

KLM Bubbler Sensors

October 4, 2022

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1 Return

Channels without bubbles:

- BB5, outer RPC, channel 21;
- BB6, outer RPC, channel 29;
- BF6, outer RPC, channel 11;
- BF6, outer RPC, channel 21;

Single channel issues:

- Channel 1, 3 and 31 are not yet tested but can potentially be used to substitute other dead channels;
- Channel 29 shows no signal for all sectors (issue with breakout board?);
- BB3 inner, channel 29, tube disconnected;

Full panel issues:

- BB0, BF0: panel are very hard to reach (need to climb and longer ribbon cable);
- BF1 outer: low level of oil, which makes it difficult to measure;
- BF1 inner: no PCB attached to the back of the bubbler panel.
- BB2 inner: low oil;
- BB4 inner: flow rate too low to take measurements;
- BF7 inner: different ribbon cable pin connector (plastic edges);

Channels signal shapes are summarized in the following tables using the color scheme below:

- **green**: channels with standard signal shape;
- **red**: channels with no signal at the passage of bubbles.
- **orange**: channels with low signal pulse;
- **brown**: issue with the whole panel (e.g. low oil level, low flow of bubble, no PCB), which made it not possible to measure any signal;
- **gray**: untested channels;

	BB0	BB1	BB2	BB3	BB4	BB5	BB6	BB7
1								
3								
5								
7								
9								
11								
13								
15								
17								
19								
21								
23								
25								
27								
29								
31								

Table 1: Return side, barrel backward, inner RPCs.

	BB0	BB1	BB2	BB3	BB4	BB5	BB6	BB7
1								
3								
5								
7								
9								
11								
13								
15								
17								
19								
21								
23								
25								
27								
29								
31								

Table 2: Return side, barrel backward, outer RPCs.

	BF0	BF1	BF2	BF3	BF4	BF5	BF6	BF7
1								
3								
5								
7								
9								
11								
13								
15								
17								
19								
21								
23								
25								
27								
29								
31								

Table 3: Return side, barrel forward,inner RPCs.

	BF0	BF1	BF2	BF3	BF4	BF5	BF6	BF7
1								
3								
5								
7								
9								
11								
13								
15								
17								
19								
21								
23								
25								
27								
29								
31								

Table 4: Return side, barrel forward,outer RPCs.

1.1 BB0 inner

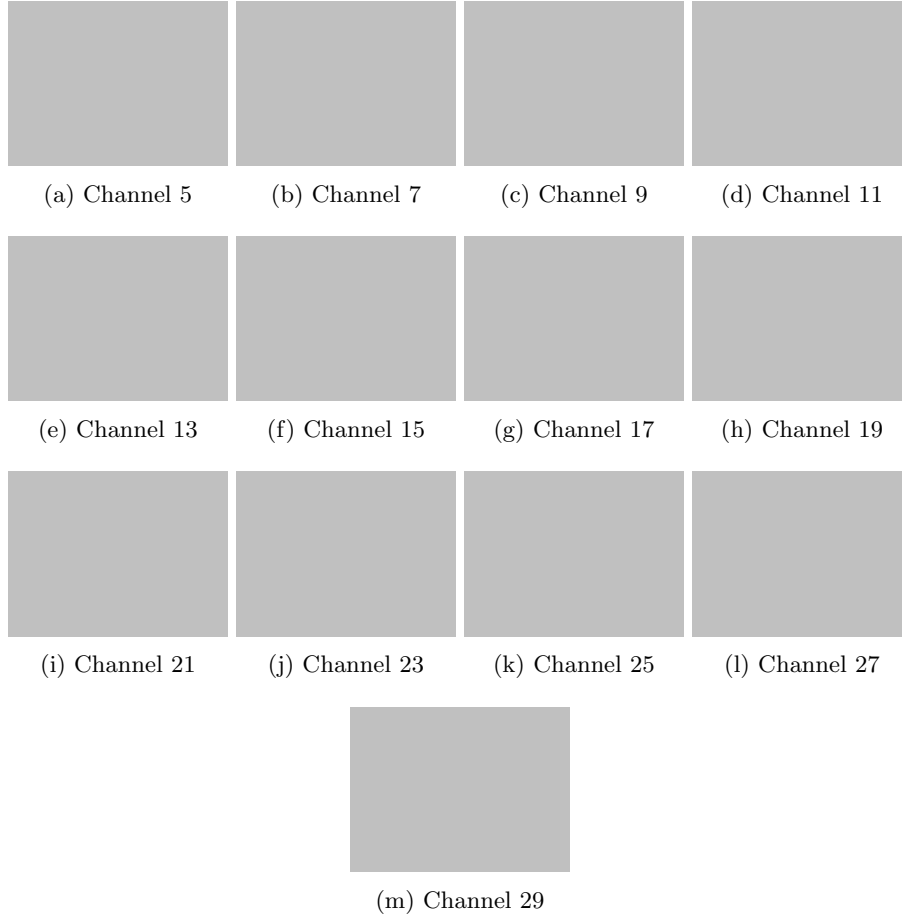


Figure 1: BB0 inner RPC Return side.

1.2 BB1 inner

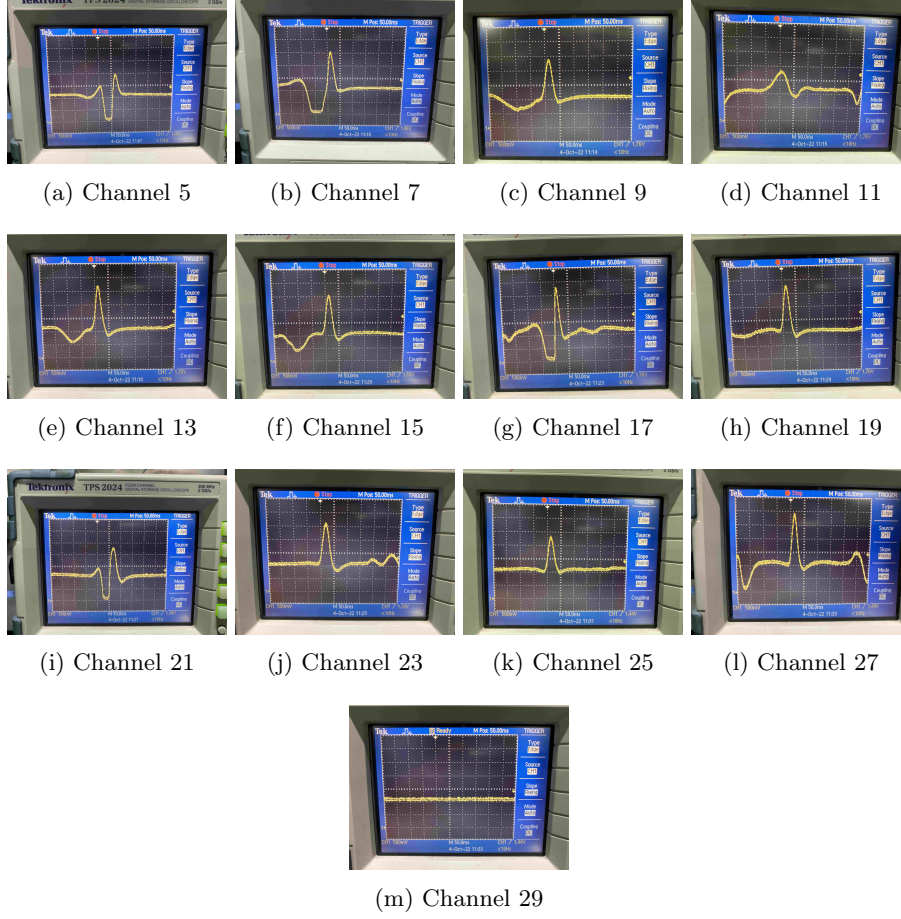


Figure 2: BB1 inner RPC Return side.

1.3 BB2 inner

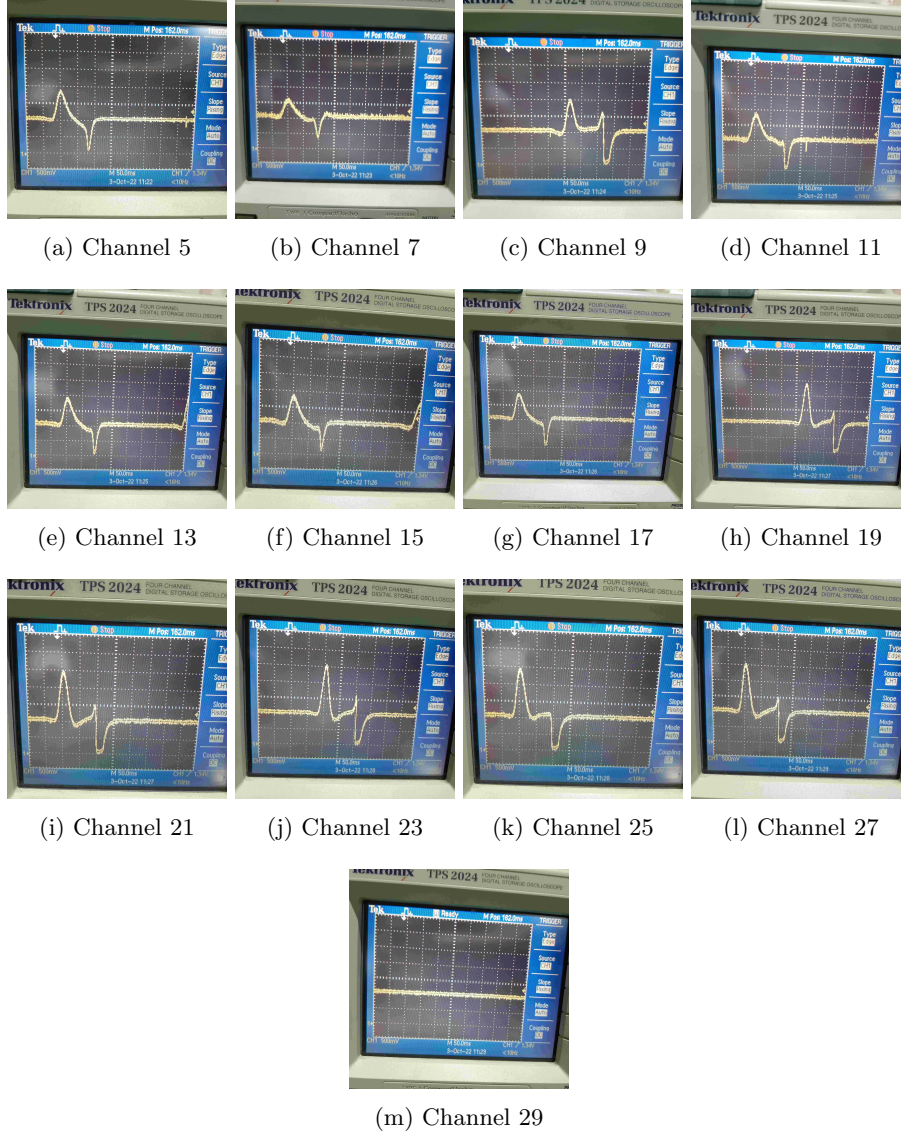


Figure 3: BB2 inner RPC Return side.

