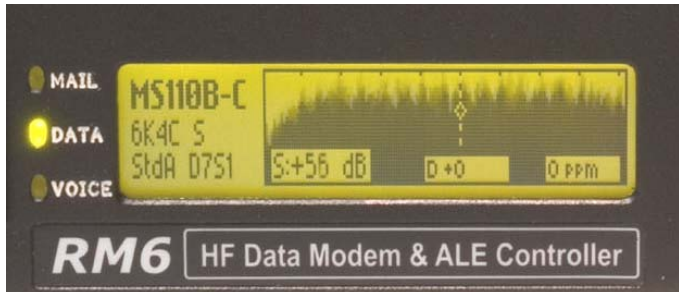


# RM6 Signal Detection Option

## Detection of HF Data Modem Waveforms



- PSK waveform classification
- Data rate & coding detection
- Interleaver detection
- Data format detection
- Data translation to ASCII
- ALE detection and data

**Signal Detection** is a built-in function of the **RM6**. It can be activated with the appropriate *RapidM* license key.

The function will detect narrow band signals, PSK waveforms and ALE transmissions on an HF link. This function is suitable for analysing PSK signals occupying the communications channel.

The **RM6** unit comes standard with HF Data modem waveforms including MIL-STD-188-110 A/B, STANAG 4539, 4285, 4529, 4415 & 4481. These PSK modes can be detected in a wide capture range. ALE transmissions can also be detected as well as narrowband HF signals.

Examples of the *RapidM* Signal Detection Remote Control PC software is shown in figure 1 and 2, showing the signal detection operation view interface and signal detection report, respectively.

The software is capable of performing detection and analysis at various levels (see specifications).

For more information in the high-speed data modem, see *RapidM* HF Data Modem brochure and User's manual.

