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**Implementation and Use of the BRL Database for standardization of EEG features in QEEG and sLORETA**

**The Output of the QEEG** computations is a set of standardized variables output as a single data record per observation. The set described below has N = 12510 fields, the computed Neurometric features.

All the variable names in the QEEG feature set are named from three parameters

1. Measure set, which refers to the computation algorithm
2. Channel or Spatial label
3. Frequency or Band-pass label.

Names of Measure Sets

1. MA Mono-polar Absolute Power
2. CO Coherence
3. MR Mono-polar Relative power
4. BC Bi-polar Coherence
5. MF Mean Frequency
6. MI Asymmetry
7. BA Bi-polar Absolute Power
8. BR Bi-polar Relative Power
9. BF Bi-polar Mean Frequency
10. PO Phase
11. CL Lagged Coherence

**The Output of the sLORETA** computations is for a set of 187 narrowband sLORETA, each with 6239 voxels.

**Location of Measures in Data Vector**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Measure | Feature | **Offset** | **Length** | Type |
| MA | MAF1D1 | **0** | **190** | Mono |
| CO | COF1F2D1 | **190** | **1710** | Bi |
| MR | MRF1D1 | **1900** | **171** | Mono-relative |
| BC | BC72188D1 | **2071** | **80** | Quadra |
| MF | MFF1D1 | **2151** | **190** | Mono |
| MI | MIF1F2D1 | **2341** | **1710** | Bi |
| BA | BAF1F2D1 | **4051** | **1710** | Bi |
| BR | BRF1F2D1 | **5761** | **1539** | Bi-relative |
| MF | MFF1F2D1 | **7300** | **1710** | Bi |
| BS | BS72188D1 | **9010** | **80** | Quadra |
| PO | POF1F2D1 | **9090** | **1710** | Bi |
| CL | CLF1F2D1 | **10800** | **1710** | Bi |
| Multi | Mahalanobis | **12510** | **NA** | Multi |

Type: from an algorithmic perspective there are families of measures

1. Mono-polar: All measurements relative to a common reference
2. Bi-variate: Pair-wise signals, (often sub-sampled).
3. Quadra-polar: pairs of pairs, (always sub-sampled).
4. Multi: Mahalanobis Distance; Multivariate Combinations of above.

**Bipolar Coherence and Bipolar Asymmetry**

2 Sets of Bipolar Signals are inputs for these measures

|  |  |  |
| --- | --- | --- |
| 1 | C3-Cz | C4-Cz |
| 2 | T3-T5 | T4-T6 |
| 3 | P3-O1 | P4-O2 |
| 4 | F7-T3 | F8-T4 |
| 5 | F1-F7 | F2-F8 |
| 6 | F3-F7 | F4-F8 |
| 7 | F3-F1 | F4-F2 |
| 8 | F3-Fz | F4-Fz |

**Frequency Labels and Computed Band Definitions**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | D1 | 0.50 | 1.50 |
| 2 | D | 1.70 | 3.70 |
| 3 | T | 3.70 | 7.70 |
| 4 | A | 7.70 | 12.70 |
| 5 | B | 12.70 | 25.20 |
| 6 | S | 1.70 | 25.20 |
| 7 | B2 | 25.20 | 35.20 |
| 8 | G | 35.20 | 50.20 |
| 9 | A1 | 7.70 | 10.20 |
| 10 | A2 | 10.20 | 12.70 |

**Labels for All Monopolar Channels**

|  |  |
| --- | --- |
| 1 | F1 |
| 2 | F2 |
| 3 | F3 |
| 4 | F4 |
| 5 | C3 |
| 6 | C4 |
| 7 | P3 |
| 8 | P4 |
| 9 | O1 |
| 10 | O2 |
| 11 | F7 |
| 12 | F8 |
| 13 | T3 |
| 14 | T4 |
| 15 | T5 |
| 16 | T6 |
| 17 | Fz |
| 18 | Cz |
| 19 | Pz |

These are the minimum number of recording site for qEEG computation.

**Labels for All Bivariate Measures**

Derived from simple algorithm to compute (n-1)\*n/2 output variables.

**Labels for Multivariate measures**

Left and Right: Lateral, Medial, Anterior, Central, Posterior, Hemisphere, Middle and whole Head.

LLat, RLat, LMed, RMed, LAnt, RAnt, LCen, RCen,

LPos, RPos, LHem, RHem, Mid, Ant, Cent, Post, Head;