1.4 BB3 inner

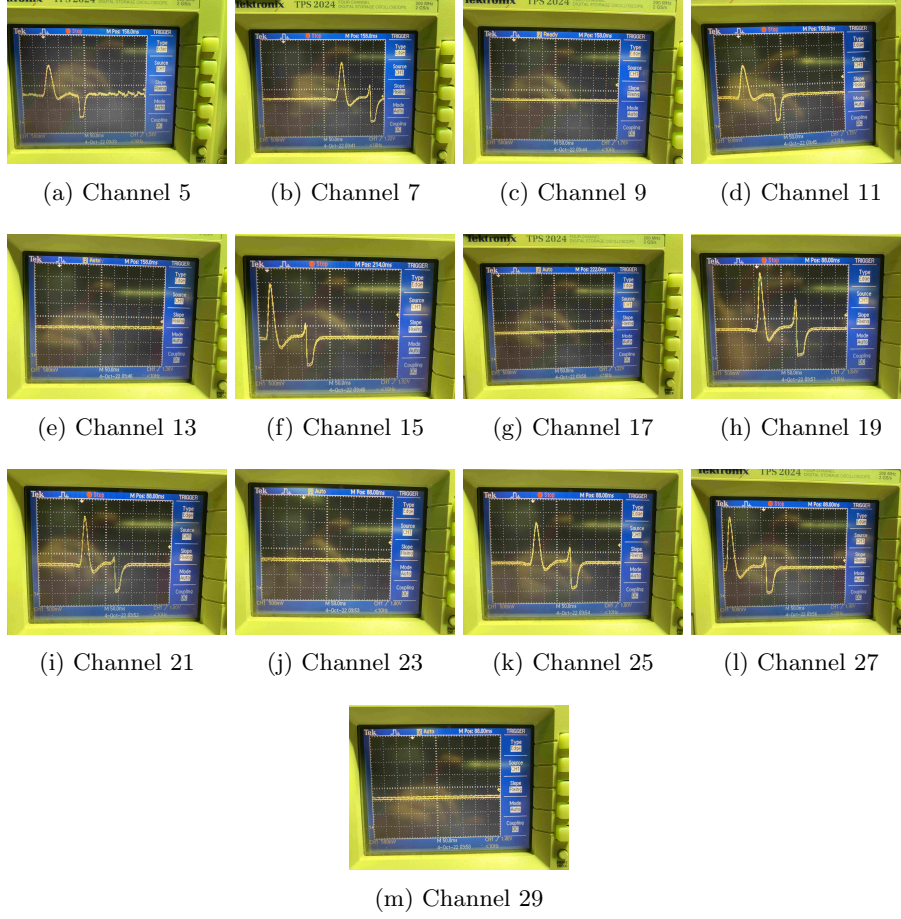


Figure 4: BB3 inner RPC Return side.

1.5 BB4 inner

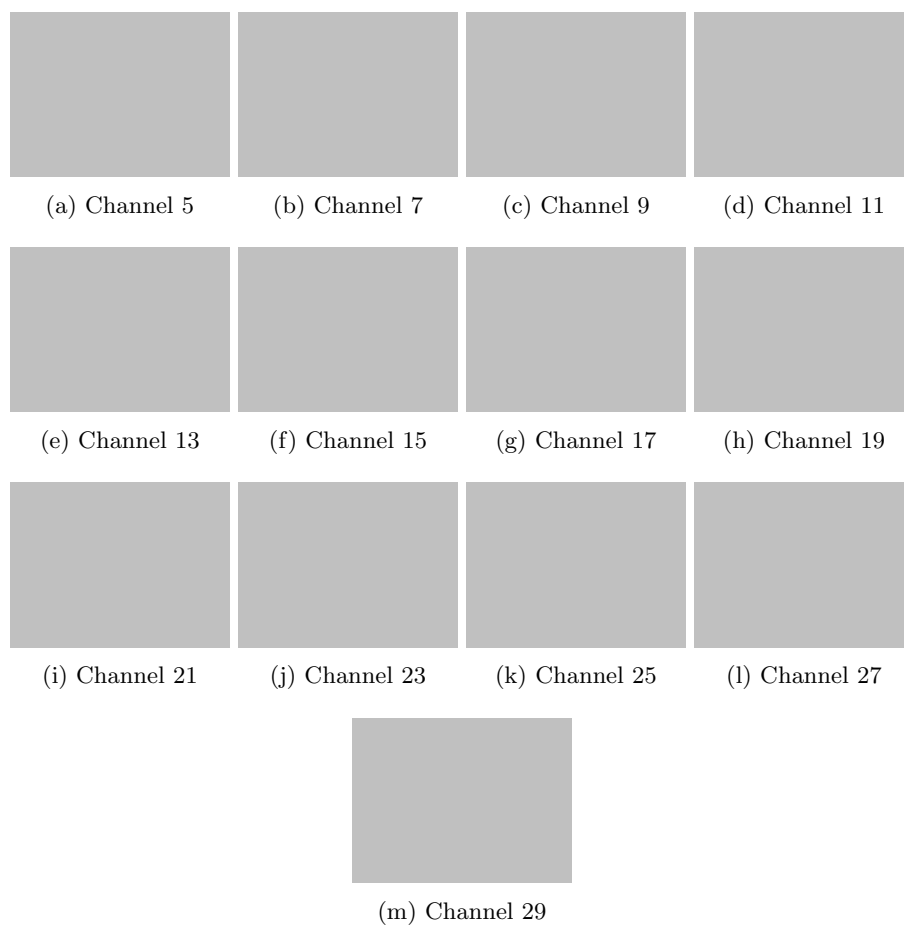


Figure 5: BB4 inner RPC Return side.

1.6 BB5 inner

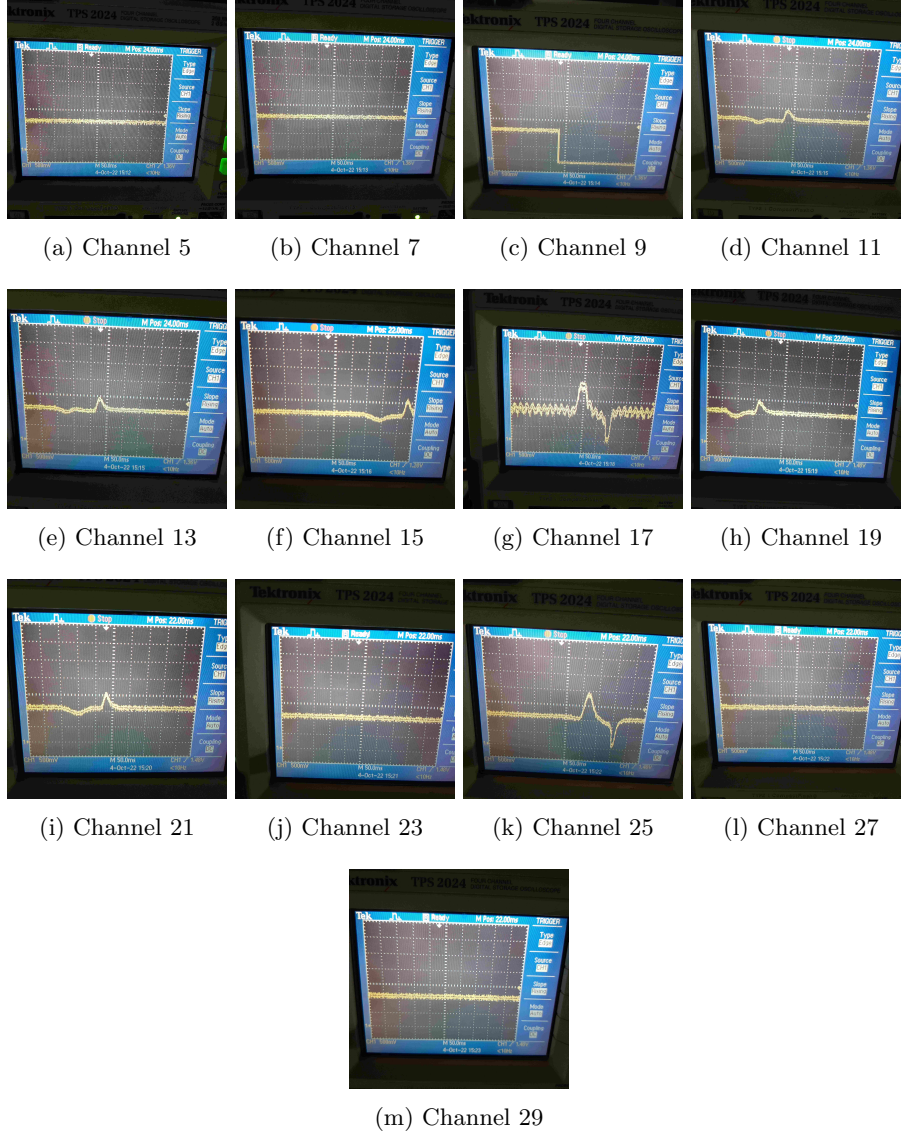


Figure 6: BB5 inner RPC Return side.

1.7 BB6 inner

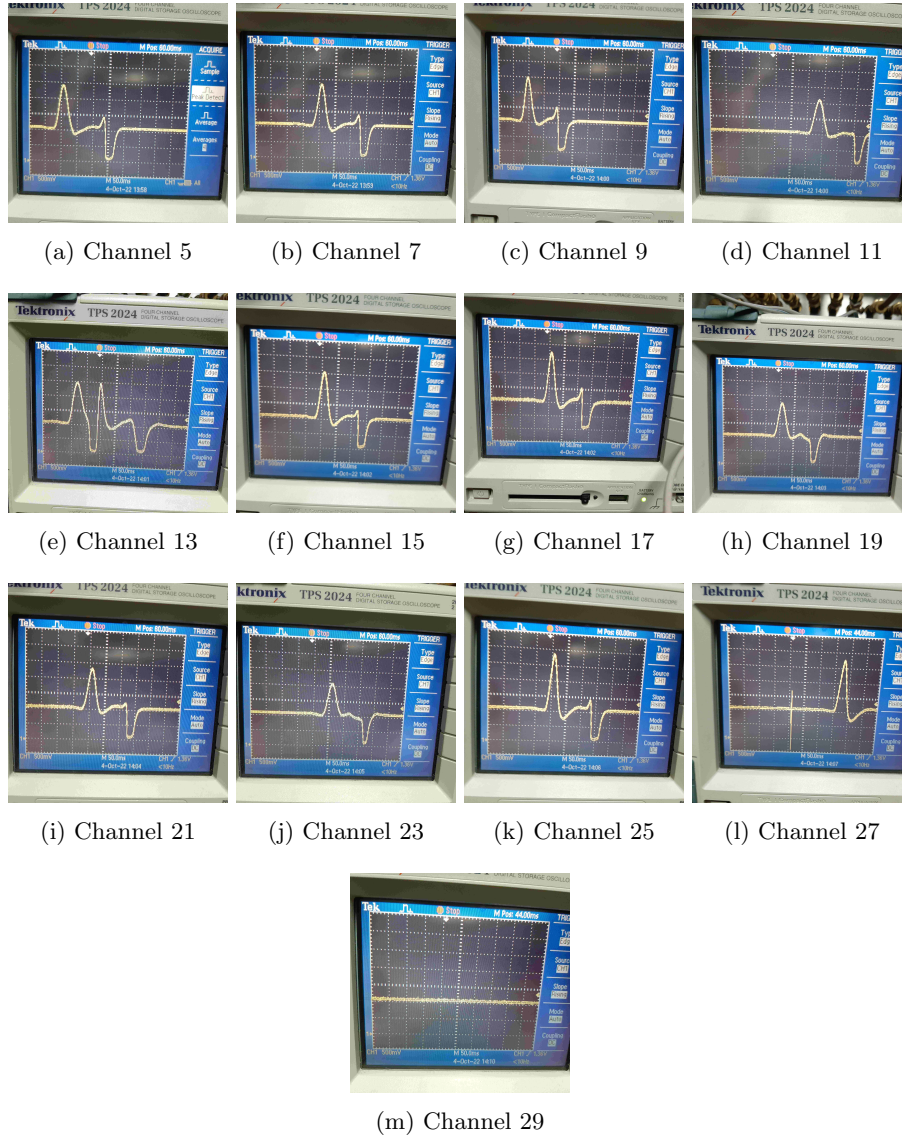


Figure 7: BB6 inner RPC Return side.

