Type 8 - Expanded

Length	From	To	Datatype	Format	Description and Comments
2	1	2	AN	X(2)	Record ID - "81"
3	3	5	AN	X(3)	Exchange Acronym
10	6	15	AN	X(10)	Commodity (Product) Code
10	16	25	AN	X(10)	Underlying Commodity (Product) Code[5]
3	26	28	AN	X(3)	Product Type Code[7]
1	29	29	AN	X	Option Right Code - for an option only: **P** for Put or **C** for Call
6	30	35	N	9(6)	Futures Contract Month as **CCYYMM**
2	36	37	AN	X(2)	Futures Contract Day or Week Code[4]
1	38	38	-	-	Filler
6	39	44	N	9(6)	Option Contract Month as CCYYMM
2	45	46	AN	X(2)	Option Contract Day or Week Code[4]
1	47	47	-	-	Filler
7	48	54	N	9(7)	Option Strike Price
5	55	59	N	9(5)	Array Value **1**: Futures **No Change / Volatility Up**[1,2,3]
1	60	60	AN	X	Sign for Array Value 1 ("+" or "-")
5	61	65	N	9(5)	Array Value **2**: Futures **No Change / Volatility Down**
1	66	66	AN	X	Sign for Array Value 2 ("+" or "-")
5	67	71	N	9(5)	Array Value **3**: Futures **Up 1/3 / Volatility Up**
1	72	72	AN	X	Sign for Array Value 3 ("+" or "-")
5	73	77	N	9(5)	Array Value **4**: Futures **Up 1/3 / Volatility Down**
1	78	78	AN	X	Sign for Array Value 4 ("+" or "-")
5	79	83	N	9(5)	Array Value **5**: Futures **Down 1/3 / Volatility Up**
1	84	84	AN	X	Sign for Array Value 5 ("+" or "-")
5	85	89	N	9(5)	Array Value **6**: Futures **Down 1/3 / Volatility Down**
1	90	90	AN	X	Sign for Array Value 6 ("+" or "-")
5	91	95	N	9(5)	Array Value **7**: Futures **Up 2/3 / Volatility Up**
1	96	96	AN	X	Sign for Array Value 7 ("+" or "-")
5	97	101	N	9(5)	Array Value **8**: Futures **Up 2/3 / Volatility Down**
1	102	102	AN	X	Sign for Array Value 8 ("+" or "-")
5	103	107	N	9(5)	Array Value **9**: Futures **Down 2/3 / Volatility Up**

1	108	108	AN	X	Sign for Array Value 9 ("+" or "-")
14	109	122	N	9(14)	High-Precision Settlement Price
1	123	123	AN	X	High-Precision Settlement Price Flag - **N** means that the High-Precision Settlement Price is populated but the price may be read **either** from this field or from the regular Settlement Price field, **Y** means that the High-Precision Settlement Price field is populated and the price can **only** be read from the high-precision field

