BAKER HUGHES

RADIAL ANALYSIS BOND LOG

FOCUS

FILE NO:	CH101064
API NO:	05045227830000
COMPANY	WPX ENERGY
WELL	FEDERAL RU 21-8
FIELD	RUILISON
COUNTY	GARFIELD
STATE	COLORADO

Ver. 4.01

LOCATION:

SEC 8 T7S R93W
RU 21-8 PAD
H&P 318

SHL: 653' FNL & 1876' FWL
BHL: 627' FNL & 1436' FWL

SEC 8 TWP 7S RGE 93W

OTHER SERVICES

RPM

PERMANENT DATUM	GL	ELEVATION	7736 FT
LOG MEASURED FROM	KB	24 FT	ABOVE P.D.
DRILL. MEAS. FROM	KB		

ELEVATIONS:

KB	7760 FT
DF	
GL	7736 FT

DATE		07-DEC-2015			
RUN	TRIP	1	1		
SERVICE ORDER		US101064			
DEPTH DRILLER		9964 FT			
DEPTH LOGGER		9924 FT			
BOTTOM LOGGED INTERVAL		9914 FT			
TOP LOGGED INTERVAL		0 FT			
TIME STARTED		7:30			
TIME FINISHED		11:00			
OPERATOR RIG TIME		3.5 HOURS			
TYPE OF FLUID IN HOLE		WATER			
FLUID DENSITY		NA			
FLUID SALINITY		NA			
FLUID LEVEL		57 FT			
LOGGED CEMENT TOP		SEE LOG			
WELLHEAD PRESSURE		0 PSI			
MAXIMUM HOLE DEVIATION		NA			
NOMINAL LOGGING SPEED		100 F/MN			
MAX. RECORDED TEMP.		230 DEGF			
REFERENCE LOG		BAKER HUGHES OPEN HOLE			
REFERENCE LOG DATE		25-NOV-2015			
EQUIP. NO.	LOCATION	6670	GRAND JCT		
RECORDED BY		P. EDWARDS			
WITNESSED BY		T. RAGSDALE			

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE THE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

CASING RECORD

SIZE	WEIGHT	GRADE	FROM	TO
9.625 IN			24 FT	1200 FT
4.5 IN	11.6 LB/F	P-110	24 FT	9964 FT

BOREHOLE RECORD

BIT SIZE	FROM	TO
13.5 IN	24 FT	1200 FT
8.75 IN	24 FT	9964 FT

REMARKS

RUN 1 TRIP 1: ALL DATA ON THIS LOG IS SHIFTED AND DEPTH MATCHED USING THE GAMMA RAY CURVE TO THE BAKER HUGHES HDIL/ZDL/CN/GR LOG DATED 25/NOV/2015 AT THE CLIENT'S REQUEST.

THE DEPTH MATCHING PROCESS CREATES POTENTIAL FOR COLLAR LENGTHS TO VARY FROM THOSE RECORDED ON OTHER CASED HOLE WIRELINE UNITS WITHOUT A GAMMA RAY REFERENCE.

THE AMOUNT OF LINEAR SHIFT IS 8 FEET

LOGGED WITH ZERO PSI AT WELLHEAD.

BHT = 230 DEGF

SJ = 6108' - 6131'

THANK YOU FOR CHOOSING BAKER HUGHES WIRELINE SERVICES

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426XA	10417452	CENTRALIZED
1	1	GR/CCL	1355XA	11871506	CENTRALIZED

PRIMARY PRESENTATION 0 PSI

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013
Updates: 1 Patches: 6

Plotted: Mon Dec 7 11:47:50 2015

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/CH101064/n012g03.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 6.750 ft BOTTOM DEPTH: 8823.250 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ()	medium (1)		"	"
TRAVEL TIME	FILTER ()	medium (1)		"	"

RAL CCL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0		TOP	BOTTOM

ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgpn*)	187	us	TOP	BOTTOM
	AMP WINDOW LENGTH	25	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	173	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	4	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (strn*)	-72	us	"	"
BASELINE NOISE (NEAR)	NOISE WINDOW START	125	us	"	"
	NOISE WINDOW LENGTH	25	us	"	"

CURVE DESCRIPTION REPORT

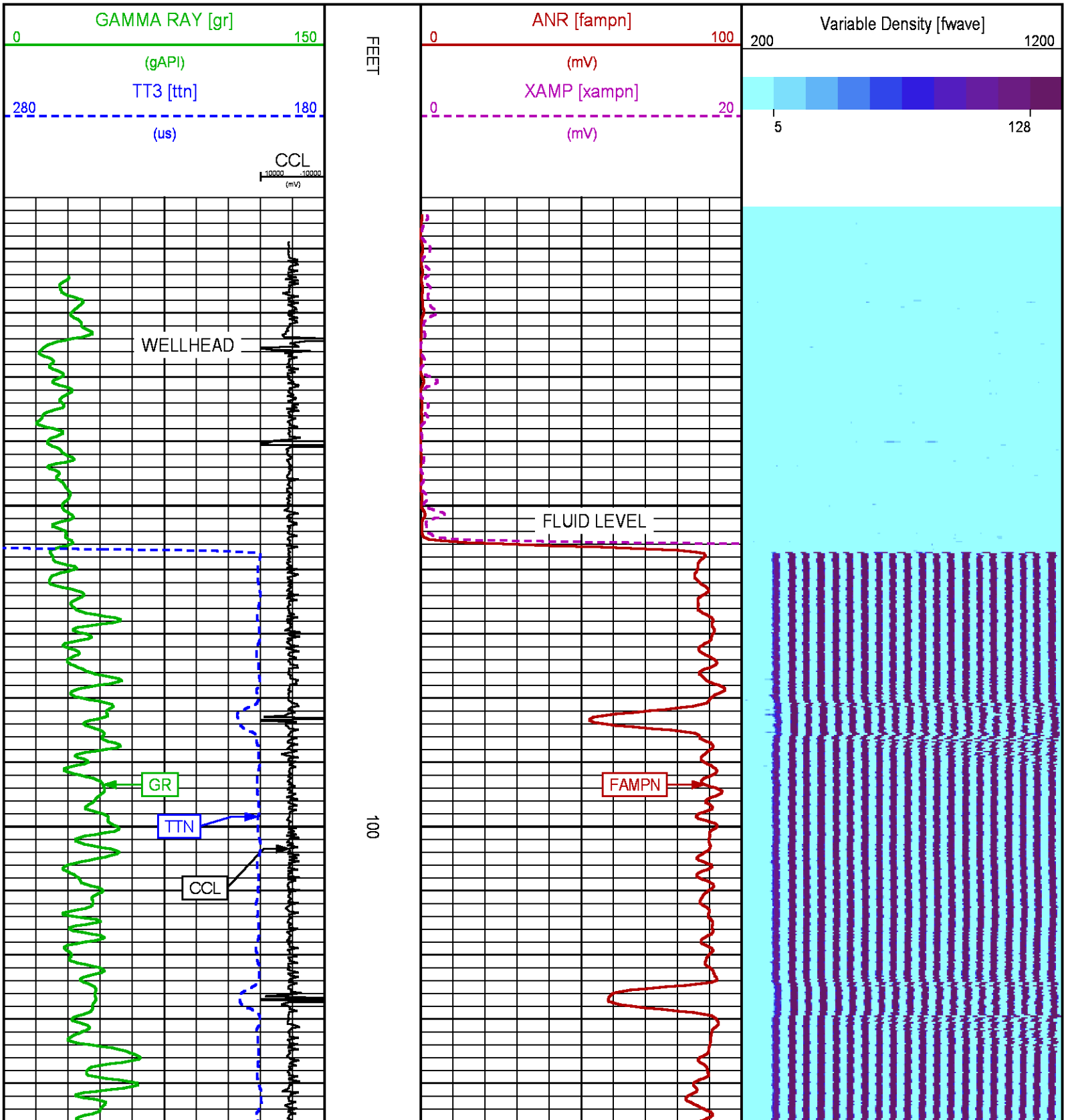
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Dec 7 09:33:31 2015	CASING COLLAR LOCATOR
F1:FAMPN	Dec 7 09:33:31 2015	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	Dec 7 09:33:31 2015	FAR WAVE FORM
F1:GR	Dec 7 09:33:31 2015	GAMMA RAY
F1:TTN	Dec 7 09:33:31 2015	TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER
F1:XAMPN	Dec 7 09:33:31 2015	FIXED GATE AMPLITUDE NEAR RECEIVER TIMES FIVE

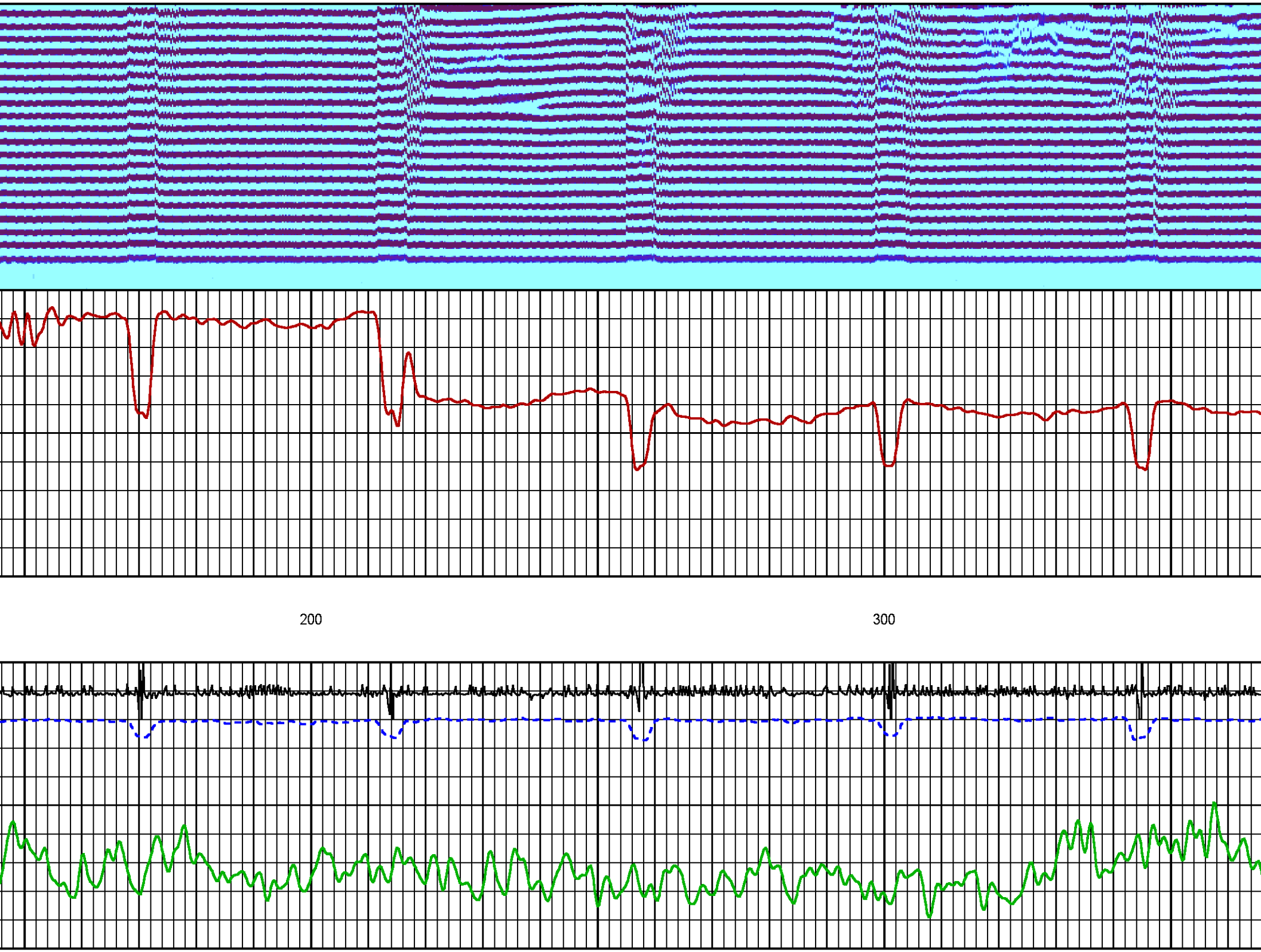
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	5.75	GR	1.75	XAMPN	11.25		
FAMPN	11.25	TTN	11.25				

