Extreme Equipment Sales & Rentals
Babelfish Recorded-Mode Log Analysis
Revision 3.0

Date: March 8, 2022
Applicability: Babelfish
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BACKGROUND INFORMATION

The goal of this Technical Bulletin is to explain the Babelfish plots that are currently being sent out from the Extreme Command Center.

### Page 1 – Babelfish Performance Plot

Plot 1

PDSTAT – Status of PD transmission.
PSKSNR – Signal-to-noise ratio of received signal.
BARKER – Signal synchronization percentage (ranging from 0-1).

Analysis:
Barker should be close to 1 and the SNR should be greater than 13dB. PDSTAT represents transmission errors from the PD control unit and should not be overwhelmingly present.

Table shows example how PDSTAT changes depending on PD control unit:

| Bit 0	System reset occurred under firmware control
Bit 1	This bit becomes set after an under voltage event occurred in P
Bit 2	Overcurrent alarm
Bit 3	The bit sets when iLink does not receive any data from PD controller board
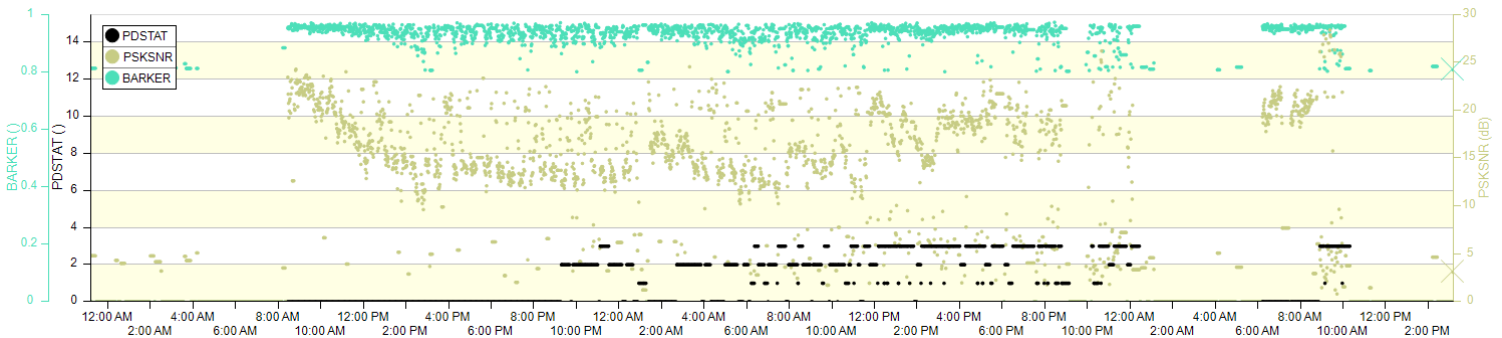
Plot 2

RXCT – Babelfish receiver packet count.
RXERR – The percentage of received-in-error communications in the last 10 transmissions.
RXERRCT – Babelfish receiver error counts.

Analysis:
Every time a data packet is received successfully, an internal counter corresponding to RXCT is incremented by 1. The RXCT should continuously count in an upwards trend. When Babelfish loses comms or the tool resets, the count resets to 0. Every time a wireless communication is received that contains bit errors or that fails an integrity check, an internal counter