Type "82" record - Second Physical record - Expanded Format

Length	From	To	Datatype	Format	Description and Comments
2	1	2	AN	X(2)	Record ID - "82"
3	3	5	AN	X(3)	Exchange Acronym
10	6	15	AN	X(10)	Commodity (Product) Code
10	16	25	AN	X(10)	Underlying Commodity (Product) Code[5]
3	26	28	AN	X(3)	Product Type Code[7]
1	29	29	AN	X	Option Right Code - for an option only: **P** for Put or **C** for Call
6	30	35	N	9(6)	Futures Contract Month as **CCYYMM**
2	36	37	AN	X(2)	Futures Contract Day or Week Code[4]
1	38	38	-	-	Filler
6	39	44	N	9(6)	Option Contract Month as CCYYMM
2	45	46	AN	X(2)	Option Contract Day or Week Code[4]
1	47	47	-	-	Filler
7	48	54	N	9(7)	Option Strike Price
5	55	59	N	9(5)	Array Value **10**: Futures **Down 2/3 / Volatility Down**
1	60	60	AN	X	Sign for Array Value 10 ("+" or "-")
5	61	65	N	9(5)	Array Value **11**: Futures **Up 3/3 / Volatility Up**
1	66	66	AN	X	Sign for Array Value 11 ("+" or "-")
5	67	71	N	9(5)	Array Value **12**: Futures **Up 3/3 / Volatility Down**
1	72	72	AN	X	Sign for Array Value 12 ("+" or "-")
5	73	77	N	9(5)	Array Value **13**: Futures **Down 3/3 / Volatility Up**
1	78	78	AN	X	Sign for Array Value 13 ("+" or "-")
5	79	83	N	9(5)	Array Value **14**: Futures **Down 3/3 / Volatility Down**
1	84	84	AN	X	Sign for Array Value 14 ("+" or "-")
5	85	89	N	9(5)	Array Value **15**: Futures **Up Extreme - Cover Fraction**
1	90	90	AN	X	Sign for Array Value 15 ("+" or "-")
5	91	95	N	9(5)	Array Value **16**: Futures **Down Extreme - Cover Fraction**
1	96	96	AN	X	Sign for Array Value 16 ("+" or "-")
5	97	101	N	9V9(4)	SPAN Composite Delta
1	102	102	AN	X	Sign for SPAN Composite Delta ("+" or "-")
8	103	110	N	99V9(6)	Implied Volatility as decimal fraction[6]
7	111	117	N	9(7)	Settlement Price
1	118	118	AN	X	Sign for Settlement Price (blank, "+" or "-")

1	119	119	AN	X	Sign for Strike Price (blank, "+" or "-")
5	120	124	N	9V9(4)	Current Delta
1	125	125	AN	X	Sign for Current Delta (blank, "+" or "-")
1	126	126	AN	X	Current Delta Business-Day Flag -- "C" means this is today's end-of-day delta, "I" means this is an intraday theoretical delta for today, "P" means this is the previous day's end-of-day delta, and "X" or any other value means that no delta is available.
7	127	133	N	9(7)	Start of Day Price
1	134	134	AN	X	Sign for Start of Day Price (blank, "+" or "-")
2	135	136	N	9(2)	Implied Volatility Exponent
1	137	137	AN	X	Sign for Implied Volatility Exponent (blank, "+" or "-")
14	138	151	N	9(7)V9(7)	Contract-specific Contract Value Factor (for variable tick options only)
2	152	153	N	9(2)	Contract-specific Contract Value Factor Exponent (for variable tick options only)
1	154	154	AN	X	Sign for Contract-specific Contract Value Factor Exponent (blank, "+" or "-") (for variable tick options only)
14	155	168	N	9(7)V9(7)	Contract-specific Strike Value Factor (for variable tick options only)
2	169	170	N	9(2)	Contract-specific Strike Value Factor Exponent (for variable tick options only)
1	171	171	AN	X	Sign for Contract-specific Strike Value Factor Exponent (blank, "+" or "-") (for variable tick options only)

Type "83" record - First Physical record (float arrays) - Expanded Format

Length	From	To	Datatype	Format	Description and Comments
2	1	2	AN	X(2)	Record ID - "83"
3	3	5	AN	X(3)	Exchange Acronym
10	6	15	AN	X(10)	Commodity (Product) Code
10	16	25	AN	X(10)	Underlying Commodity (Product) Code[55]
3	26	28	AN	X(3)	Product Type Code[7]
1	29	29	AN	X	Option Right Code - for an option only: **P** for Put or **C** for Call
6	30	35	N	9(6)	Futures Contract Month as **CCYYMM**
2	36	37	AN	X(2)	Futures Contract Day or Week Code[4]
1	38	38	-	-	Filler
6	39	44	N	9(6)	Option Contract Month as CCYYMM
2	45	46	AN	X(2)	Option Contract Day or Week Code[4]
1	47	47	-	-	Filler
7	48	54	N	9(7)	Option Strike Price