Presentation : HL6670:/dat1a/CH101064/WPX_CBL_PRIMARY_PRESENTATION.fvpdf [5"/100' Scale]
Plot Interval : 3.5 - 9939 Feet

Data File 1 : F1 : HL6670:/dat1a/CH101064/FEDRU218s.xtf
Created On : Dec 7 09:33:31 2015
Company : WPX ENERGY
Well : FEDERAL RU 21-8
Field : RUILISON
File Interval : 3.5 - 9939 Feet
OCT : n012g

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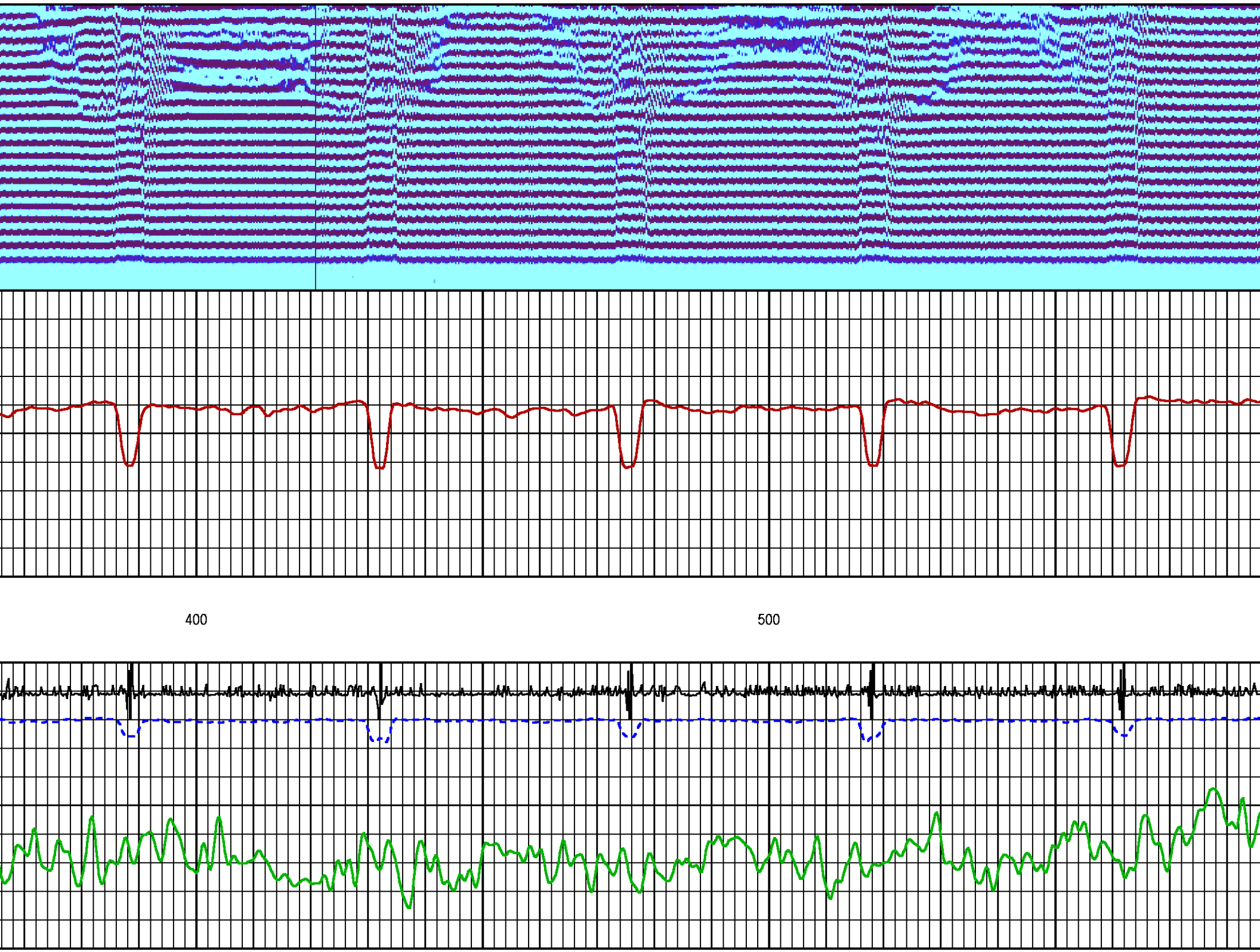
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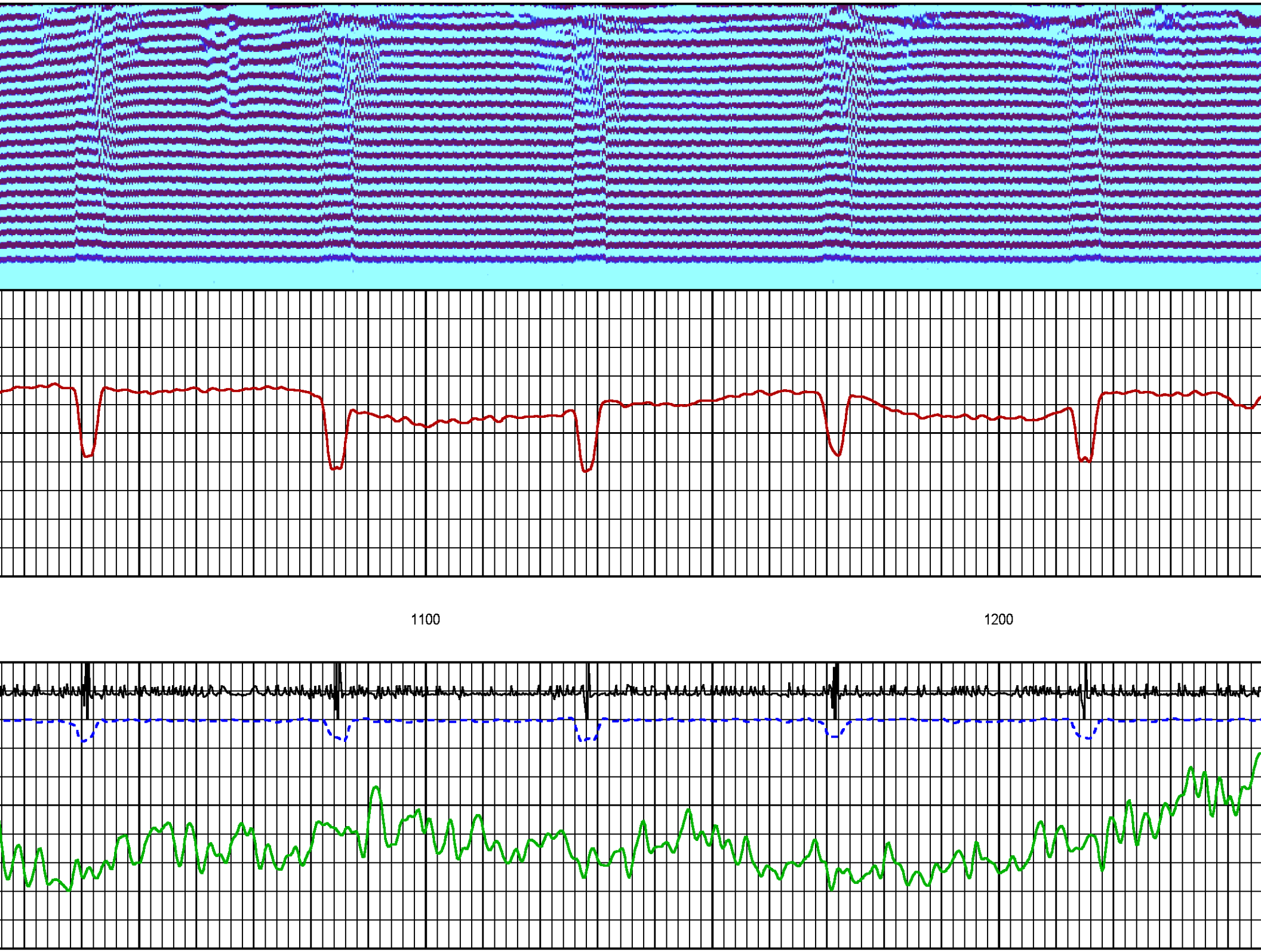
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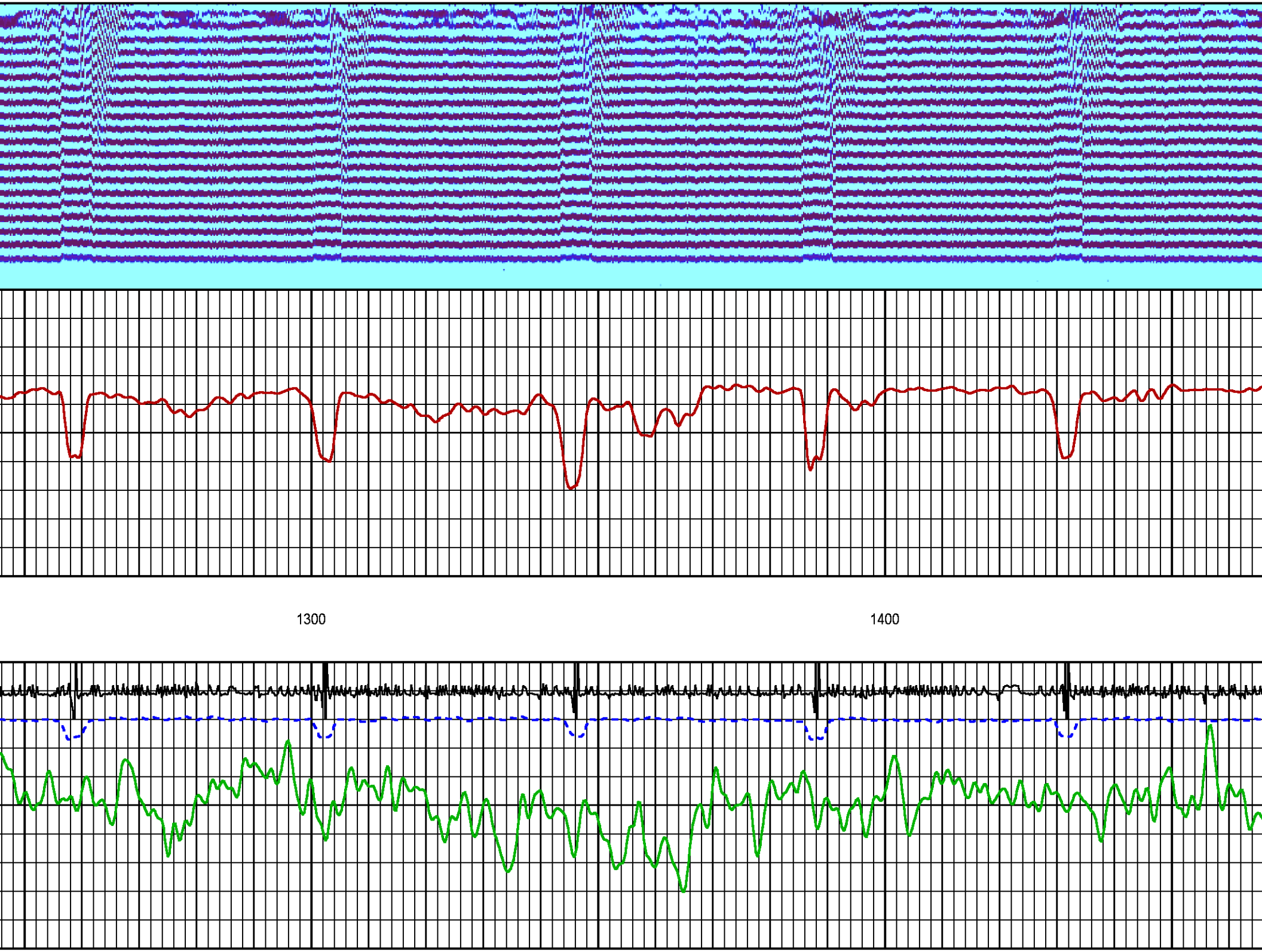
