Mongolian Tents admitted HLS and VHLS labelings.

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A (p,q) graph, G=(V, E) is said to be HLS graph if there exists a bijection f: V(G) →[q]={1,2,...,q} such that for any C_3 ~ cycle in G with edges { e_1 , e_2 , e_3 }, the triple (f (e_1), f (e_2), f (e_3)) is a S-set (terminology due by I,) nie. f (e_1) + f (e_2)= f (e_3).
A dual concept is VHLS graph. A graph G = (V,E) is VHLS if there exists a bijection g: V(G)→[p]={1,2,...,p} such that for any C3~cycle in G with vertices { v_1 , v_2 , v_3 }, the triple (g(v_1), g(v_2), g(v_3)) is a S-set, , g(v_1) + g(v_2) = g(v_3). A mogolian tent M(n,h) where n is greater than 2 and h ≥ 2 such that

$$V(M (n,h)) = \{u\} \cup \{X_n , j : 1\leq j \leq n, x \leq i \leq h\}$$

Such that

$$E (M (n,h)) = \{(u, x_1 , j) : j=1, ... , n\} \text{ and } \{x: j\}$$

Forms a grid graph P_h x P_n .
We show that for any ℓ ≥ 2 and n ≥ 3, the Mongolian tent is HLS and VHLS graph.