8	55	62	N	9(8)	Array Value **1**: Futures **No Change / Volatility Up**[1,2,3,8]
1	63	63	AN	X	Sign for Array Value 1 ("+" or "-")
8	64	71	N	9(8)	Array Value **2**: Futures **No Change / Volatility Down**
1	72	72	AN	X	Sign for Array Value 2 ("+" or "-")
8	73	80	N	9(8)	Array Value **3**: Futures **Up 1/3 / Volatility Up**
1	81	81	AN	X	Sign for Array Value 3 ("+" or "-")
8	82	89	N	9(8)	Array Value **4**: Futures **Up 1/3 / Volatility Down**
1	90	90	AN	X	Sign for Array Value 4 ("+" or "-")
8	91	98	N	9(8)	Array Value **5**: Futures **Down 1/3 / Volatility Up**
1	99	99	AN	X	Sign for Array Value 5 ("+" or "-")
8	100	107	N	9(8)	Array Value **6**: Futures **Down 1/3 / Volatility Down**
1	108	108	AN	X	Sign for Array Value 6 ("+" or "-")
8	109	116	N	9(8)	Array Value **7**: Futures **Up 2/3 / Volatility Up**
1	117	117	AN	X	Sign for Array Value 7 ("+" or "-")
8	118	125	N	9(8)	Array Value **8**: Futures **Up 2/3 / Volatility Down**
1	126	126	AN	X	Sign for Array Value 8 ("+" or "-")
8	127	134	N	9(8)	Array Value **9**: Futures **Down 2/3 / Volatility Up**
1	135	135	AN	X	Sign for Array Value 9 ("+" or "-")
14	136	149	N	9(14)	High-Precision Settlement Price
1	150	150	AN	X	High-Precision Settlement Price Flag - **N** means that the High-Precision Settlement Price is populated but the price may be read **either** from this field or from the regular Settlement Price field, **Y** means that the High-Precision Settlement Price field is populated and the price can **only** be read from the high-precision field.

Type "84" record - Second Physical record (float arrays) - Expanded Format

Length	From	To	Datatype	Format	Description and Comments
2	1	2	AN	X(2)	Record ID - "84"
3	3	5	AN	X(3)	Exchange Acronym
10	6	15	AN	X(10)	Commodity (Product) Code
10	16	25	AN	X(10)	Underlying Commodity (Product) Code[55]
3	26	28	AN	X(3)	Product Type Code[7]
1	29	29	AN	X	Option Right Code - for an option only: **P** for Put or **C** for Call
6	30	35	N	9(6)	Futures Contract Month as **CCYYMM**
2	36	37	AN	X(2)	Futures Contract Day or Week Code[4]
1	38	38	-	-	Filler
6	39	44	N	9(6)	Option Contract Month as CCYYMM
2	45	46	AN	X(2)	Option Contract Day or Week Code[4]
1	47	47	-	-	Filler

