Correction to the paper "A Plancherel formula ..."

In section 3.1, the definition of X is incorrect, (thanks to C. Valverde for pointing this out). Let X be the image of the map $g \mapsto g^{-1}EgJ_{2n}$, and X' the space of antisymmetric matrices in G. Then X is a proper subset of X'. For example $J_{2n} \in X'$ but not in X.

The statements in the paper holds for X instead of X'. Indeed we have the following replacement for Lemma 3.1:

Lemma: $X = \cup K \cdot \Pi^{\lambda}$ with $\lambda \in \Lambda^+$. $X' = \cup K \cdot \Pi^{\lambda}_{\pm,i}$ where $0 \leq i \leq n$ and

$$\Pi^{\lambda}_{\pm,i} = \mathrm{diag}[\Pi_{\lambda_1}, \ldots, \Pi_{\lambda_i}, \pm J_{2i}, -\Pi_{\lambda_i}, \ldots, -\Pi_{\lambda_1}]$$

with $\lambda \in \Lambda_i^+$.

The proof of this Lemma is similar to the (incorrect) proof in the paper of Lemma 3.1. Let x_{i_0,j_0} be the entry with largest norm of the element $x \in X'$. Then either we can bring the entry to $(1,2)$ position through action of a Weyl element or we can bring it to $(1,4n)$ position. The argument in the paper neglected the second possibility. Namely we neglected the case where for all element in $x' \in K \cdot x$ the entry with the largest norm lies in antidiagonal.

In this case it is clear that there is an element in the $K \cdot x$ that is antidiagonal. Clearly the entries in the antidiagonal needs to be ± 1. Again with our assumption that for all $x' \in K \cdot x$ the entry with the largest norm lies in antidiagonal, we get the only possibility is for $x = \pm J_{2n}$ and $K \cdot x = \{x\}$.

Now use the rest arguments in the paper we get the claim for X'. Notice for $x \in X$, the eigenvalues of xJ_{2n}^{-1} are ± 1 with multiplicity $2n$ each, we get the claim for X.