1.8 BB7 inner

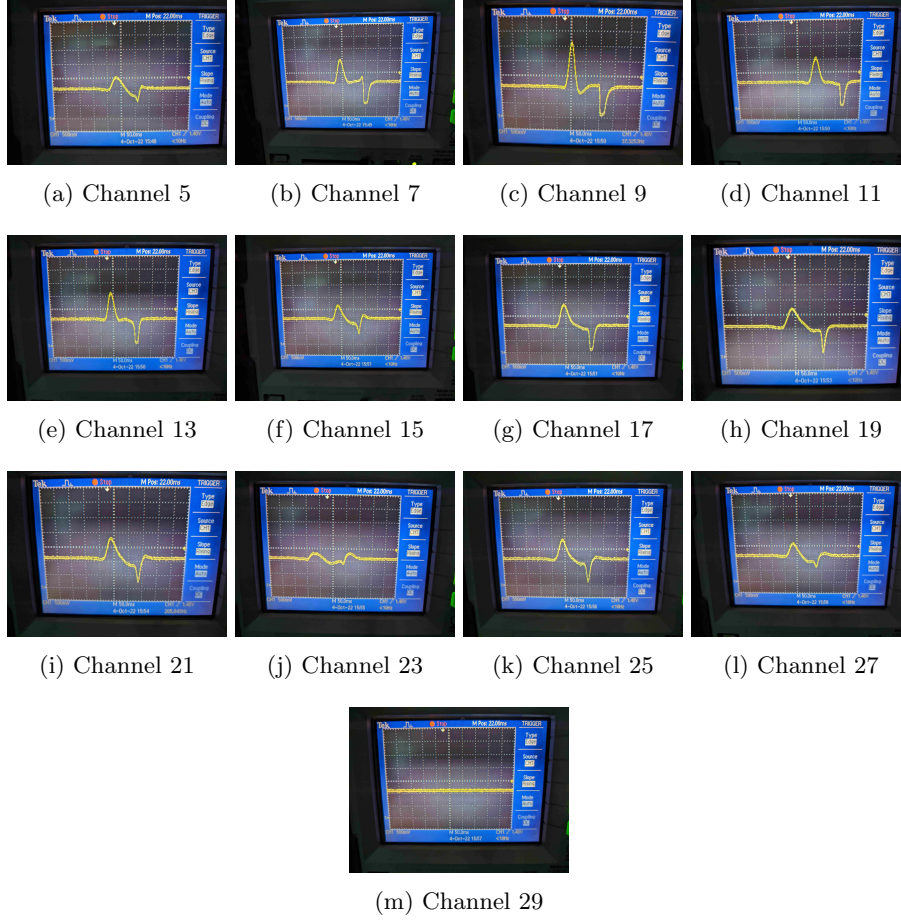


Figure 8: BB7 inner RPC Return side.

1.9 BB0 outer

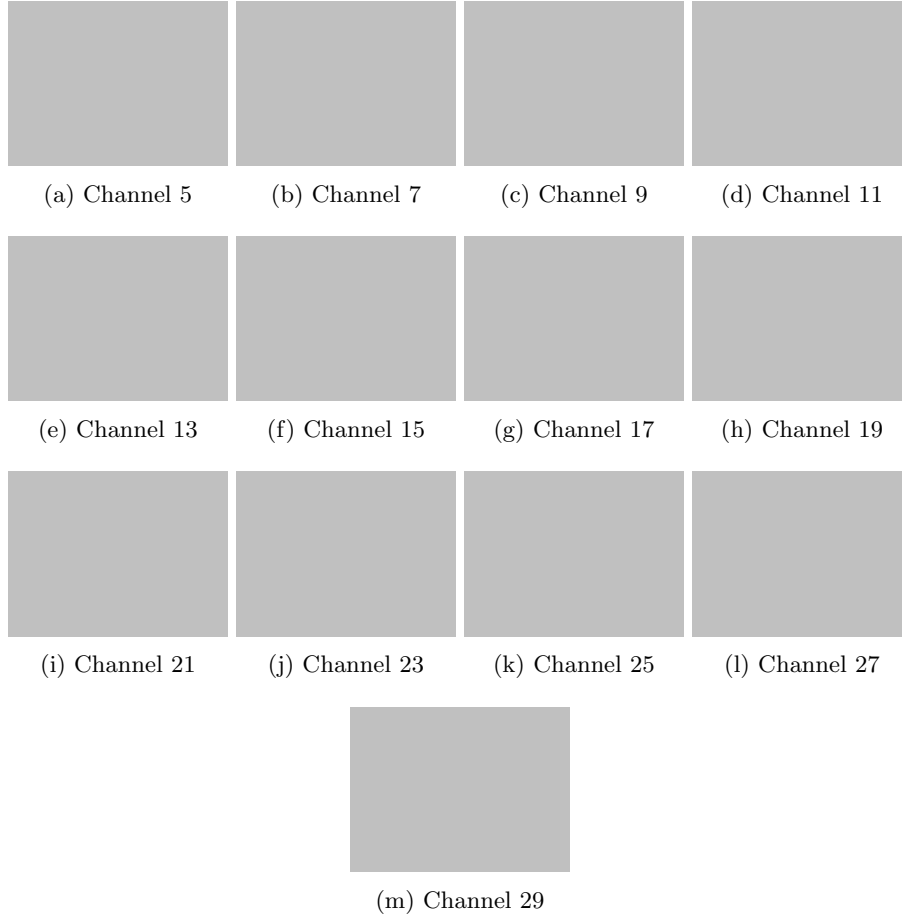


Figure 9: BB0 outer RPC Return side.

1.10 BB1 outer

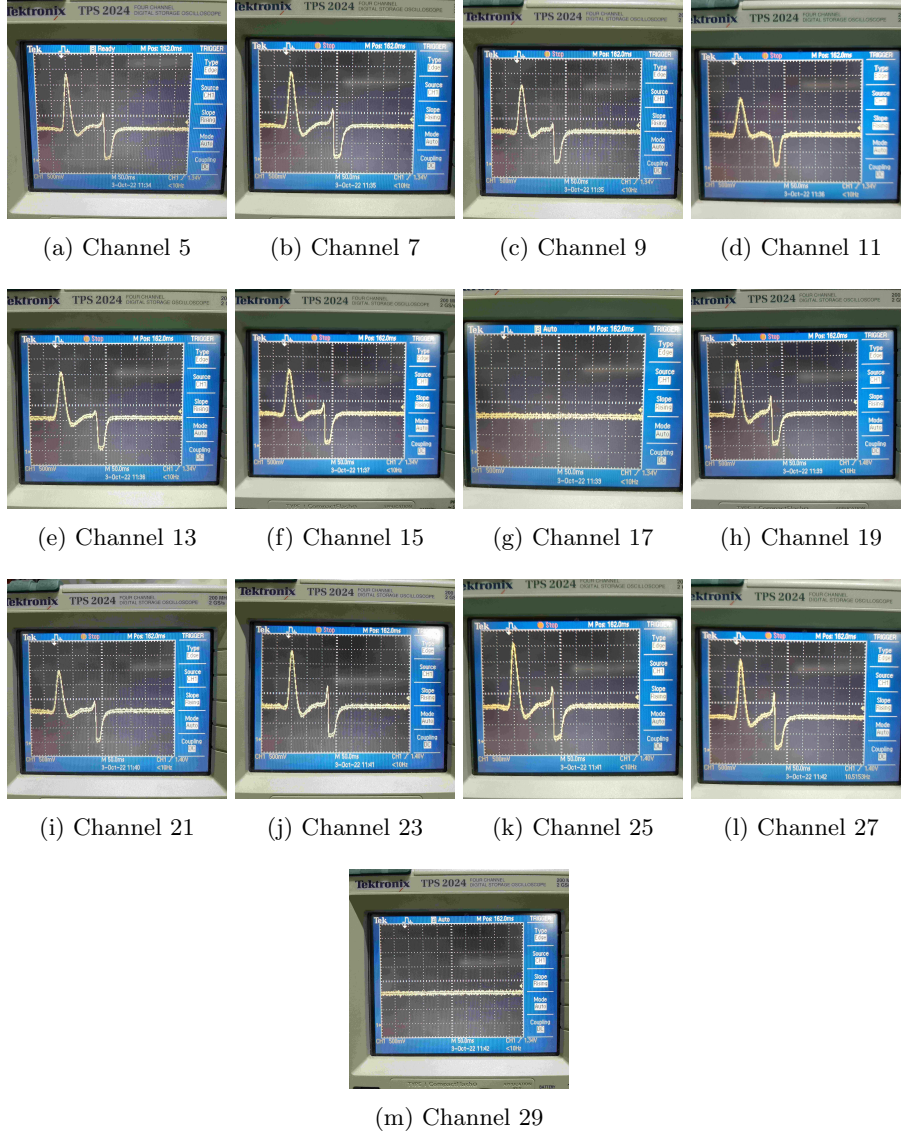


Figure 10: BB1 outer RPC Return side.

1.11 BB2 outer

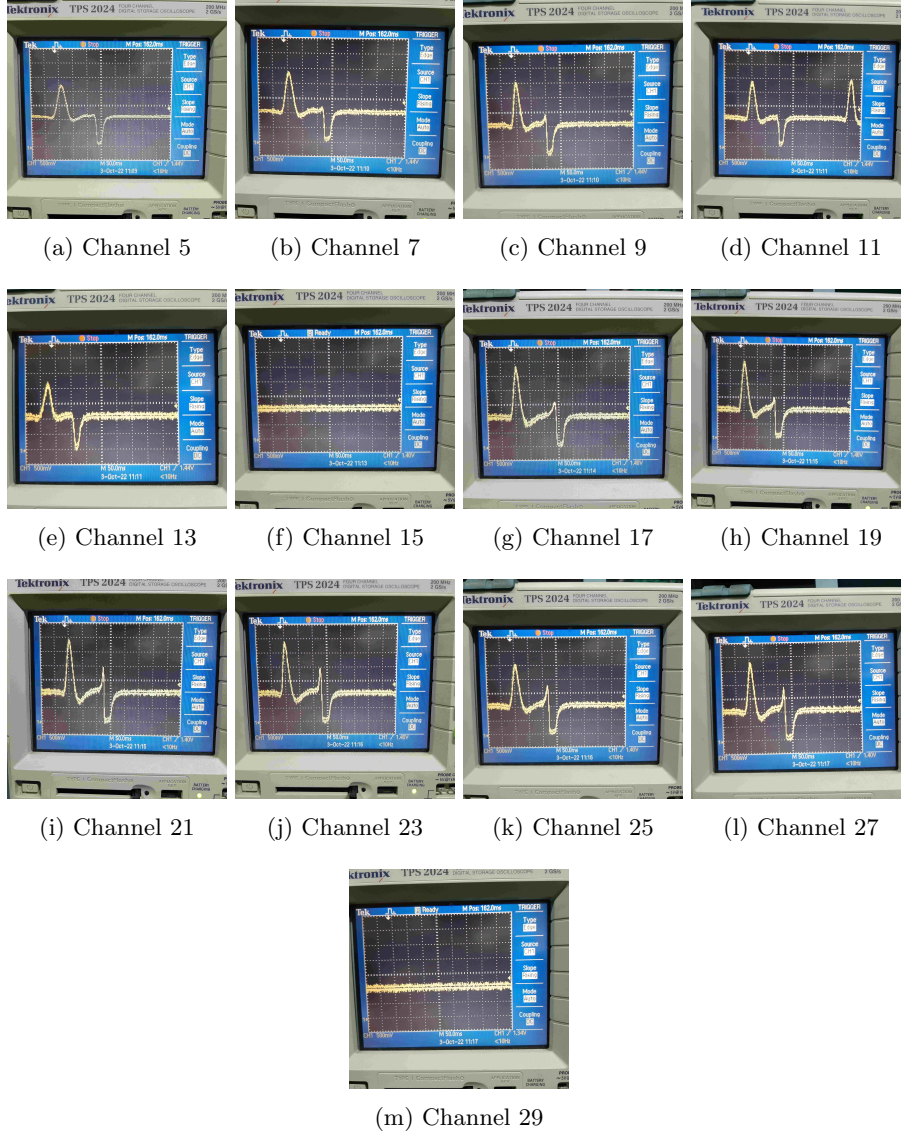


Figure 11: BB2 outer RPC Return side.