corresponding to RXERRCT is incremented by 1. RXERRCT also resets when Babelfish loses comms or the tool resets. As SNR gets worse, the number of RX errors increases. Ideally, the receiver RX error count/errors will be low and there will be no resets in the RXCT.
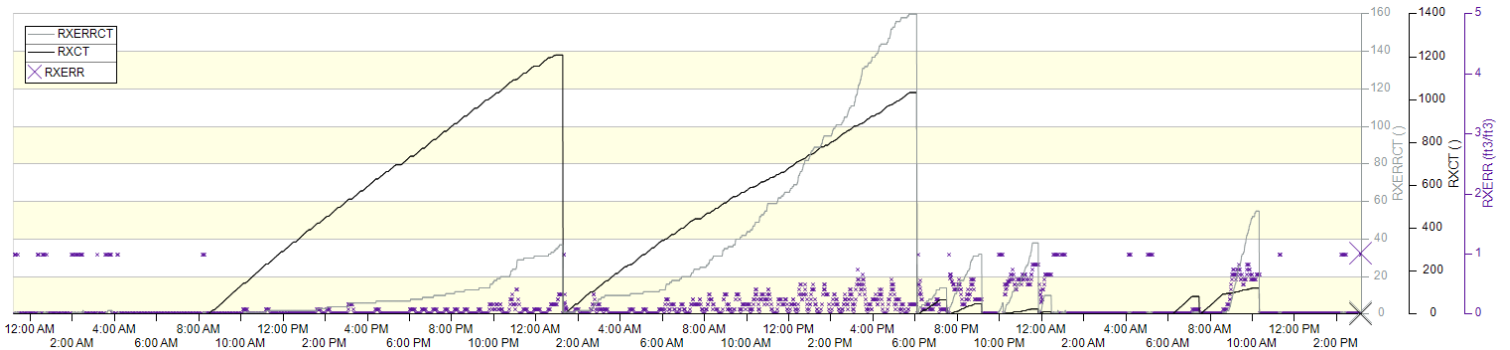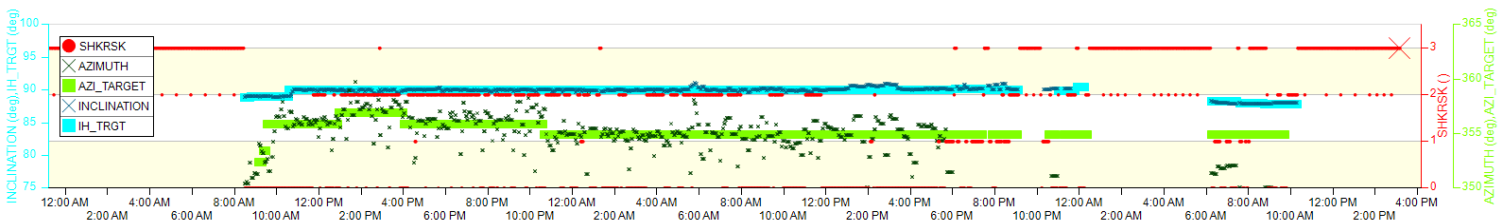

Page 2 – PowerDrive Data Plot

Plot 1

SHKRSK – Measurement of the PowerDrive shock severity.
IH_TRGT – Target inclination.
INCLINATION – Measured inclination.
AZI_TARGET – Target azimuth.
AZIMUTH – Measured azimuth.

Analysis:
Shock risk should be low (0-1). If the measured inclination and azimuth are matching the targets, that is an indication of good PowerDrive performance.
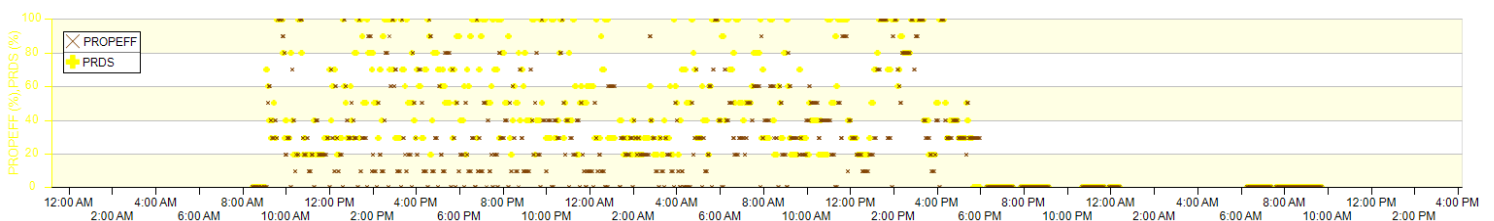

Plot 2

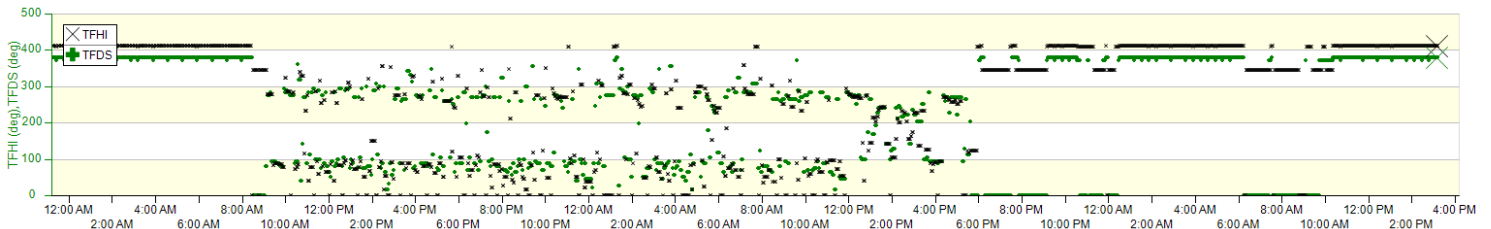PROPEFF – Effective steering proportion.
PRDS – Desired proportion.

Analysis:
PROPEFF should be matching PRDS. This is an indication of good PowerDrive performance.

