required?

The exchange members' system administrators are offered a technical training, which focuses on software installation and daily administration of the member front-end system. If changes due to new releases are applied to the software update workshops are offered but refresher training is not mandatory. EUREX US also offers programming classes that provide a detailed introduction to program the facilities of VALUES API.

Preparatory courses are offered on a regular basis in Chicago, New York and – based on demand - in other US cities.

41. Please provide any independent system assessment and verification study that was performed on your system.

There are no current external reviews. However, internal reviews are done by independent units within the technical departments and functional departments.

42. Describe your plans and schedule for ongoing independent reviews after your system is operational.

EUREX US will receive information about current performance of its system from its system provider DBS. DBS will be required to inform EUREX US not only about system-related issues that arise in the operation of EUREX US but also relevant issues that arise in the operation of other marketplaces operated by DBS, like Eurex. Furthermore, DBS operates a simulation environment to which EUREX US members have access.