1.12 BB3 outer

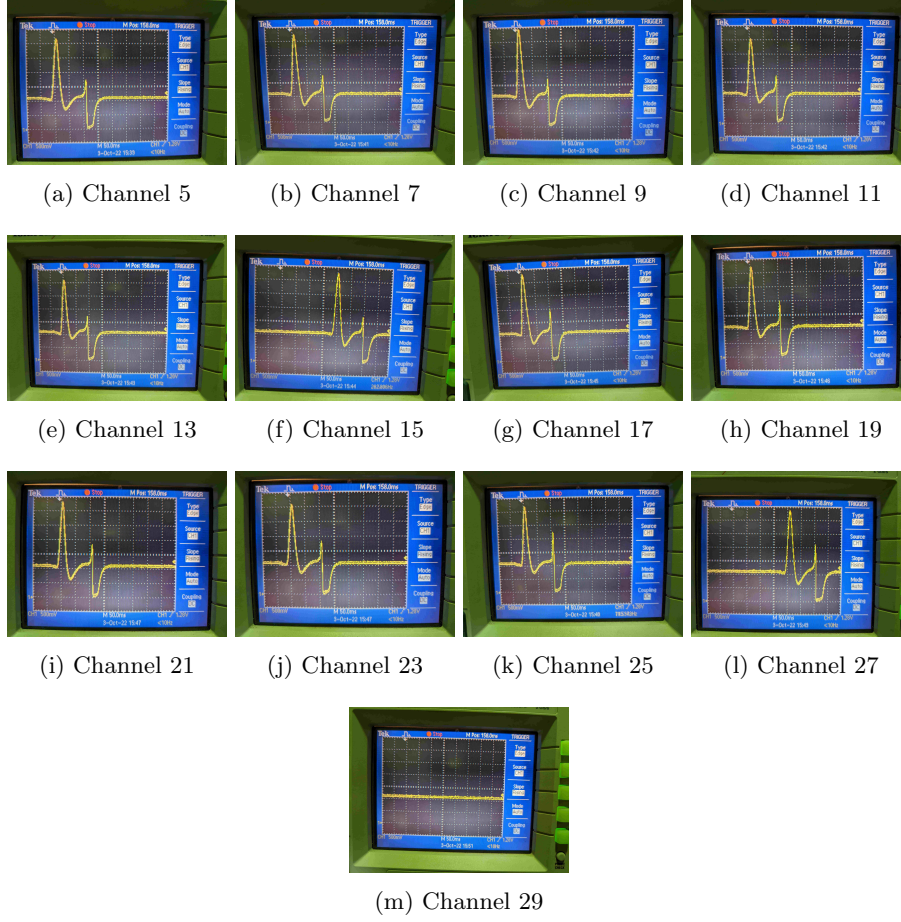


Figure 12: BB3 outer RPC Return side.

1.13 BB4 outer

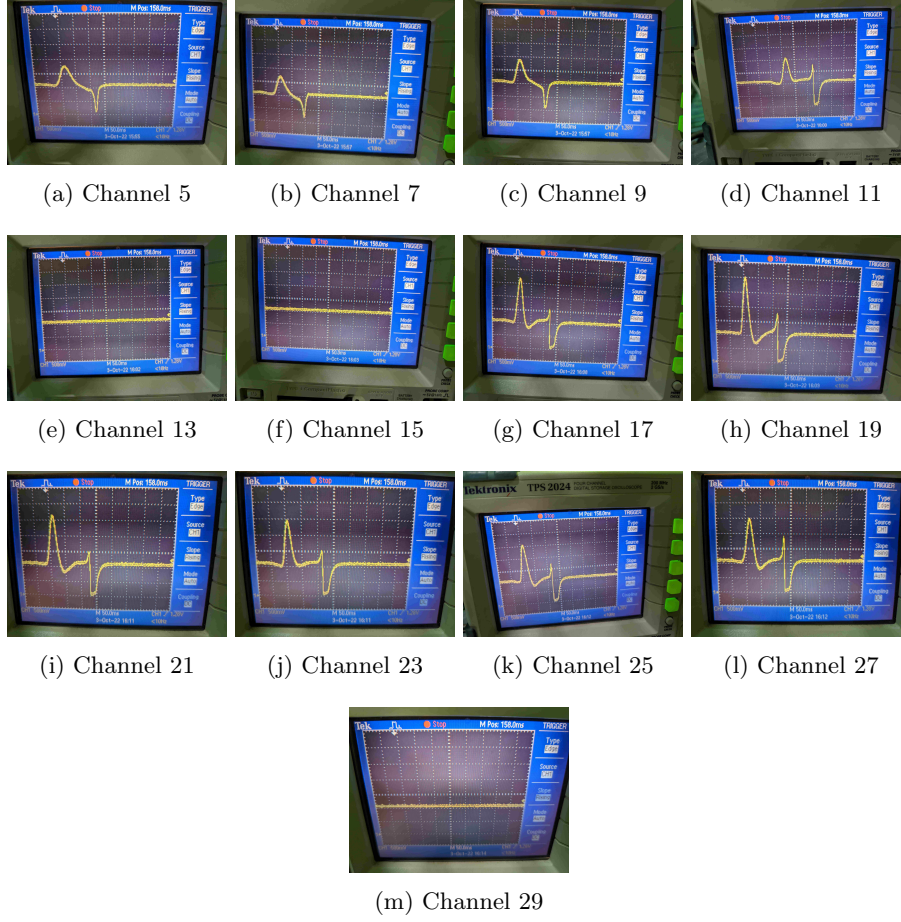


Figure 13: BB4 outer RPC Return side.

1.14 BB5 outer

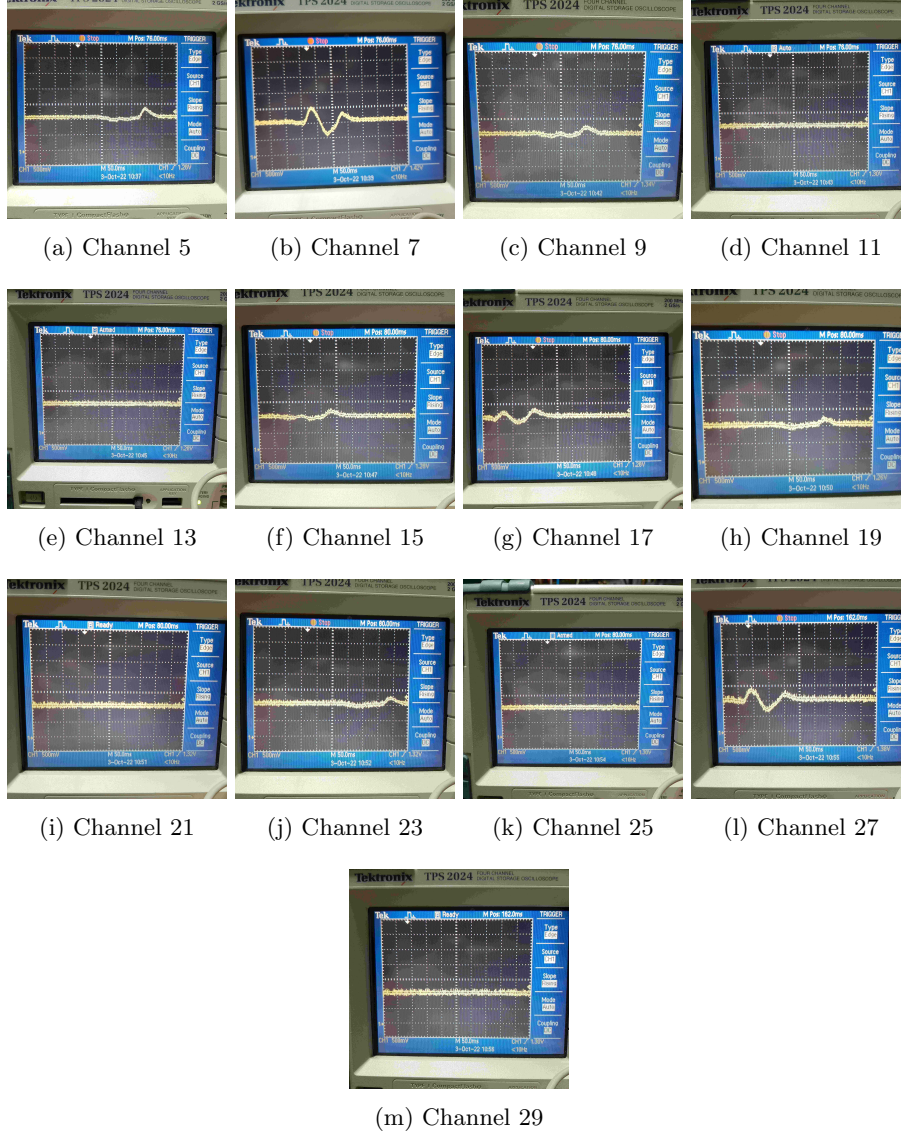


Figure 14: BB5 outer RPC Return side.

1.15 BB6 outer

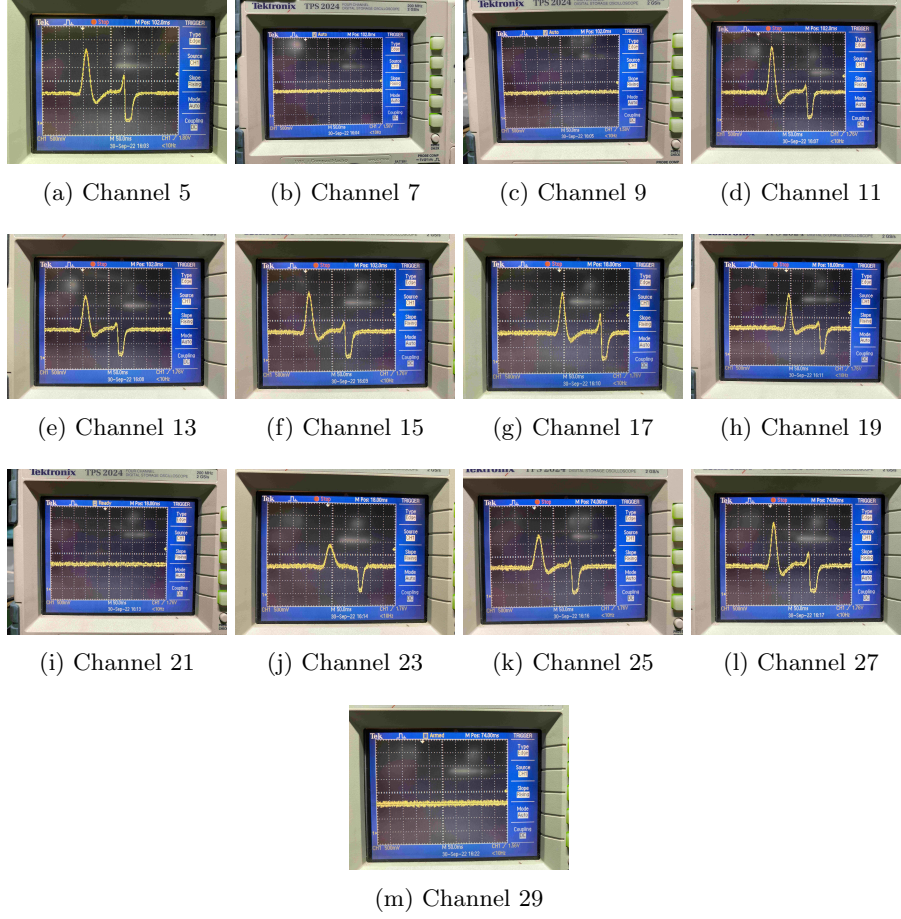


Figure 15: BB6 outer RPC Return side.