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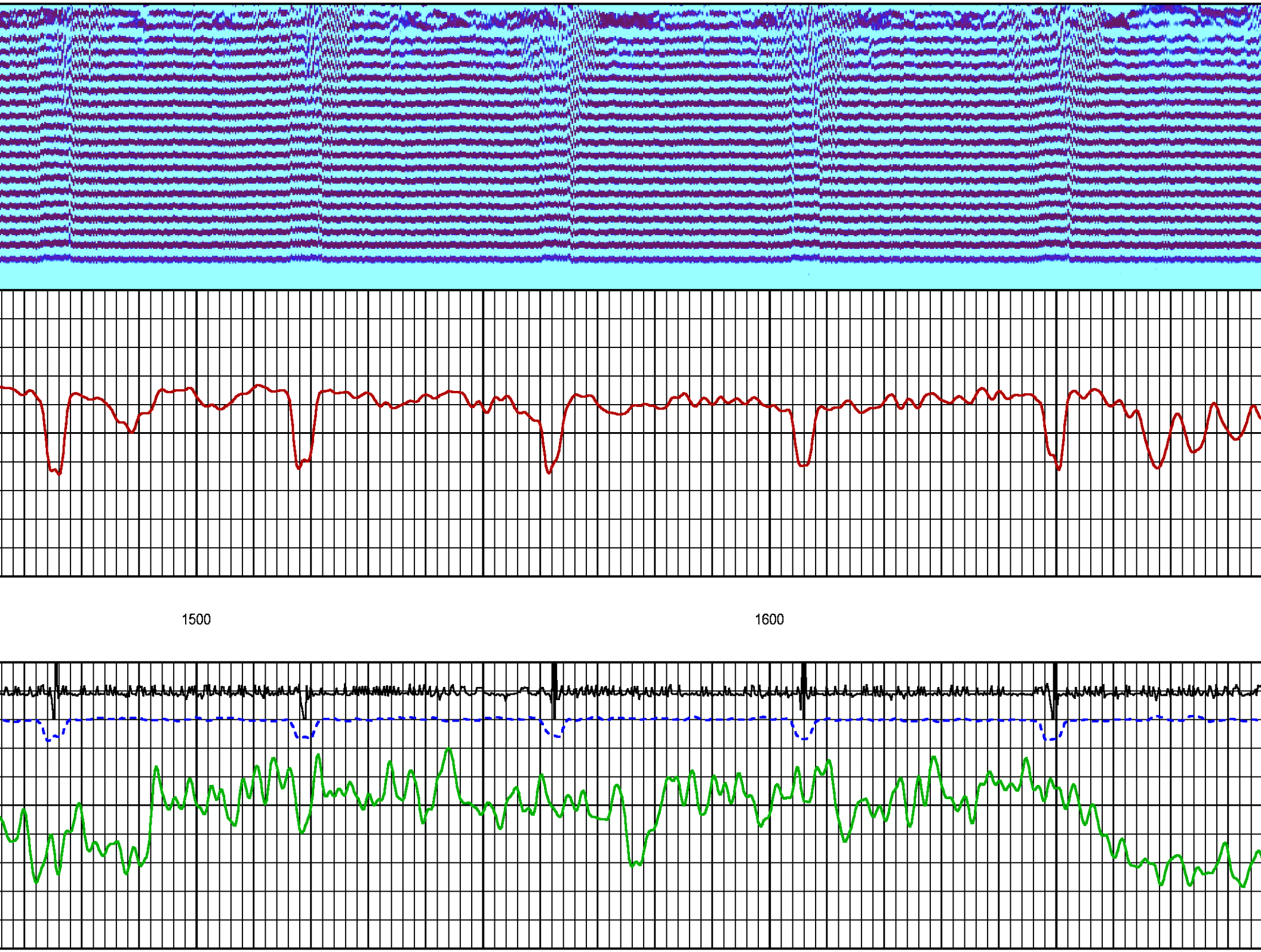
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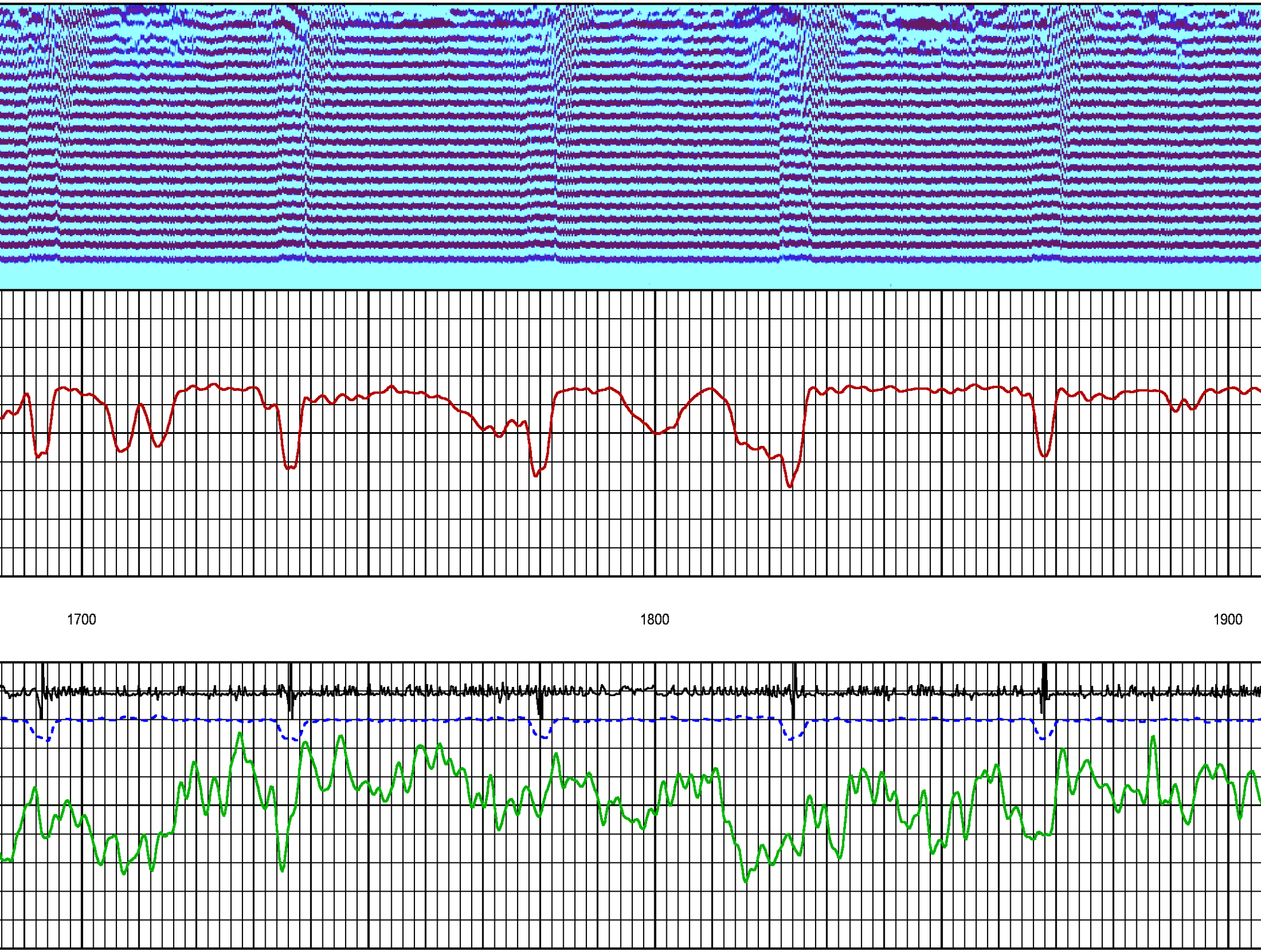
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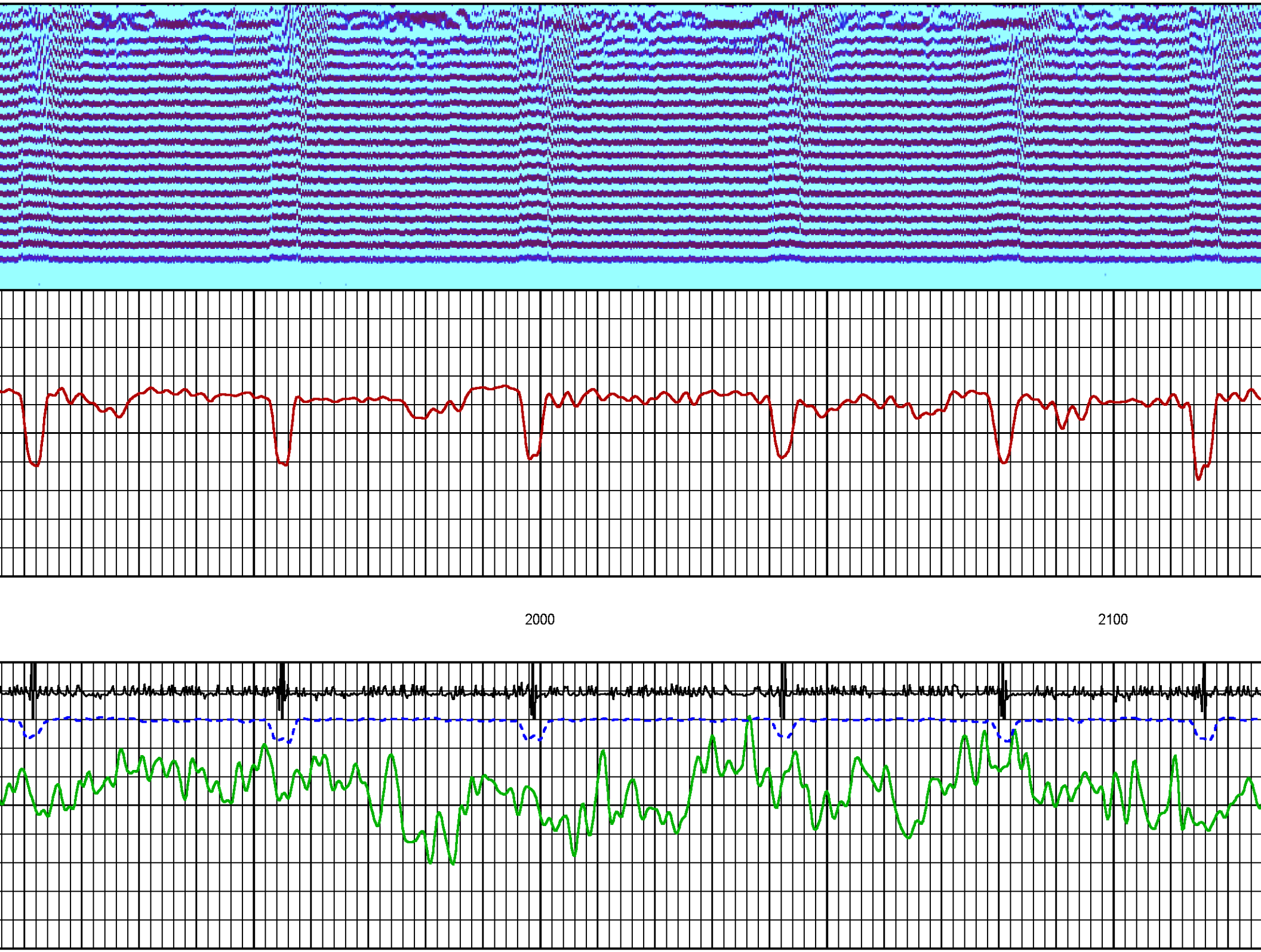
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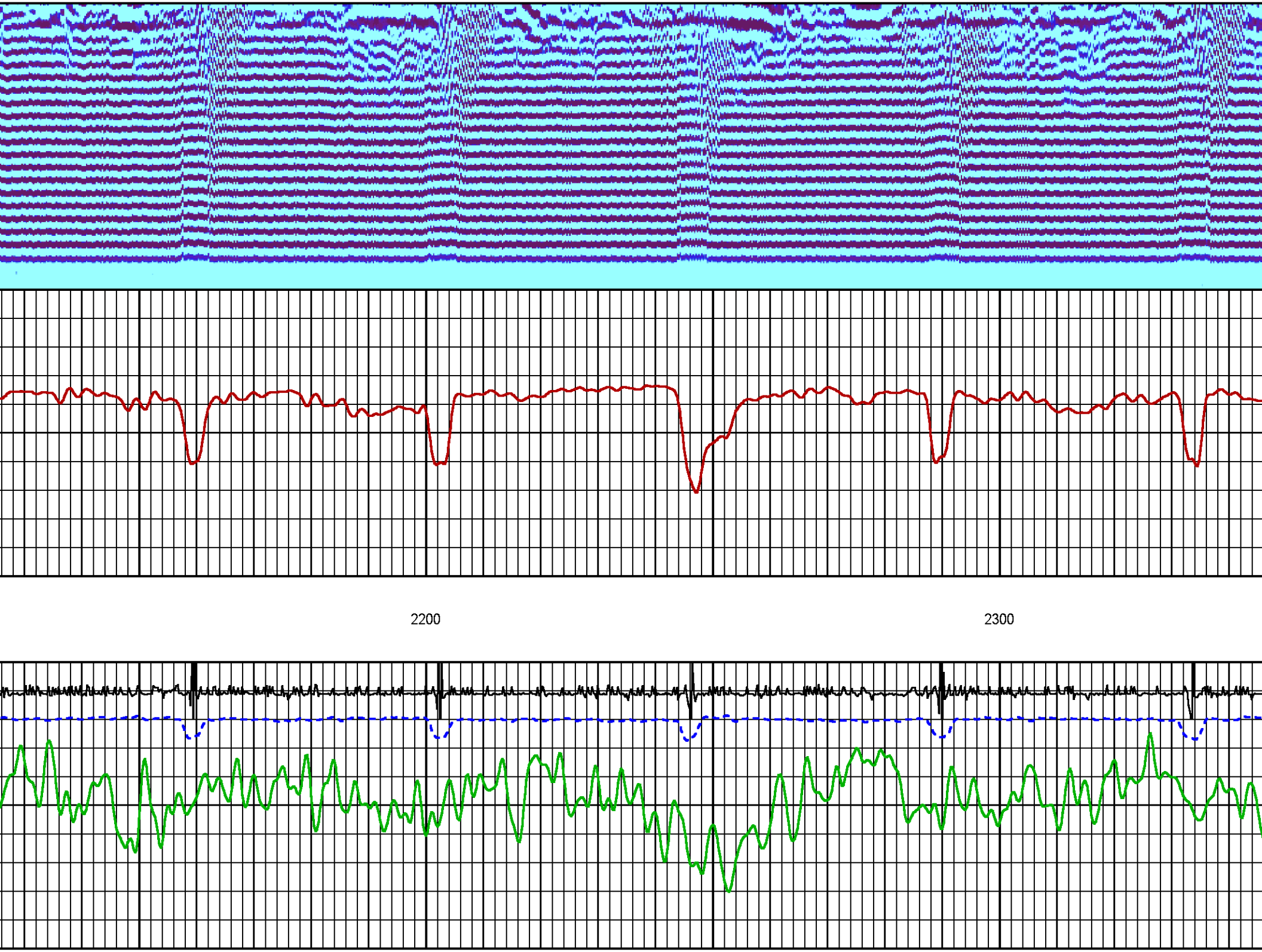