7	48	54	N	9(7)	Option Strike Price
8	55	62	N	9(8)	Array Value **10**: Futures **Down 2/3 / Volatility Down**
1	63	63	AN	X	Sign for Array Value 10 ("+" or "-")
8	64	71	N	9(8)	Array Value **11**: Futures **Up 3/3 / Volatility Up**
1	72	72	AN	X	Sign for Array Value 11 ("+" or "-")
8	73	80	N	9(8)	Array Value **12**: Futures **Up 3/3 / Volatility Down**
1	81	81	AN	X	Sign for Array Value 12 ("+" or "-")
8	82	89	N	9(8)	Array Value **13**: Futures **Down 3/3 / Volatility Up**
1	90	90	AN	X	Sign for Array Value 13 ("+" or "-")
8	91	98	N	9(8)	Array Value **14**: Futures **Down 3/3 / Volatility Down**
1	99	99	AN	X	Sign for Array Value 14 ("+" or "-")
8	100	107	N	9(8)	Array Value **15**: Futures **Up Extreme - Cover Fraction**
1	108	108	AN	X	Sign for Array Value 15 ("+" or "-")
8	109	116	N	9(8)	Array Value **16**: Futures **Down Extreme - Cover Fraction**
1	117	117	AN	X	Sign for Array Value 16 ("+" or "-")
5	118	122	N	9V9(4)	Composite Delta
1	123	123	AN	X	Sign for Composite Delta ("+" or "-")
8	124	131	N	99V9(6)	Implied Volatility as decimal fraction[6]
7	132	138	N	9(7)	Settlement Price
1	139	139	AN	X	Sign for Settlement Price (blank, "+" or "-")
1	140	140	AN	X	Sign for Strike Price (blank, "+" or "-")
5	141	145	N	9V9(4)	Current Delta
1	146	146	AN	X	Sign for Current Delta (blank, "+" or "-")
1	147	147	AN	X	Current Delta Business-Day Flag -- "C" means this is today's end-of-day delta, "I" means this is an intraday theoretical delta for today, "P" means this is the previous day's end-of-day delta, and "X" or any other value means that no delta is available.
7	148	154	N	9(7)	Start of Day Price
1	155	155	AN	X	Sign for Start of Day Price (blank, "+" or "-")
2	156	157	N	9(2)	Implied Volatility Exponent
1	158	158	AN	X	Sign for Implied Volatility Exponent (blank, "+" or "-")
14	159	172	N	9(7)V9(7)	Contract-specific Contract Value Factor (for variable tick options only)
2	173	174	N	9(2)	Contract-specific Contract Value Factor Exponent (for variable tick options only)
1	175	175	AN	X	Sign for Contract-specific Contract Value Factor Exponent (blank, "+" or "-") (for variable tick options only)
14	176	189	N	9(7)V9(7)	Contract-specific Strike Value Factor (for variable tick options only)
2	190	191	N	9(2)	Contract-specific Strike Value Factor Exponent (for variable tick options only)
1	192	192	AN	X	Sign for Contract-specific Strike Value Factor Exponent (blank, "+" or "-") (for variable tick options only)

Notes:

1. By convention, a **positive** risk array value represents a **loss** for a **single long position**, and a **negative** risk array value represents a **gain** for a **single long position**. "Long" in this context means long the instrument, not the market; a long put is a long position.
2. Risk array values are denominated in the **performance bond currency** for the combined commodity in which the specified contract is contained.
3. If the **Risk Array Exponent** specified on the **type 2** record for the combined commodity in which this contract is contained is **not zero**, then the risk array values specified in the file must be multiplied by 10 to raised to Risk Array Exponent power. In other words, shift the decimal point rightward this number of places.
4. The Option Contract Day or Week Code field is used to distinguish option series which expire at different times than the standard monthly options. For standard monthly options, this field will contain zeros or blanks. For other options, this field will typically contain "W1", "W2", etc. - for weekly options expiring in week 1 of the month, week 2 of the month, etc. - or a two-digit day of the month, for flex options or other options for which the exact expiration day is specified. The Futures Contract Day or Week Code is intended to be used analogously to distinguish futures which expire at different times than standard monthly futures.
5. The **Underlying Commodity (Product) Code** field is an optional field and is not required for the performance bond calculation. If present for any particular option, it indicates the product code of the underlying future, combination, or cash instrument.
6. The **Implied Volatility** field is optional. Implied volatilities may be as large as 9999% and may be expressed to a precision of .0001%. For example, **00157235** means 15.7235%.
7. Product type codes are **PHY** for **Physical**, **FUT** for **Future**, **CMB** for **Combination**, **OOP** for **Option on Physical**, **OOF** for **Option on Future**, **OO** for **Option on Combination**.
8. For a given product family, **either** type "81" and "82" records are provided, **or** type "83" and "84" records are provided. If a non-zero value is defined for the **risk array decimal locator** on the type "2" record for this product family, then type "83" and "84" records are provided. Otherwise the standard type "81" and "82" records are provided.

   Type "83" and "84" records allow risk array values to be specified with up to 8 digits of precision and with a specified assumed number of decimal places. So they would typically be used if risk array values need to be specified to the penny or even to greater levels of precision.