1.16 BB7 outer

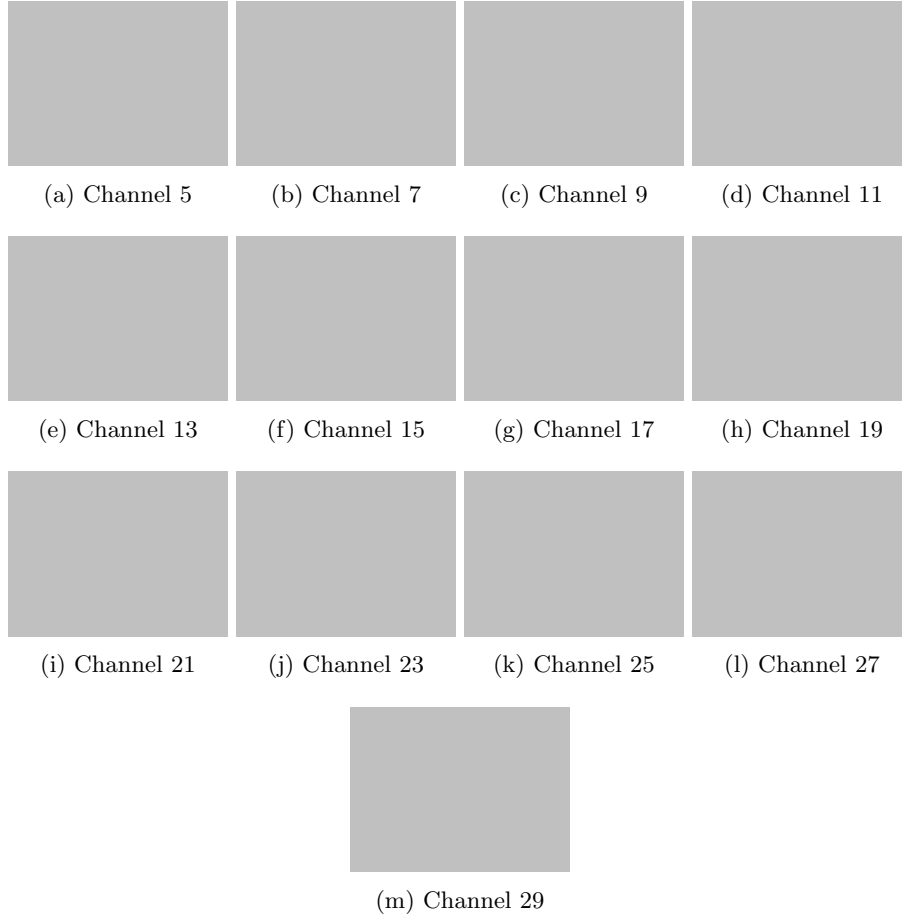


Figure 16: BB7 outer RPC Return side.

1.17 BF0 inner

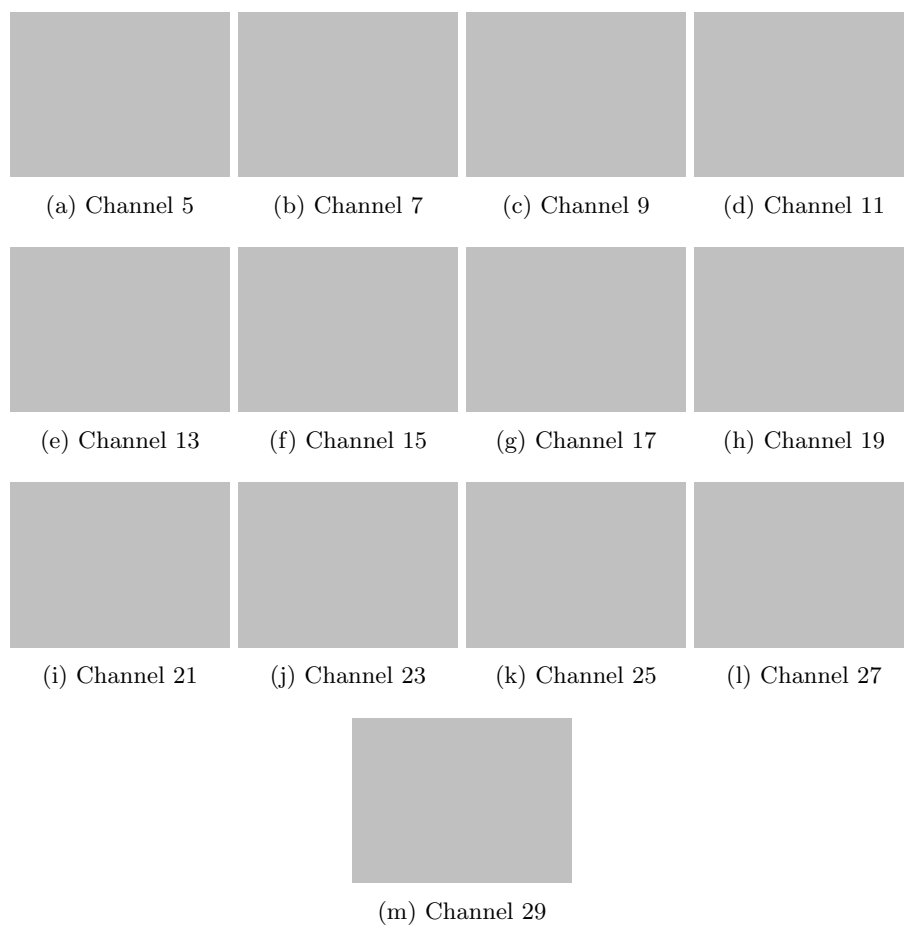


Figure 17: BF0 inner RPC Return side.

1.18 BF1 inner

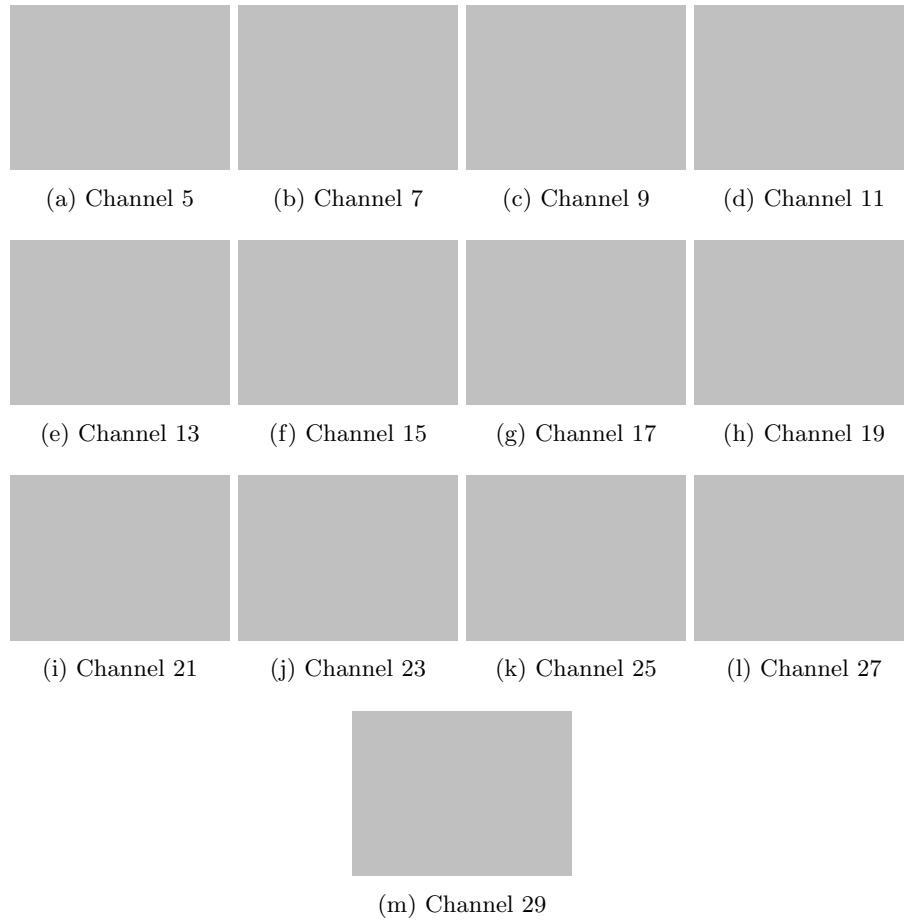


Figure 18: BF1 inner RPC Return side.

1.19 BF2 inner

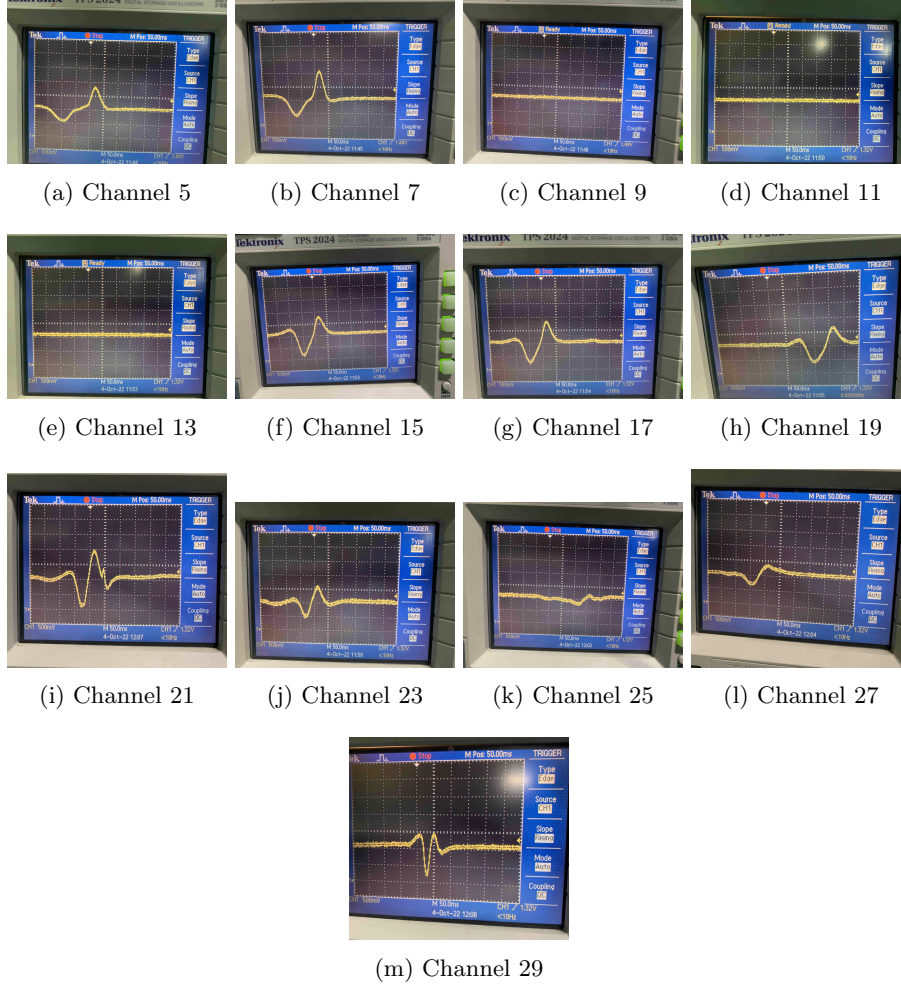


Figure 19: BF2 inner RPC Return side.