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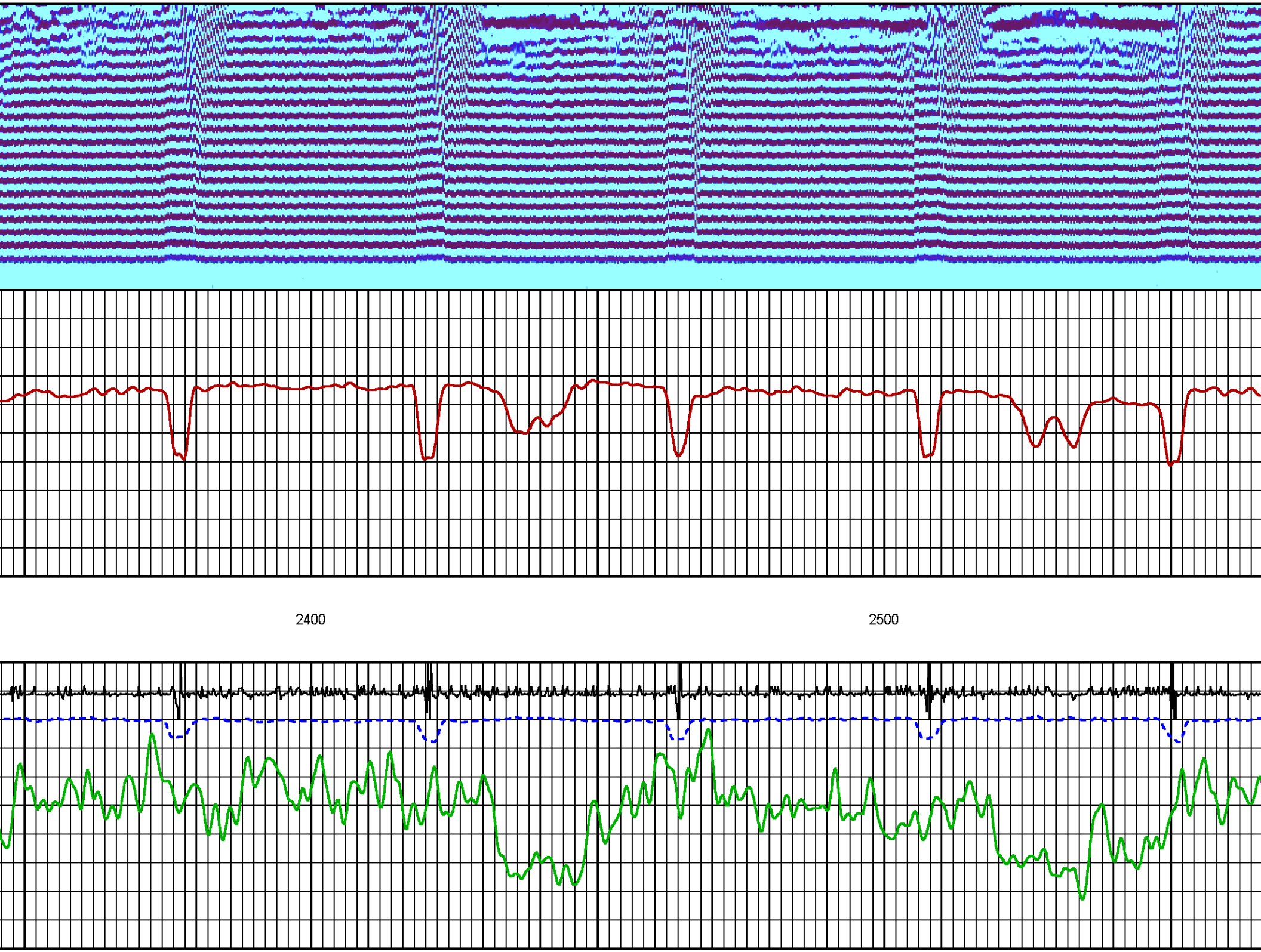
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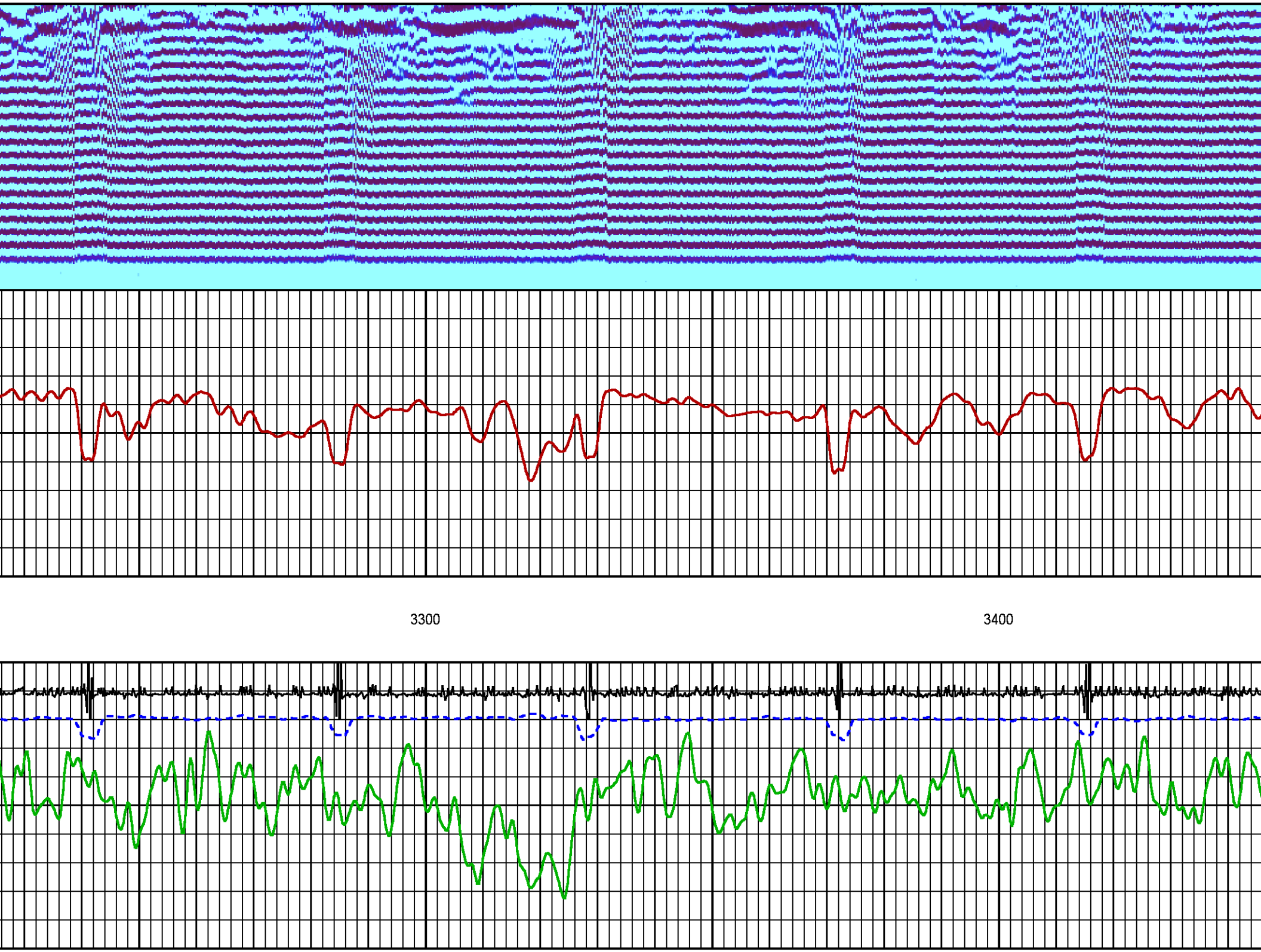
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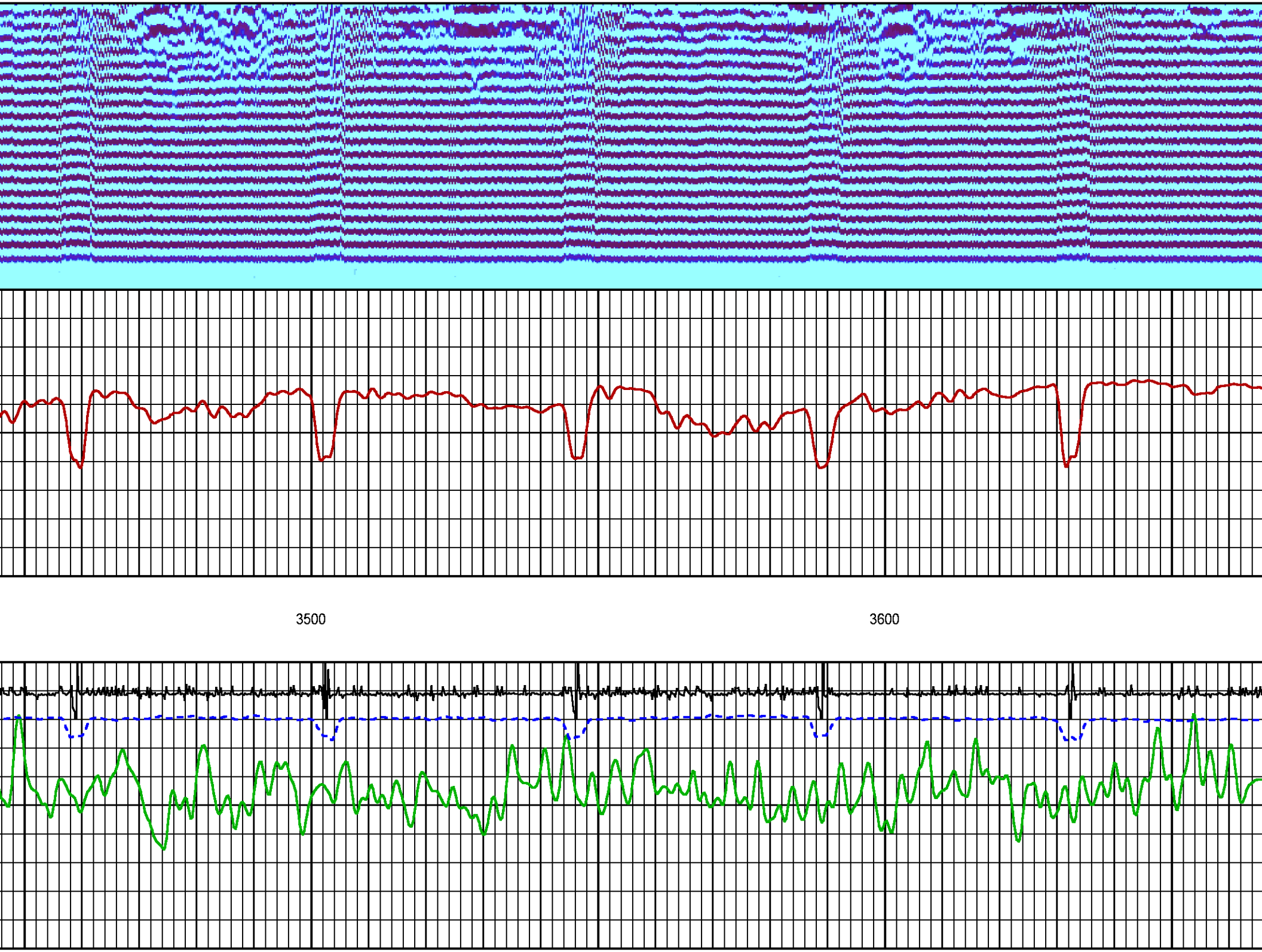
