

Bang Bang Boom

Kobow Original · eInstant Cert Pack v1

Pollard analog: Dragon Blast (K.A.R. 111-23-21) — cluster cascade pattern

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Signing key: Ed25519 · ID d651f1b9f793f40d

Important regulatory note: This game is a **Kobow proprietary design** derived from the cited Pollard analog pattern. The paytable below is **synthesized to hit 88.0% RTP** with the regulator-aligned top prize. For state cert submission, the paytable may be reviewed/replaced with a regulator-specific table; this v1 cert pack establishes the operational architecture (RNG, audit chain, verifier surface) which is shared with all K.A.R.-anchored games in this catalog.

Math (synthesized 88% RTP)

Pool size	1,000,000
RTP @ unit denom	88.0000%
Top prize (max denom)	\$60,000
Bonus engine	cluster_cascade

1. Paytable (13 tiers, synthesized)

Multiplier	Count in pool	Odds (1 in)
x60000	1	1,000,000.00
x6000	6	166,666.67
x1200	34	29,411.76
x300	136	7,352.94
x250	164	6,097.56
x100	656	1,524.39
x50	1,312	762.20
x25	3,280	304.88
x10	9,840	101.63
x5	19,680	50.81
x2	49,200	20.33
x1	82,000	12.20
x0.5	142,000	7.04

2. Bonus engine — cluster_cascade

Cluster cascade: matching 5+ adjacent symbols explodes them, drops new symbols, repeats up to 5 cascades. Multiplier ladder $x1 \rightarrow x2 \rightarrow x5 \rightarrow x10 \rightarrow x25$.

3. Pool architecture

Each pool consists of 1,000,000 shares. RGS service multibingo-rng:9443 (RNG_STRICT=true) provides the server seed. mulberry32(SHA-256(seed)) Fisher-Yates shuffle deterministically orders the payable counts. Tickets consumed sequentially; outcome = multiplier at position.

4. Audit chain

Daily Merkle root signed Ed25519 (key ID d651f1b9f793f40d), WORM-locked in PG, audit blob persisted with prev_root chain. Per K.A.R. (h) compliance pattern.

5. Verifier endpoints

```
GET /api/ilottery/games/BANG_BANG_BOOM/paytable
POST /api/ilottery/games/BANG_BANG_BOOM/open-pool
POST /api/ilottery/games/BANG_BANG_BOOM/play
GET /api/ilottery/verify/:ticket_id
POST /api/ilottery/vector/replay
GET /api/ilottery/merkle/proof/:ticket_id
GET /api/ilottery/audit/public-key
```

6. Test vectors v1

URL: https://kobowlotto.com/mathforge/ilottery/gdd/bang_bang_boom/vectors_v1.json
600 vectors \times 5 denoms (10/25/50/100/500c) = 3,000 prize data points.

7. Operator Ed25519 public key

```
-----BEGIN PUBLIC KEY-----
MCowBQYDK2VwAyEAU2k0zXnm09QHduKLSEQYUAFeACAEOTUceEuiRGLSiXs=
-----END PUBLIC KEY-----
```