1.20 BF3 inner

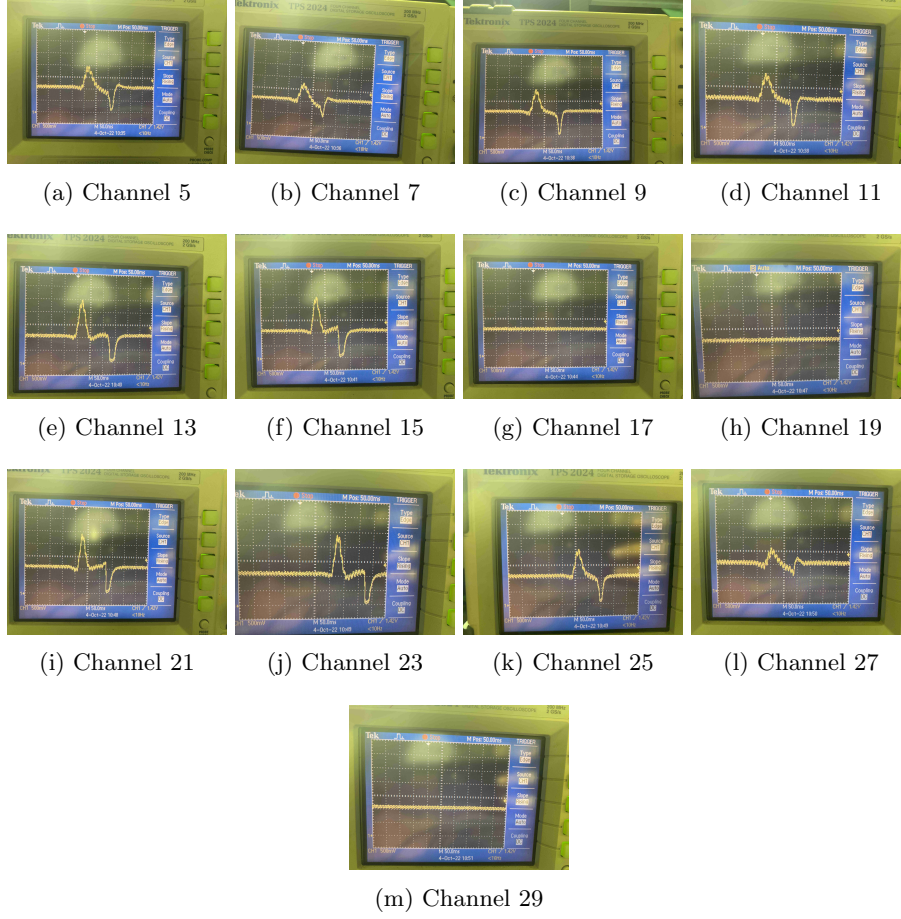


Figure 20: BF3 inner RPC Return side.

1.21 BF4 inner

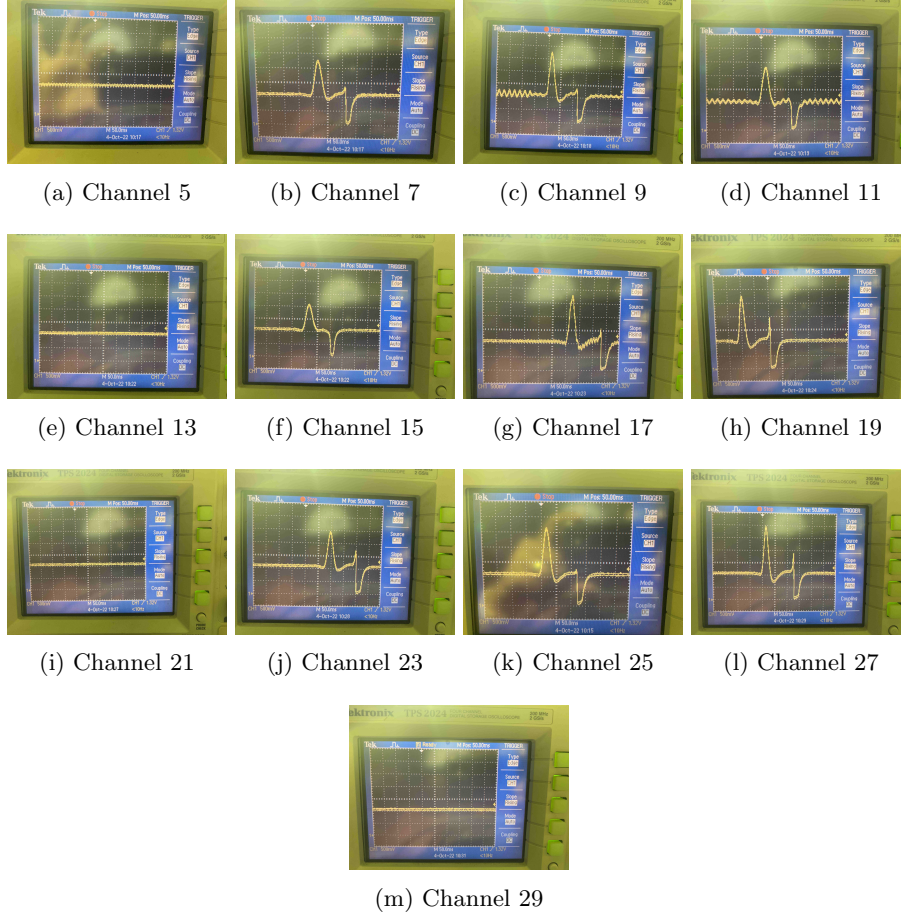


Figure 21: BF4 inner RPC Return side.

1.22 BF5 inner

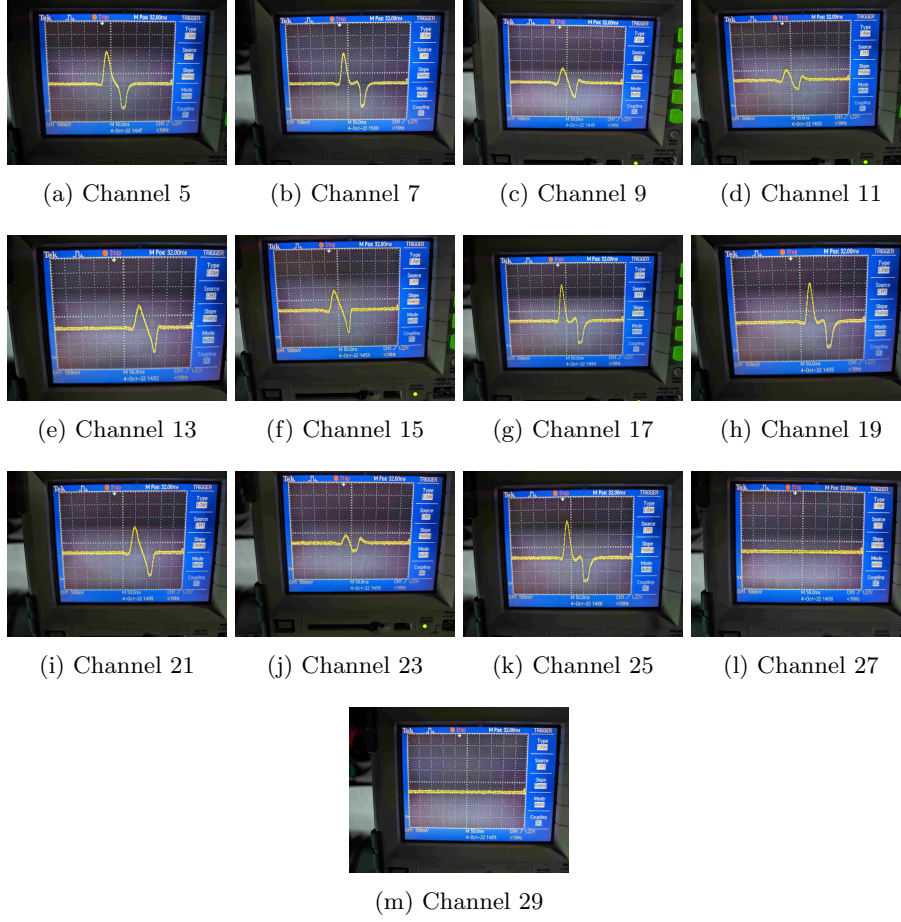


Figure 22: BF5 inner RPC Return side.

1.23 BF6 inner

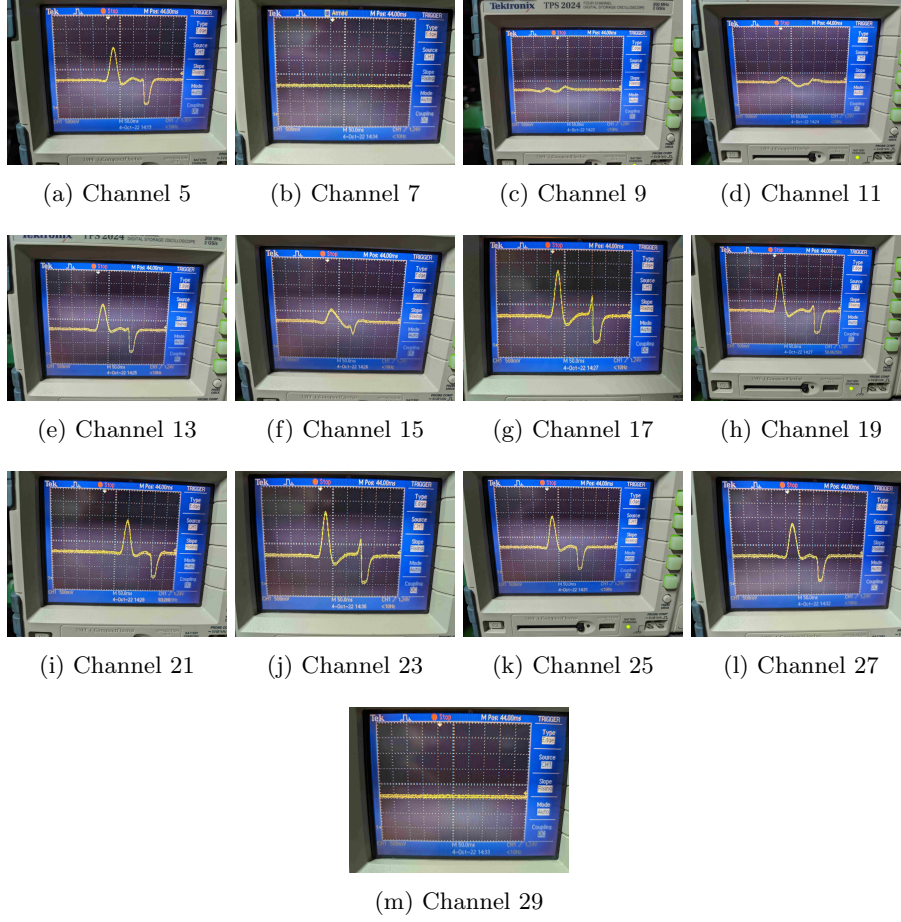


Figure 23: BF6 inner RPC Return side.

1.24 BF7 inner

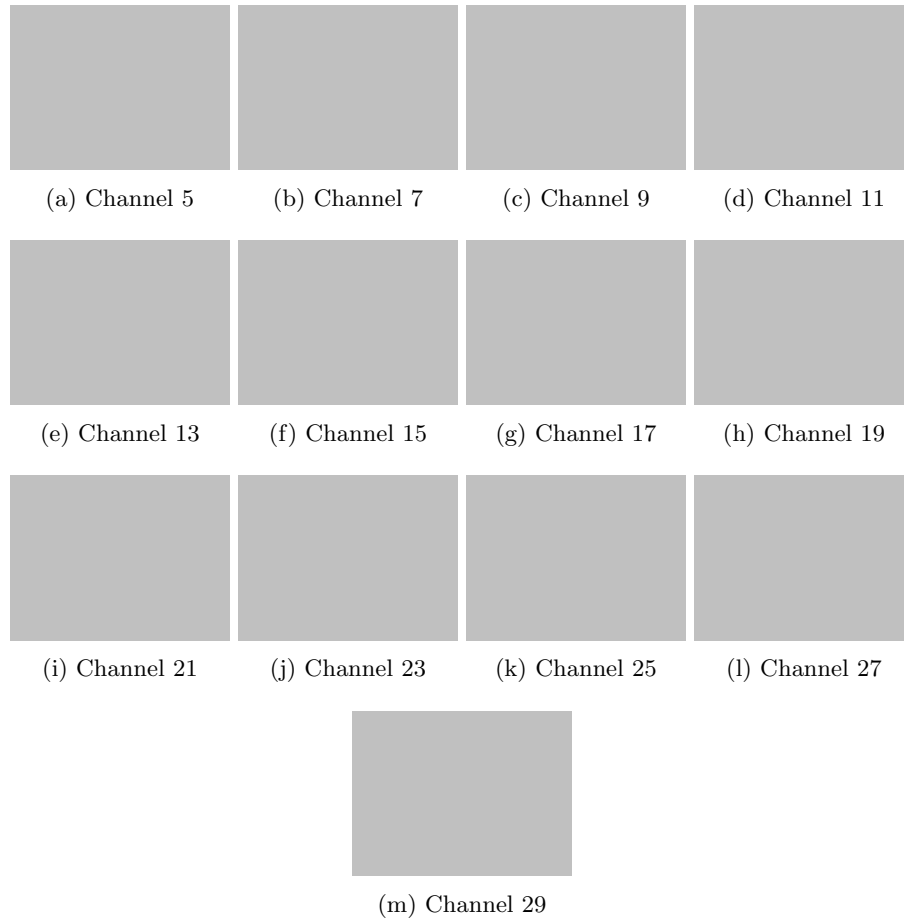


Figure 24: BF7 inner RPC Return side.