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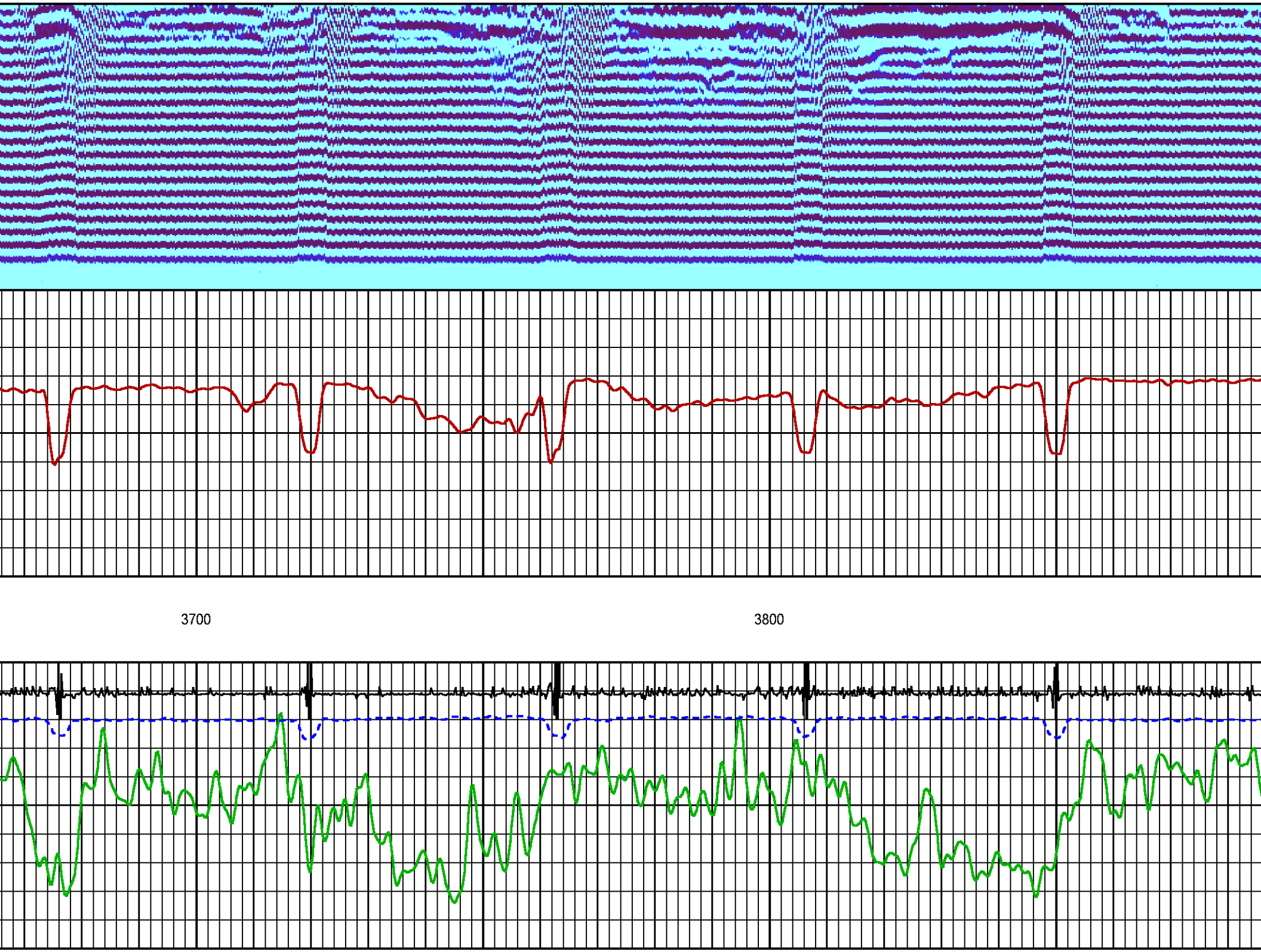
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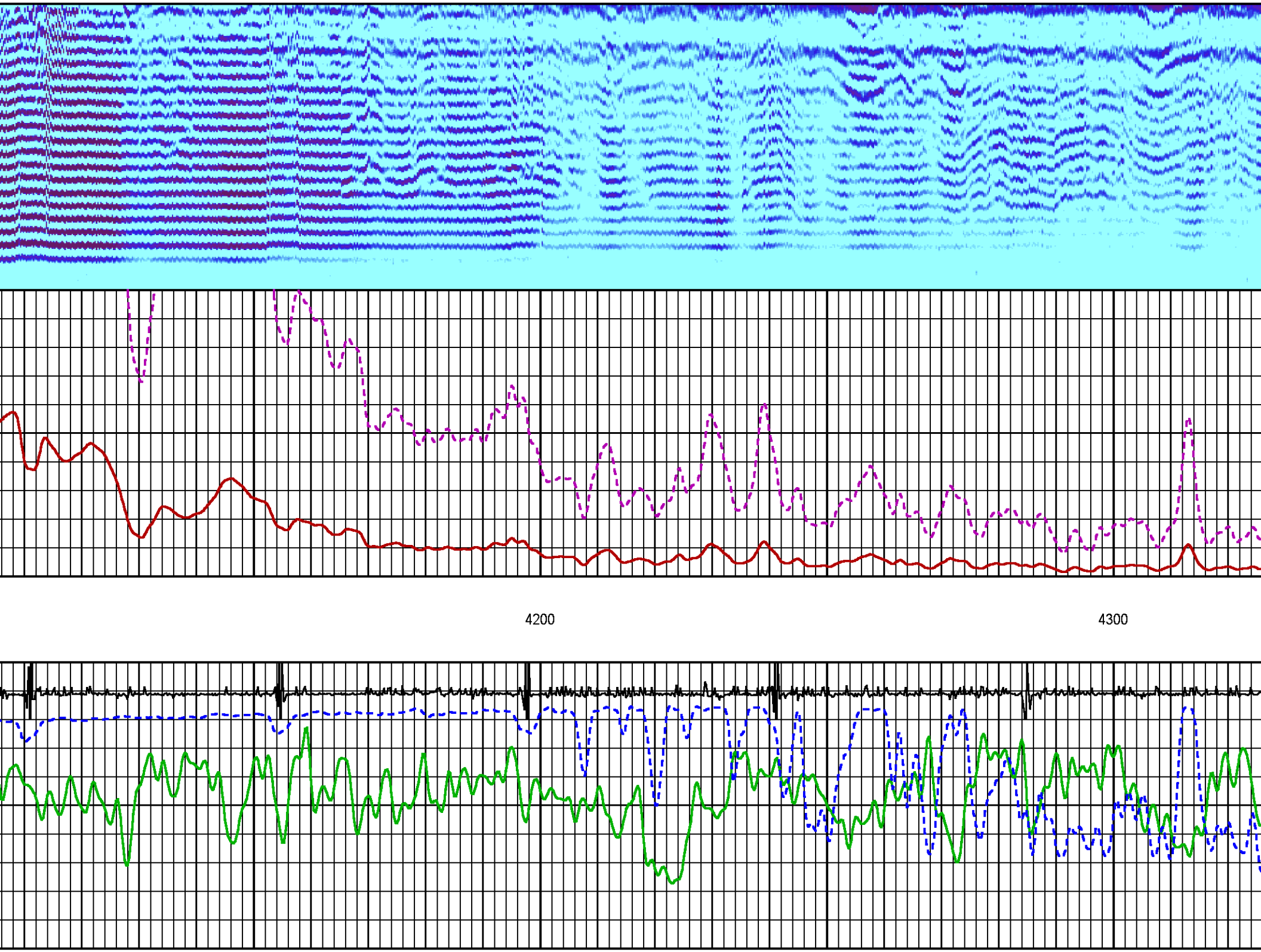
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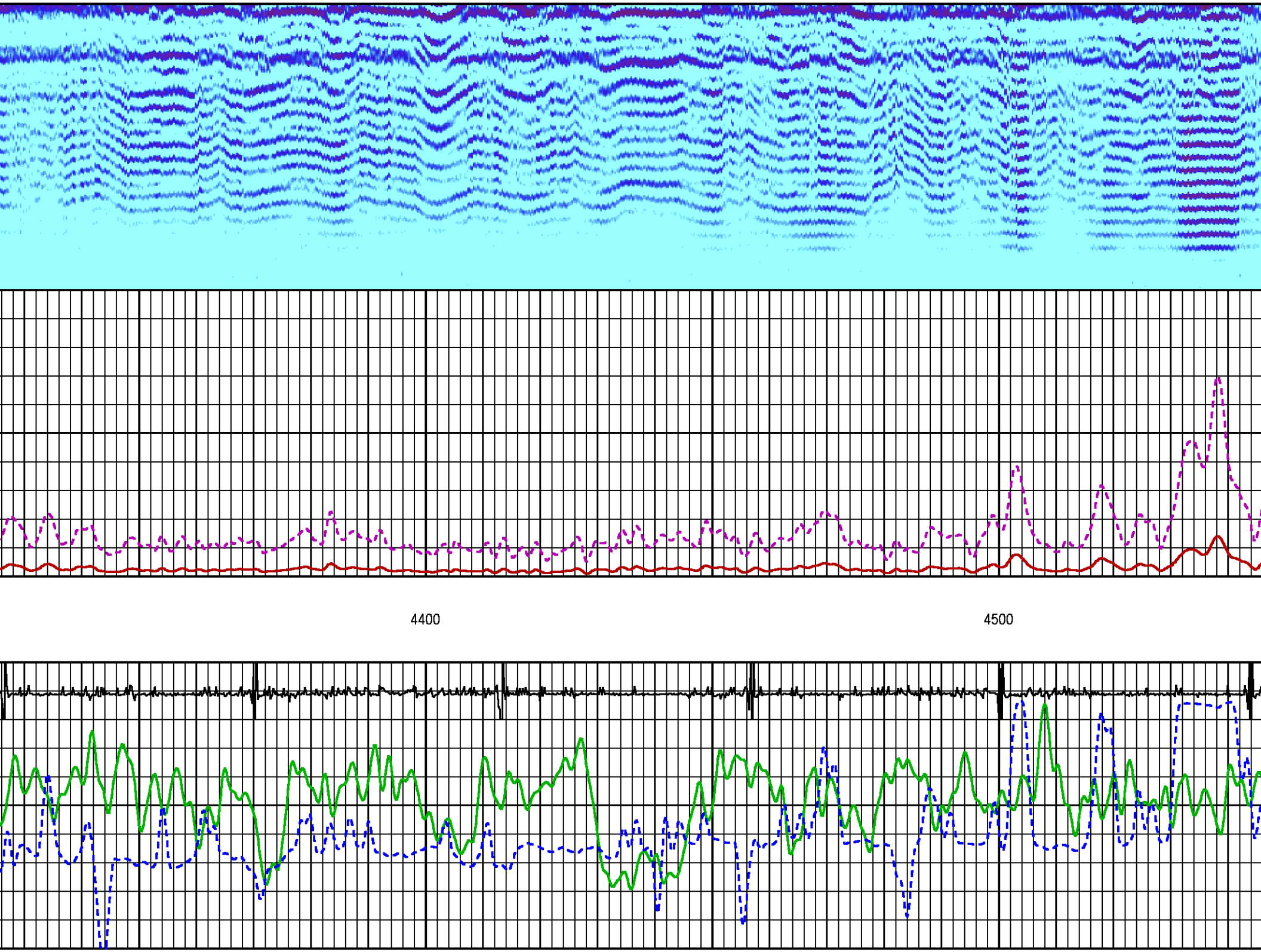
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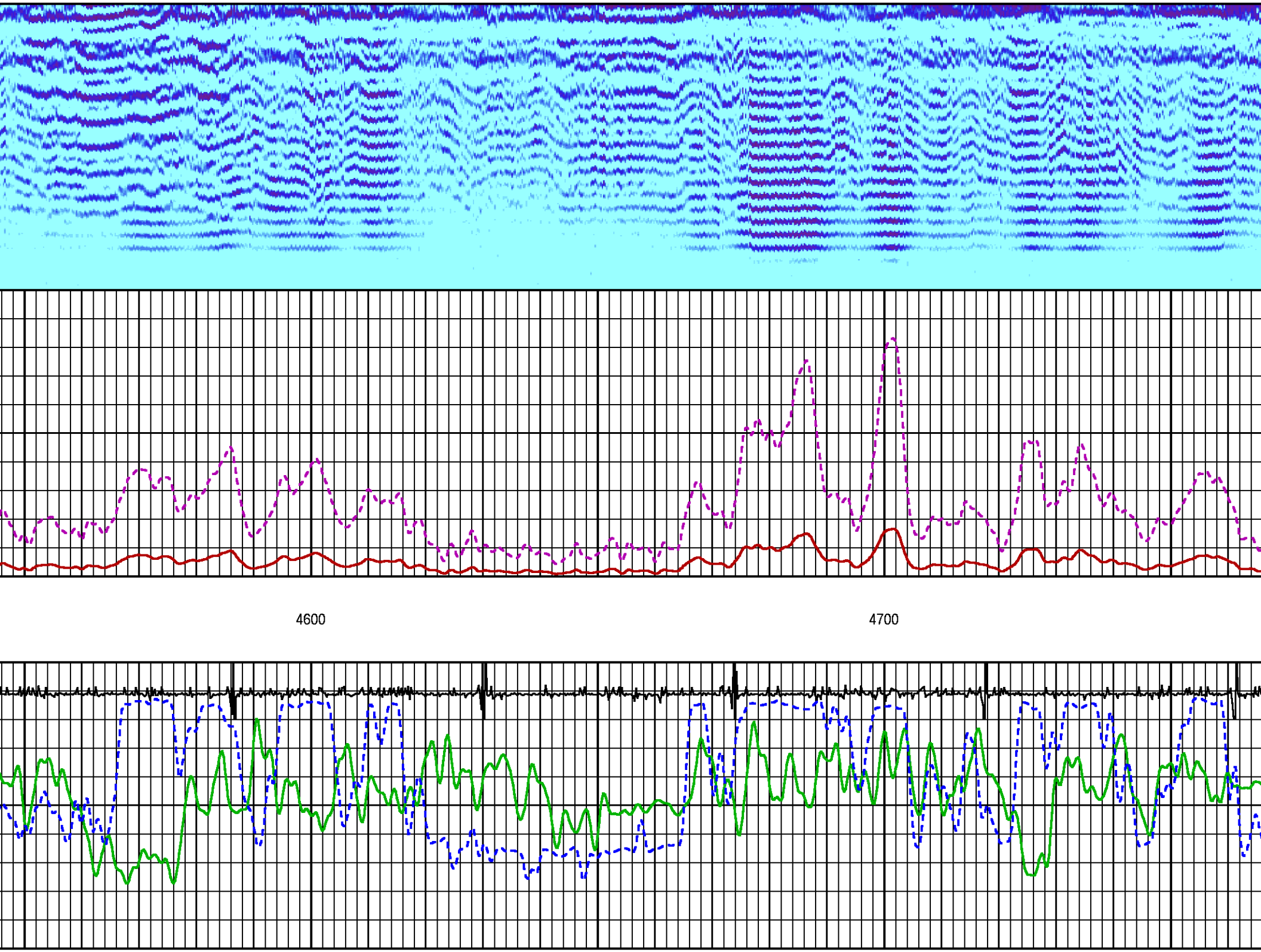