Plot 3

Schlumberger-Private   Recorded-Mode Data - Extreme

TFHI – Measured toolface.
TFDS – Desired toolface.

Analysis:
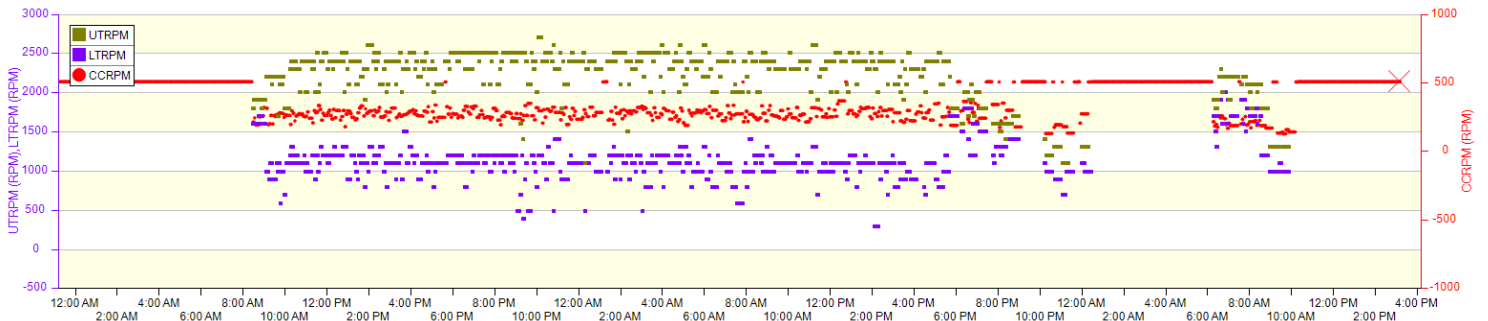TFHI should be matching TFDS. This is an indication of good PowerDrive performance.

Page 3 – PowerDrive Data Plot 2

Plot 1

LTRPM – Lower torquer RPM.
UTRPM – Upper torquer RPM.
CCRPM – Control collar RPM.

Analysis:
All RPM should be constant throughout the run if the flow and surface rotation is constant.

Plot 2

RTSTAT – PowerDrive real-time status word.
RTSTAT2 – Power Drive real-time status word #2.
PDTEMP – PowerDrive downhole temperature.

Analysis:
RTSTAT should be used in RT to determine current tool mode, ROP index, health flags, steering mode, etc. RTSTAT2 will confirm good surveys. 0 is a good survey and 8 is a survey with an out of FAC GTOT. Temperature should remain under 150ºC.
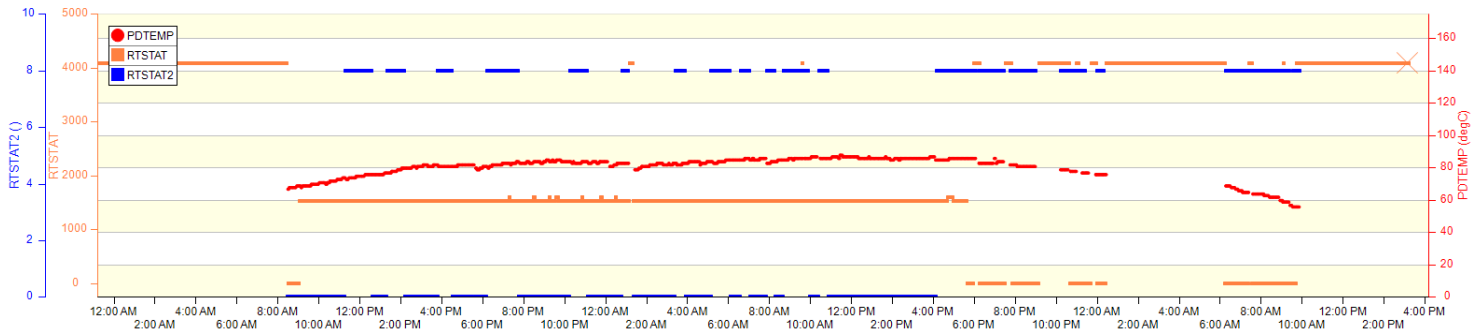
Babelfish Default Data Points

Babelfish follows the protocol below when sending received PowerDrive data.
- Immediately after Babel Fish reboot, it will provide the default/maximum values (raw binary 1s)
- When wireless data is received, Babel Fish provides the most recently received PowerDrive Data
- If received data stops for less than 20 minutes, Babel Fish will provide the last received data repeatedly
- If received data stops for more than 20 minutes, Babel Fish will provide default values

Below is the table of the most common default/maximum values used.