1.25 BF0 outer

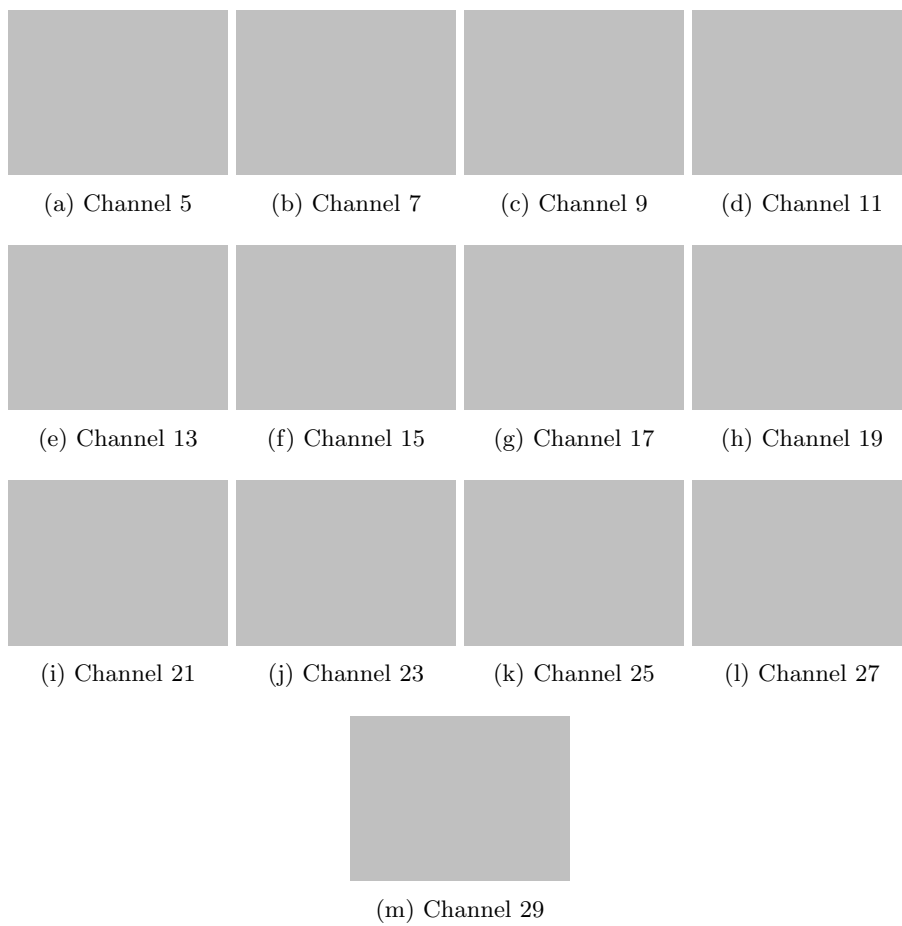


Figure 25: BF0 outer RPC Return side.

1.26 BF1 outer

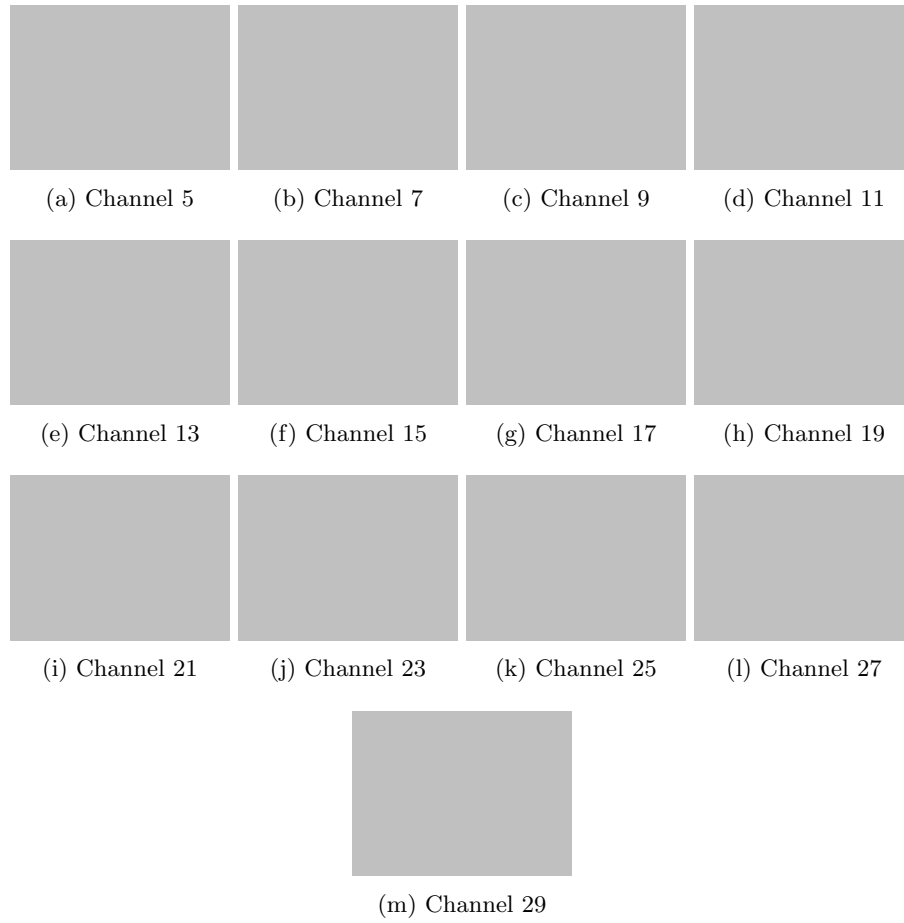


Figure 26: BF1 outer RPC Return side.

1.27 BF2 outer

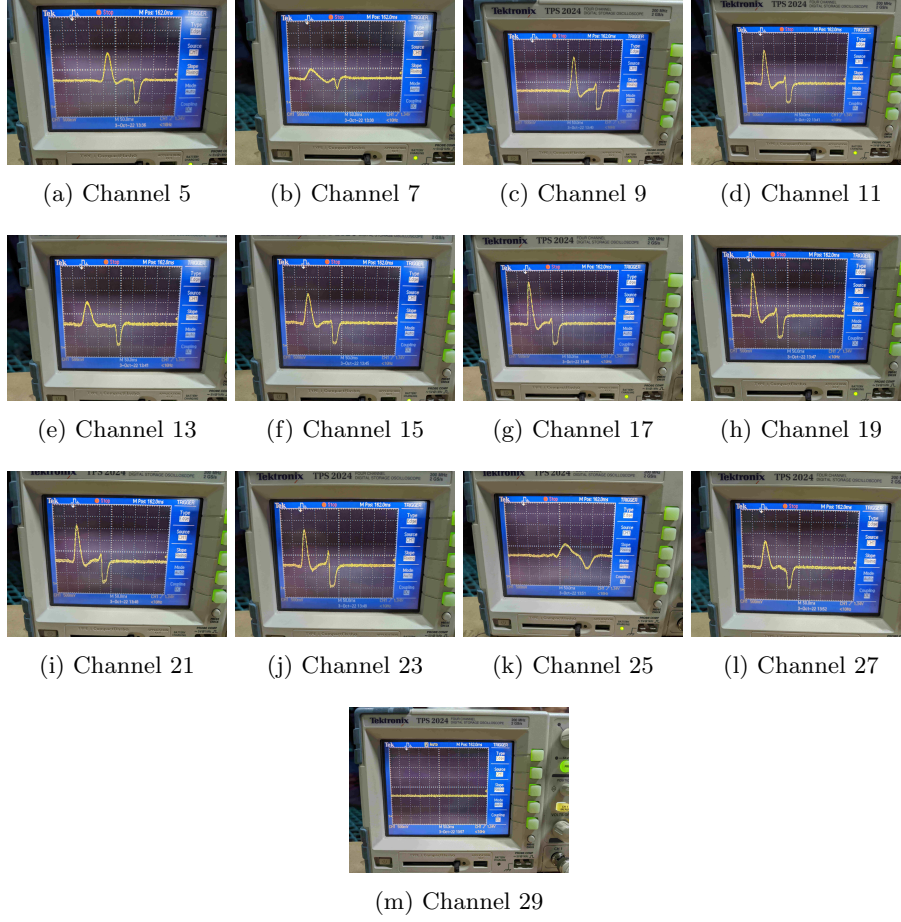


Figure 27: BF2 outer RPC Return side.

1.28 BF3 outer

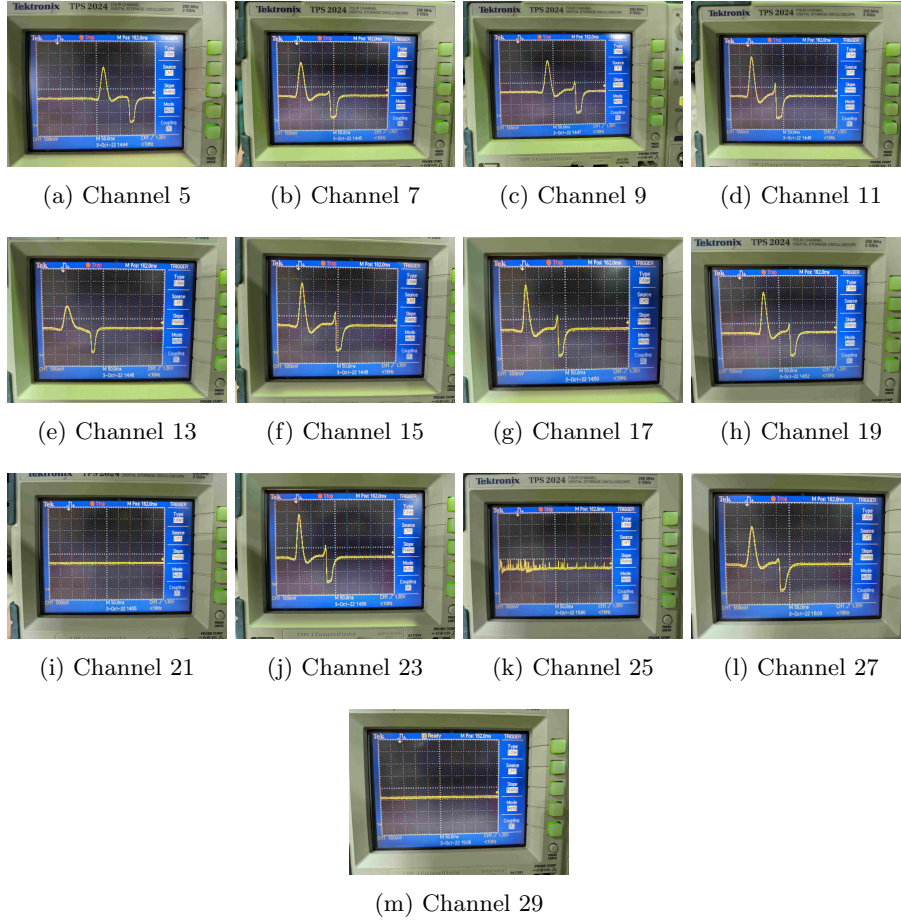


Figure 28: BF3 outer RPC Return side.