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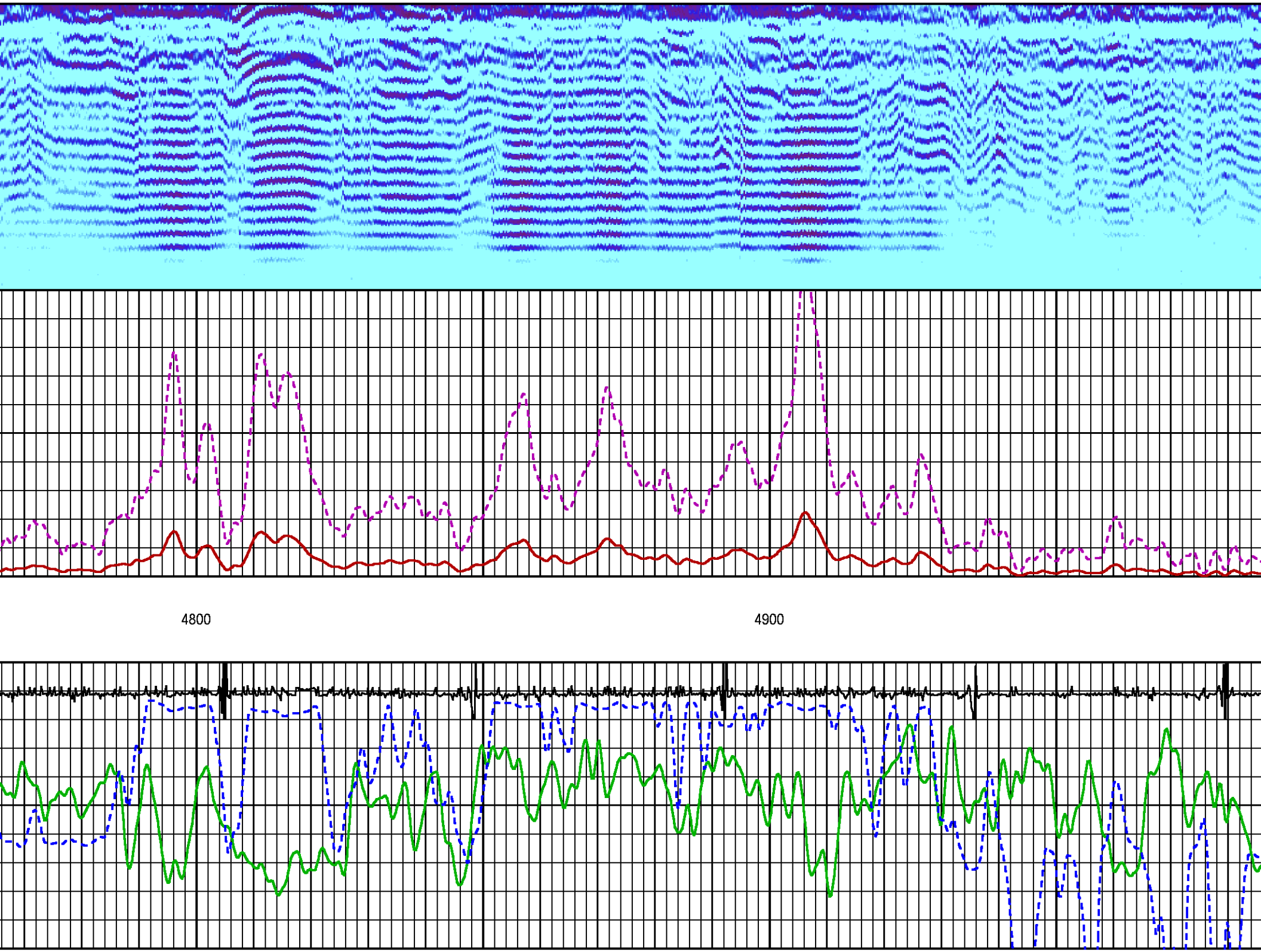
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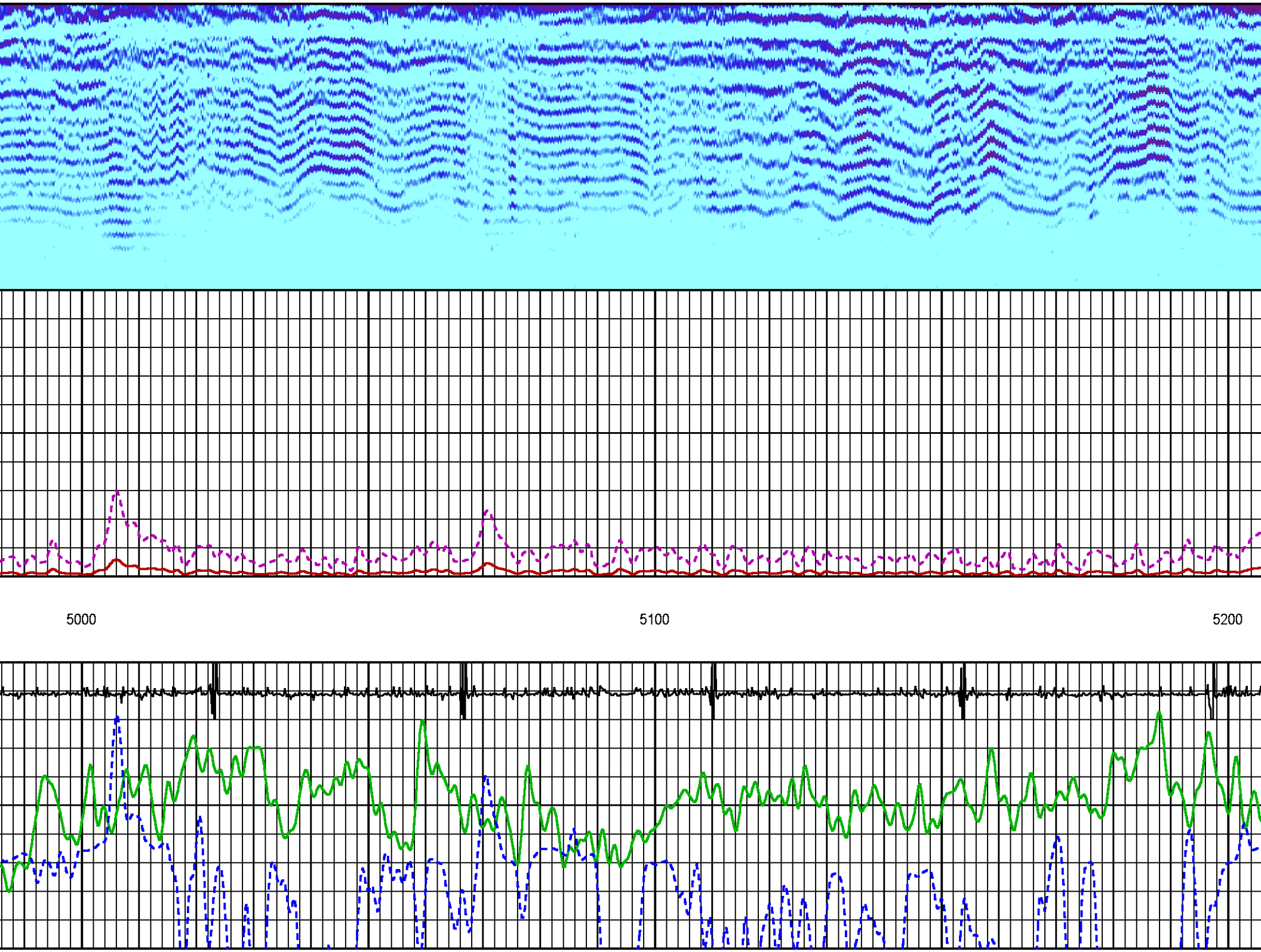
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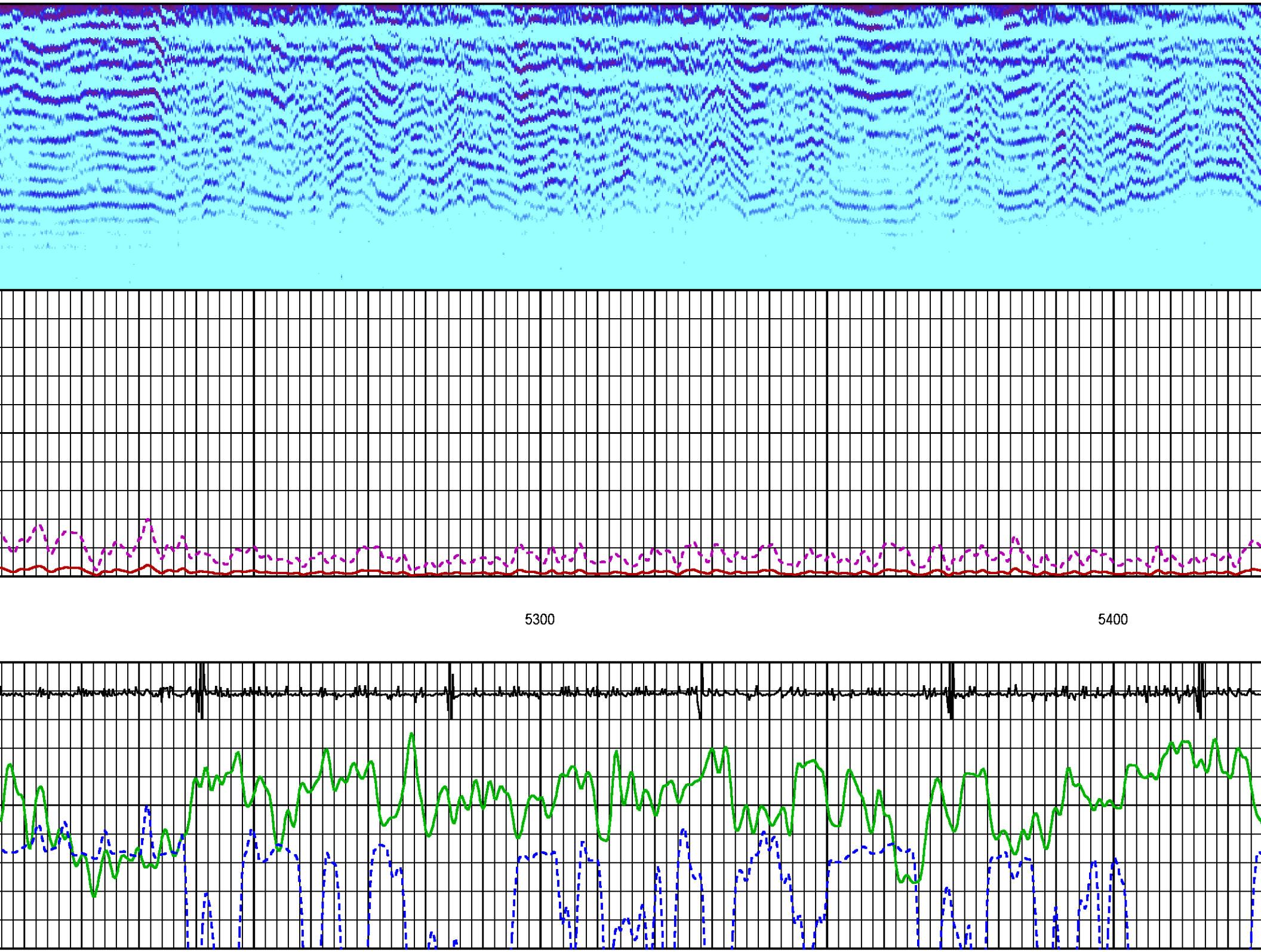