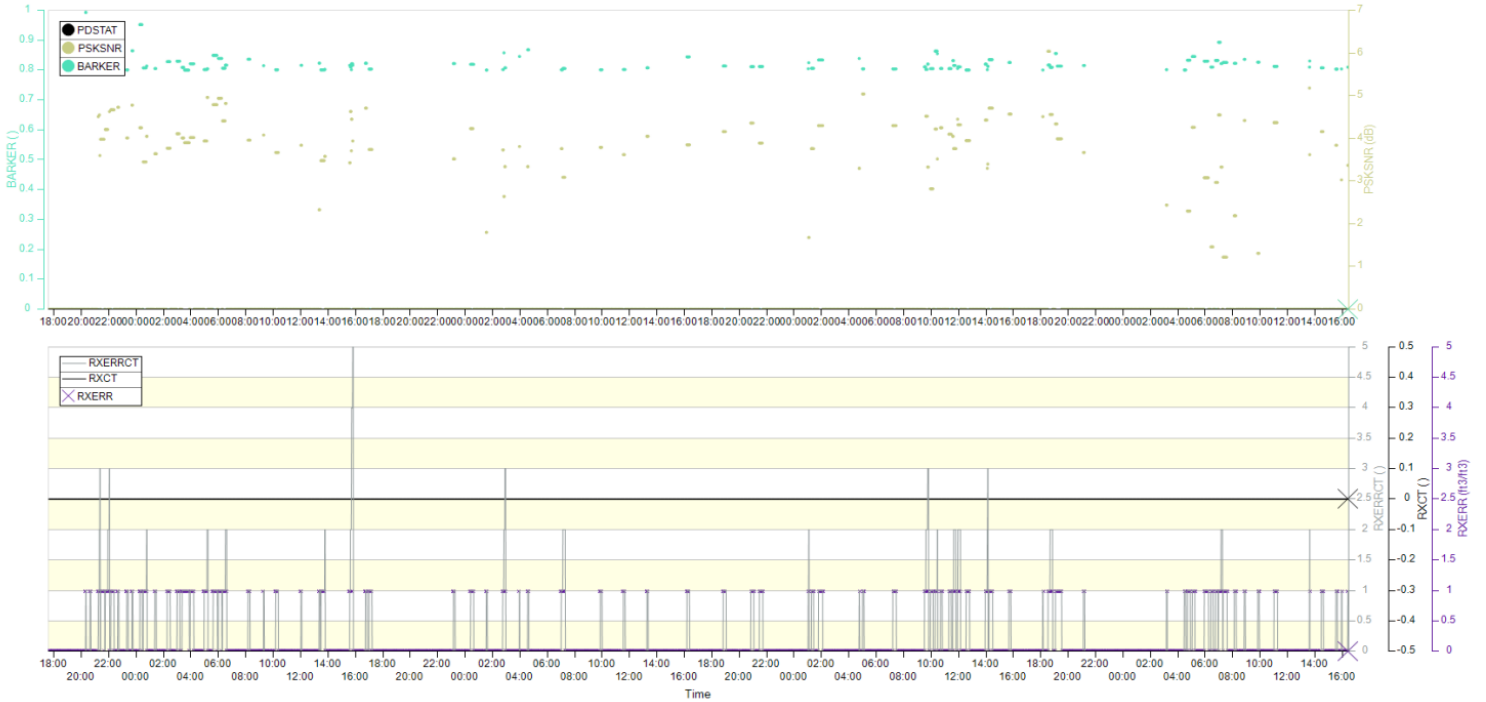| Data Point	Value		Data Point	Value
RTSTAT	4095		IH_TARGET	204.75
RTSTAT2	4095		AZIMUTH	409.4
RTSTAT4	63		AZI_TARGET	409.4
PROPEFF	150		PDSTAT	16
POSSUM	154		CCRPM	510
PRDS	150		PDTEMP	215
LTRPM	6300		DLNK	511
UTRPM	6300		STEER	255
TFHI	409.4		SHKRSK	3
TFDS	378		STKSLP	15
DLKPAGE	7		LATSHKPEAK	340
INCLINATION	204.75		LATVIB	68
AXISHKPEAK	34		AXIVIB	34
PKSNR	0		PDSTAT	16
RXSTAT	0		RXERR	0
GAMMA_EXT	511		GAMMA	127

When the MWD tool loses communication with the Babel Fish probe or there is a communication error internal to the Babel Fish probe 0s will be the most likely value that is seen.

       Recorded-Mode Data - Extreme

No Comms with RSS Example

Analysis:
Note that the RXCT is 0 the entire run. This means no packets were received from the RSS.

BabelFish Performance Plot

From 26-Feb-2022 17:37:00

To 02-Mar-2022 16:27:00

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