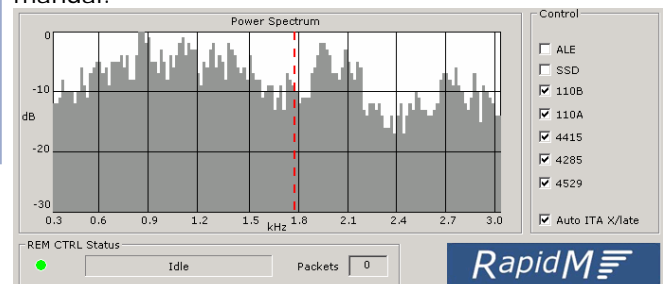


Fig 1: Signal Detection User Interface Operation View

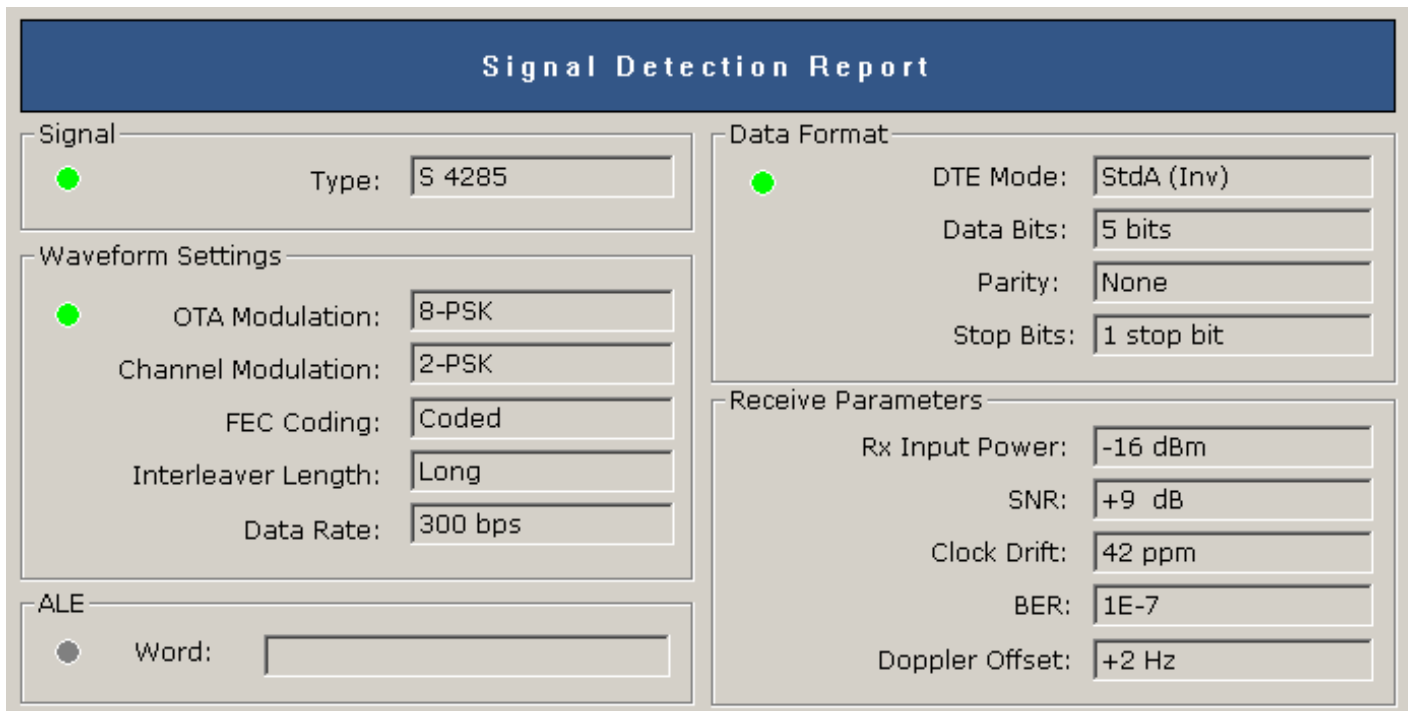


Fig 2: Signal Detection Report: PSK W/F Detection

# Specifications: Detection of High-speed HF Data Modem Waveforms

<i>DETECTION LEVELS</i>	<i>CONTROL</i>
The detection level is set on the <b>RM6</b> unit menu.	
<b>Level 1: Signal</b> Determines if the channel is occupied	<b>MS110B-C</b> enable / disable detection
<b>Level 2: Waveform</b> Determines the PSK/ ALE waveform	<b>MS110A</b> enable / disable detection
<b>Level 3: Data Rate</b> Determines the data rate, coding and interleaver settings	<b>S 4415</b> enable / disable detection
<b>Level 4: Auto Rx</b> Outputs the data with the current DTE port settings	<b>S 4285</b> enable / disable detection
	<b>S 4529</b> enable / disable detection
	<b>ALE 2G</b> enable / disable detection
	<b>SSB Voice</b> enable / disable detection
	<b>NB signal</b> enable / disable detection
	<b>ITA/X-Late</b> enable / disable auto-translate

<i>WAVEFORMS</i>	<i>DATA FORMAT</i>
<b>MS110B-C</b> S 4539 & MS 110B, 3200 – 9600 bps	<b>Sync</b> Synchronous or encrypted transmission
<b>MS110A</b> S 4539 & MS 110A, 150 – 2400 bps	<b>HiSP</b> Hi-Speed Async Mode
<b>S 4415</b> S 4415 & MS 110A, 75 bps	<b>StdA</b> Standard Async Mode
<b>S 4285</b> 75 – 2400 bps	<b>D</b> Data Bits prefix (constant)
<b>S 4529</b> 75 – 1200 bps	<b>5, 6, 7, 8</b> Char length
<b>ALE 2G</b> 2 <sup>nd</sup> Generation (2G) ALE signal	<b>N,E,O</b> Async Parity (None, Even, Odd)
<b>SSB Voice</b> 2 sec detection window required	<b>1,2</b> Async Stop bits
<b>NB signal</b> Spectral detector of narrowband HF signals (e.g. FSK)	<b>Data inv.</b> Data polarity

<i>DATA RATES CODING AND INTERLEAVER SETTING</i>	<i>TRANSLATION TO ASCII TABLES</i>
<b>MS110B-C</b> <b>DR:</b> 3200C – 9600C and 12.8KU <b>IB:</b> US, VS, S, M, L, VL	This enables the DTE port to be set to D8N1:
<b>MS110A</b> <b>DR</b> 150 – 2400C and 4800U, <b>IB:</b> Z, S, L	<b>ITA-2</b> 5-bit Murray coding ('Baudot')
<b>S 4415</b> <b>DR</b> S 4415 & MS 110A: 75C, <b>IB:</b> Z, S, L	<b>ITA-4</b> 6-bit coding
<b>S 4285</b> <b>DR</b> S 4285 75C – 2400C and 1200U, 2400U, 3k6U, <b>IB:</b> S, L	<b>ITA-5</b> 7-bit ASCII
<b>S 4529</b> <b>DR:</b> 75C – 1200C and 600U, 1200U, 1800U, <b>IB:</b> S, L	
	<b>DETECTION CHARACTERISTICS</b>
	<b>Capture Range</b>
	PSK signal: ±400 Hz
	ALE signal: ±80 Hz
	<b>Waveform Detection Time</b>
	PSK STANAG waveform: 3 sec
	PSK MIL waveform: 3 – 20 sec
	ALE waveform: 3 sec

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