1.29 BF4 outer

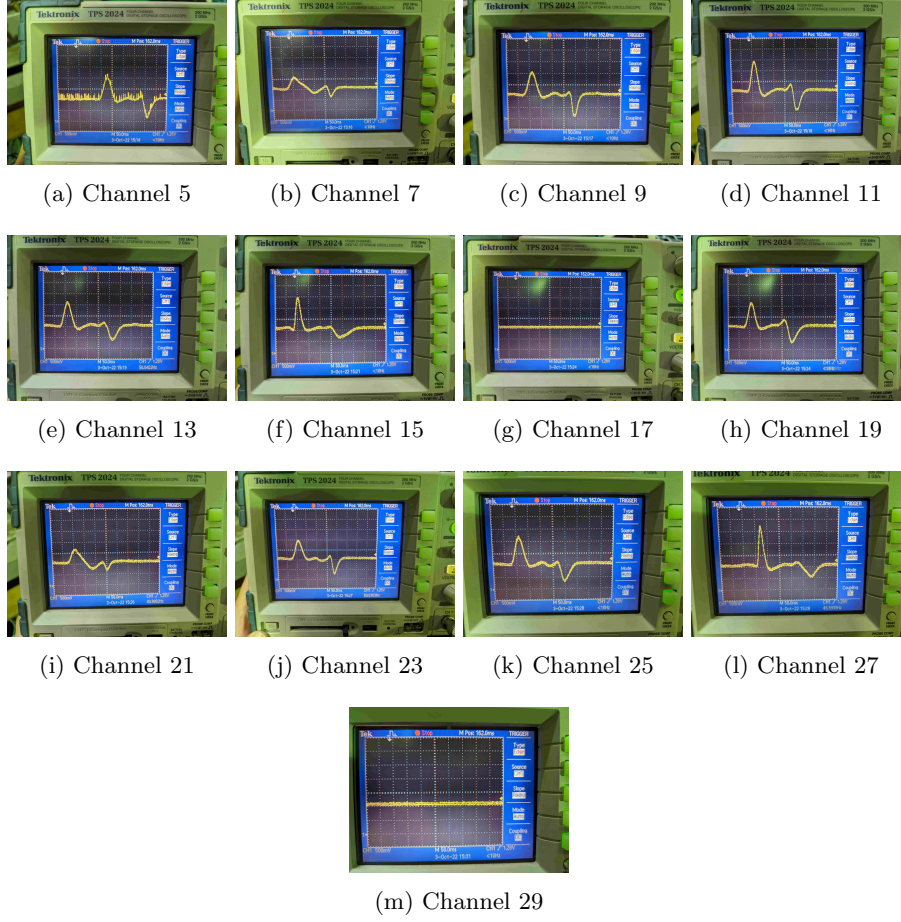


Figure 29: BF4 outer RPC Return side.

1.30 BF5 outer

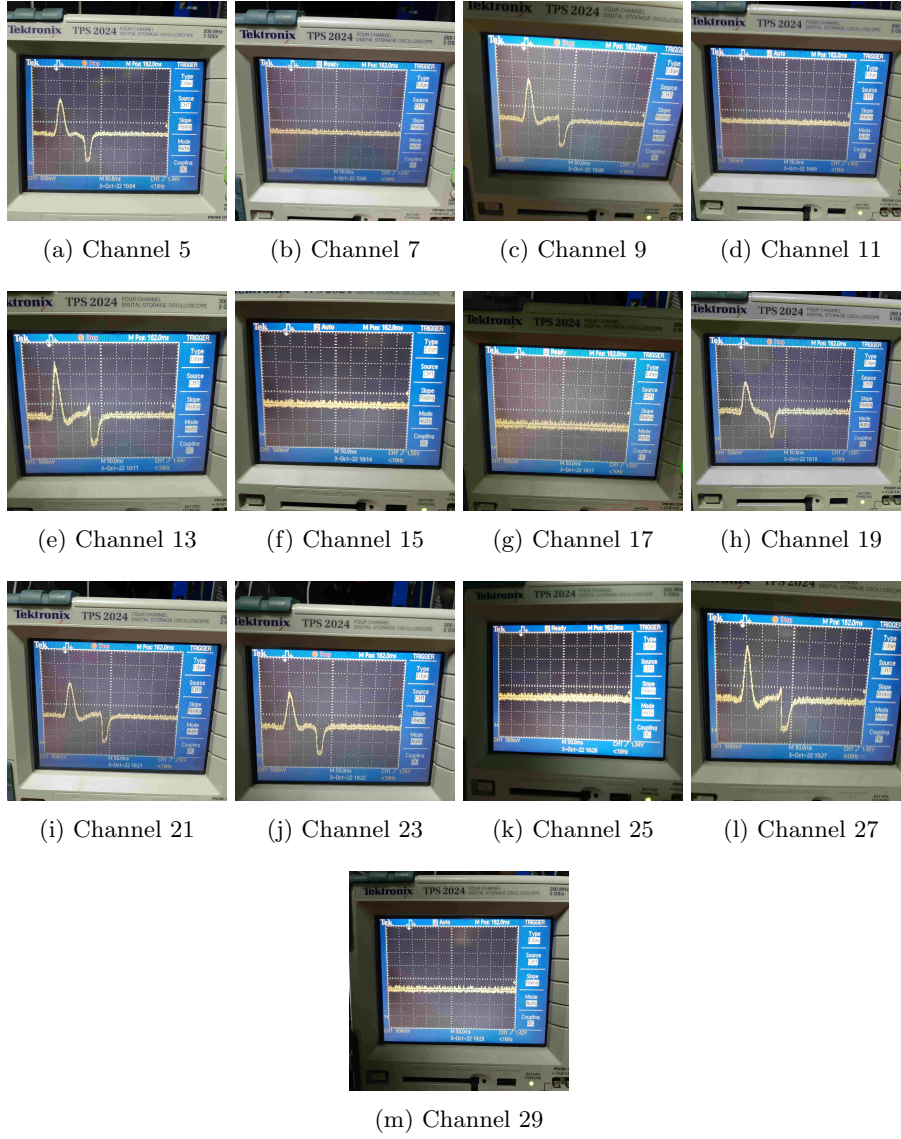


Figure 30: BF5 outer RPC Return side.

1.31 BF6 outer

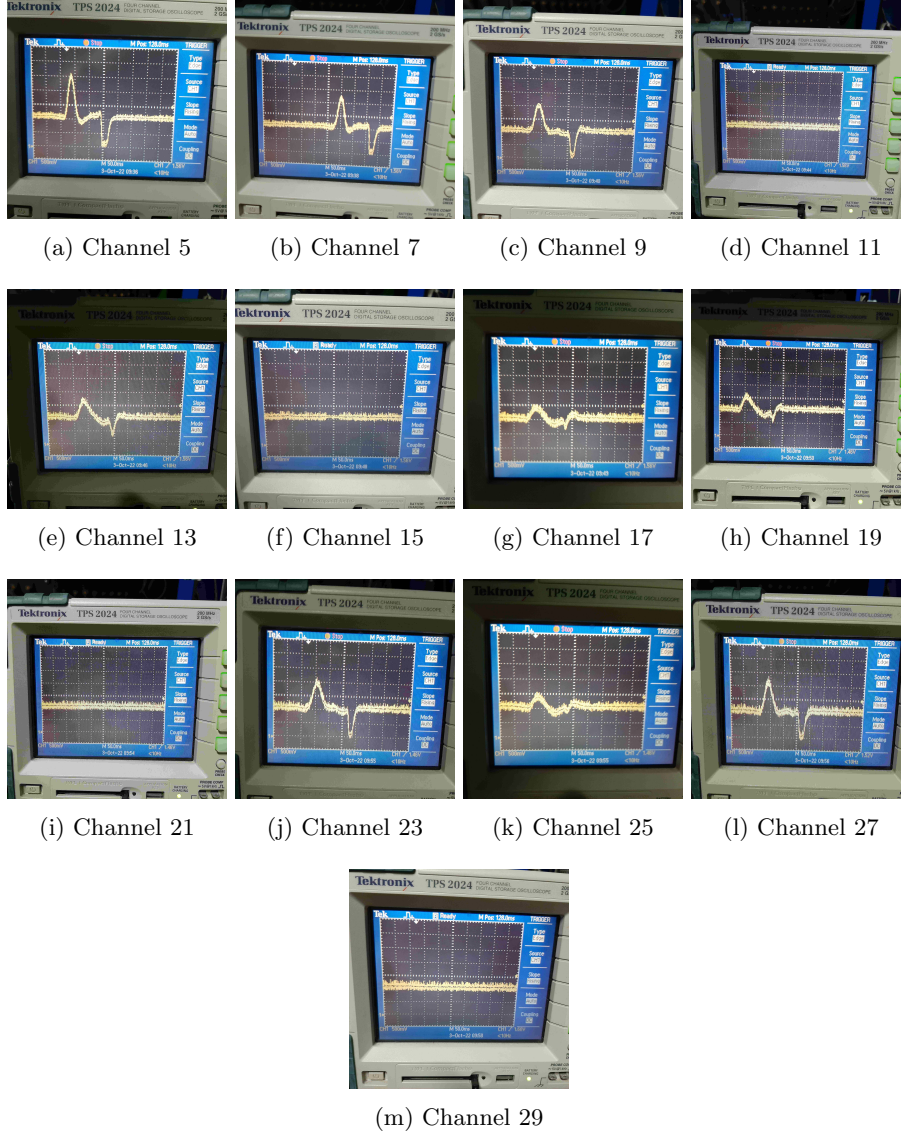


Figure 31: BF6 outer RPC Return side.

1.32 BF7 outer

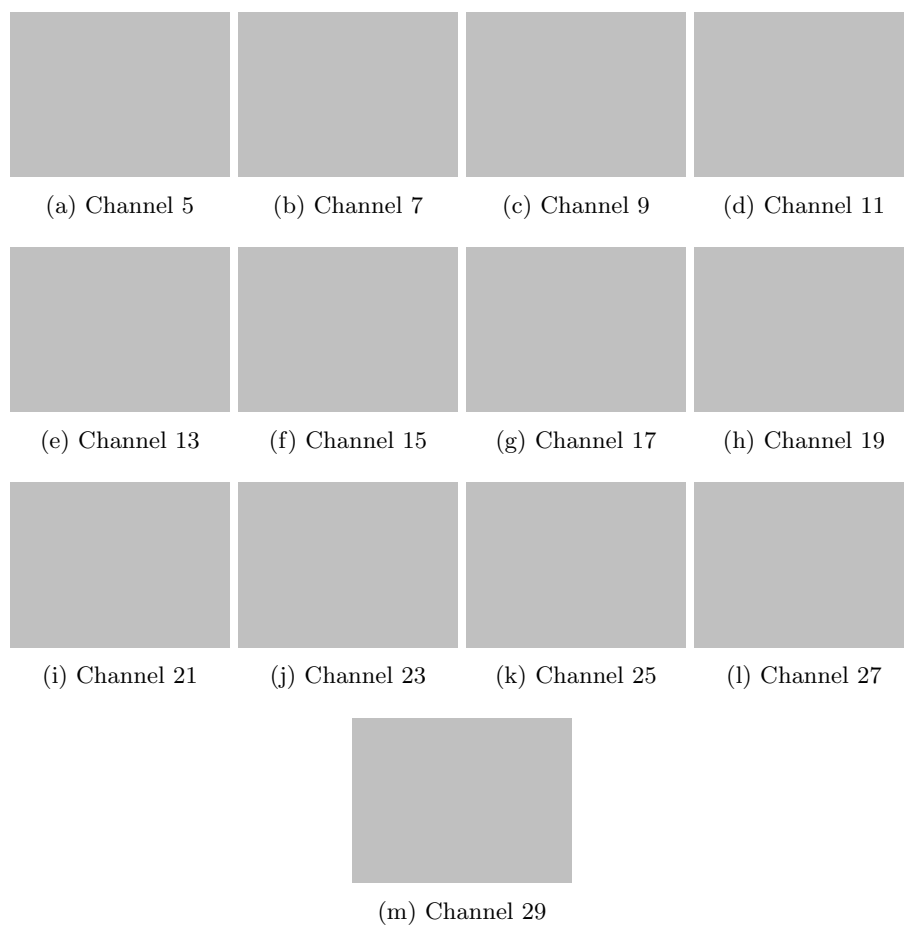


Figure 32: BF7 outer RPC Return side.

2 Supply