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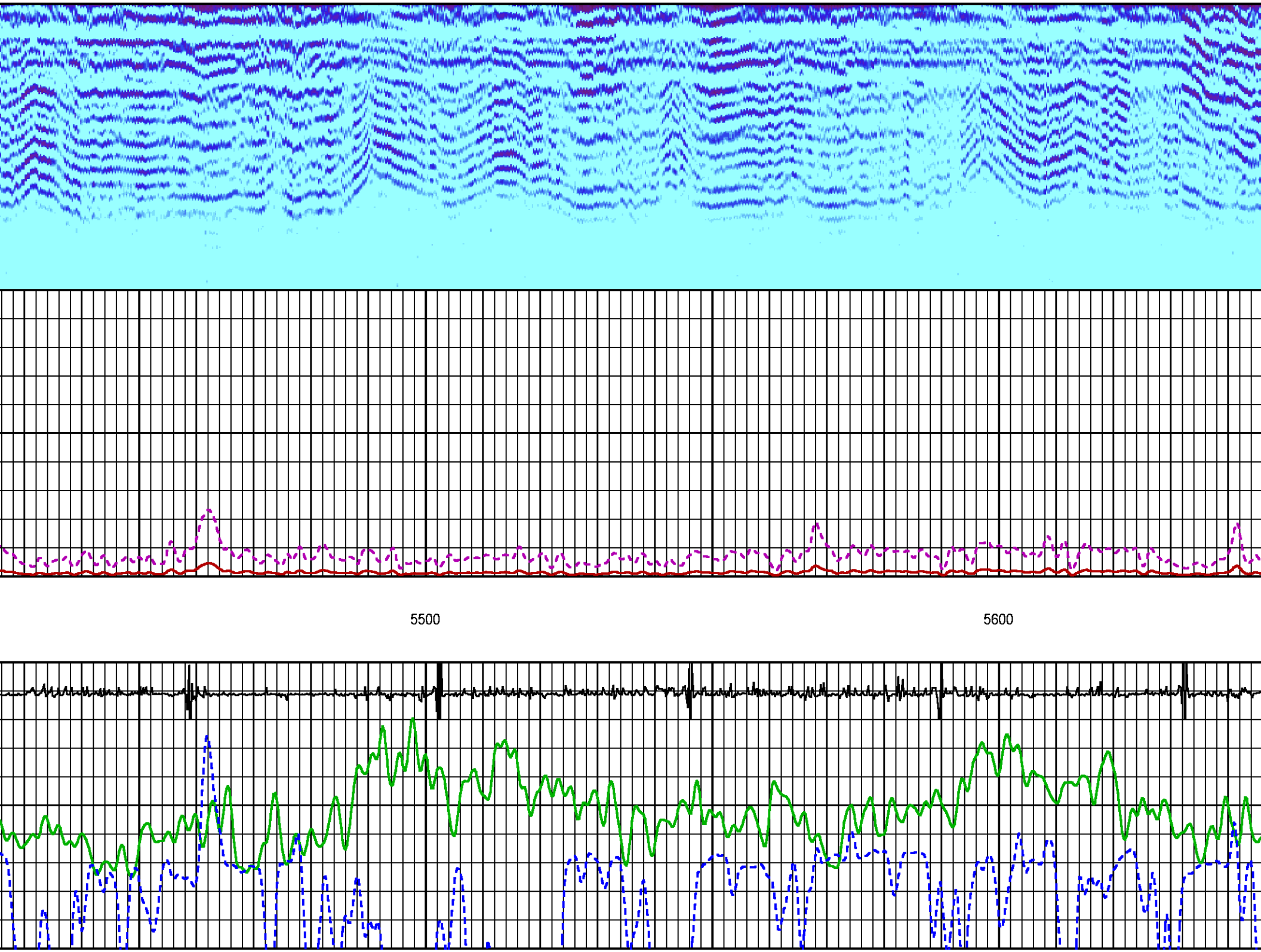
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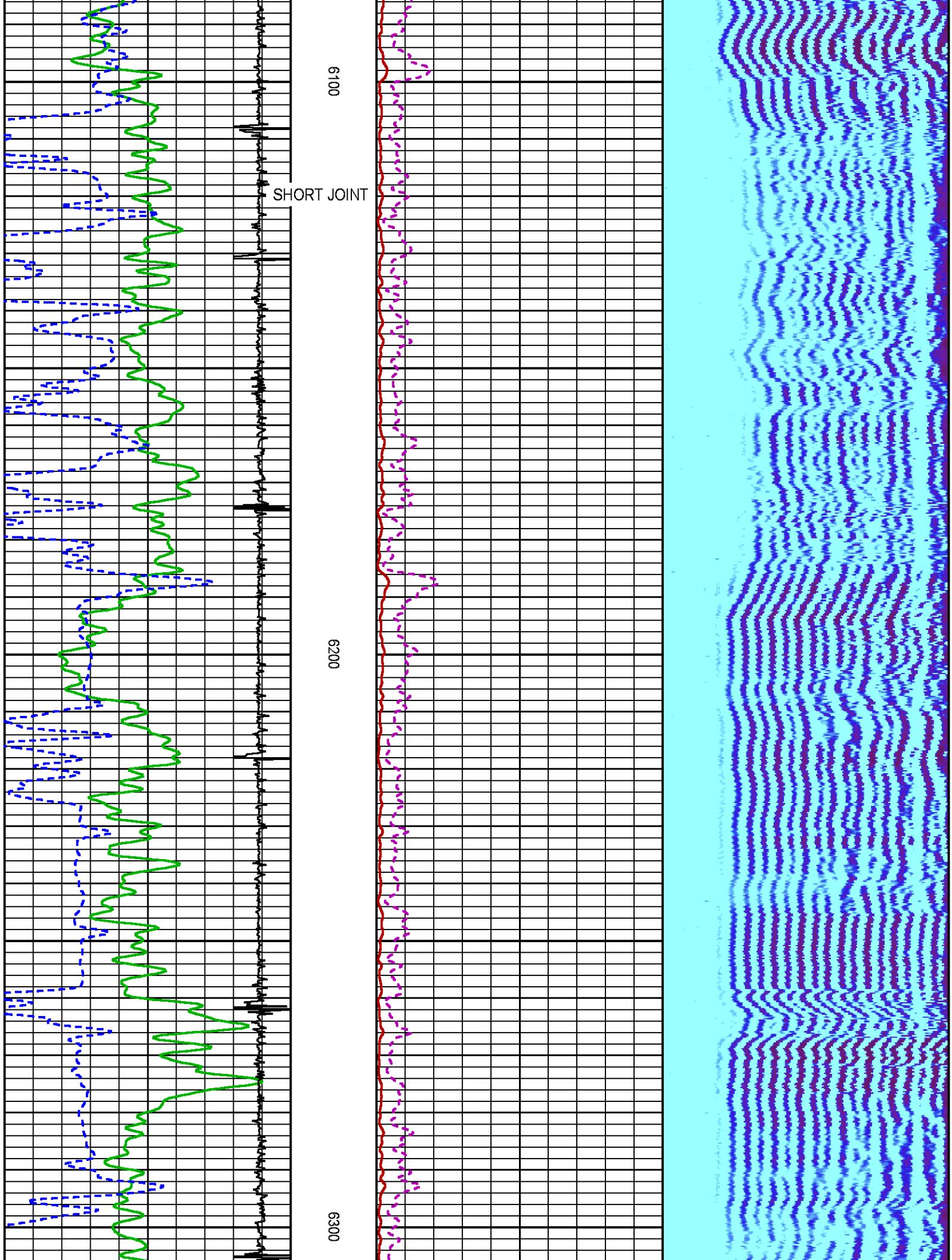
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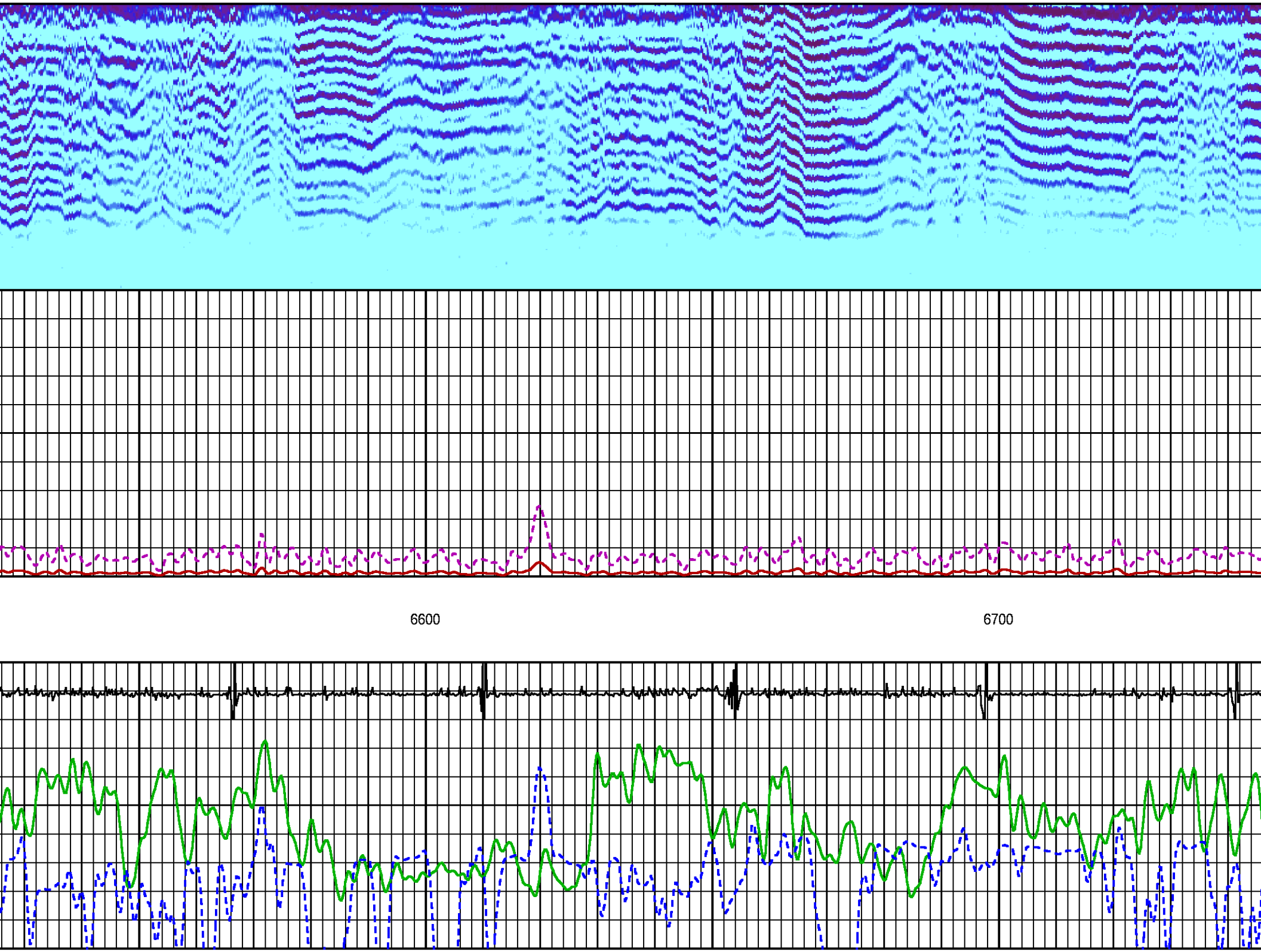
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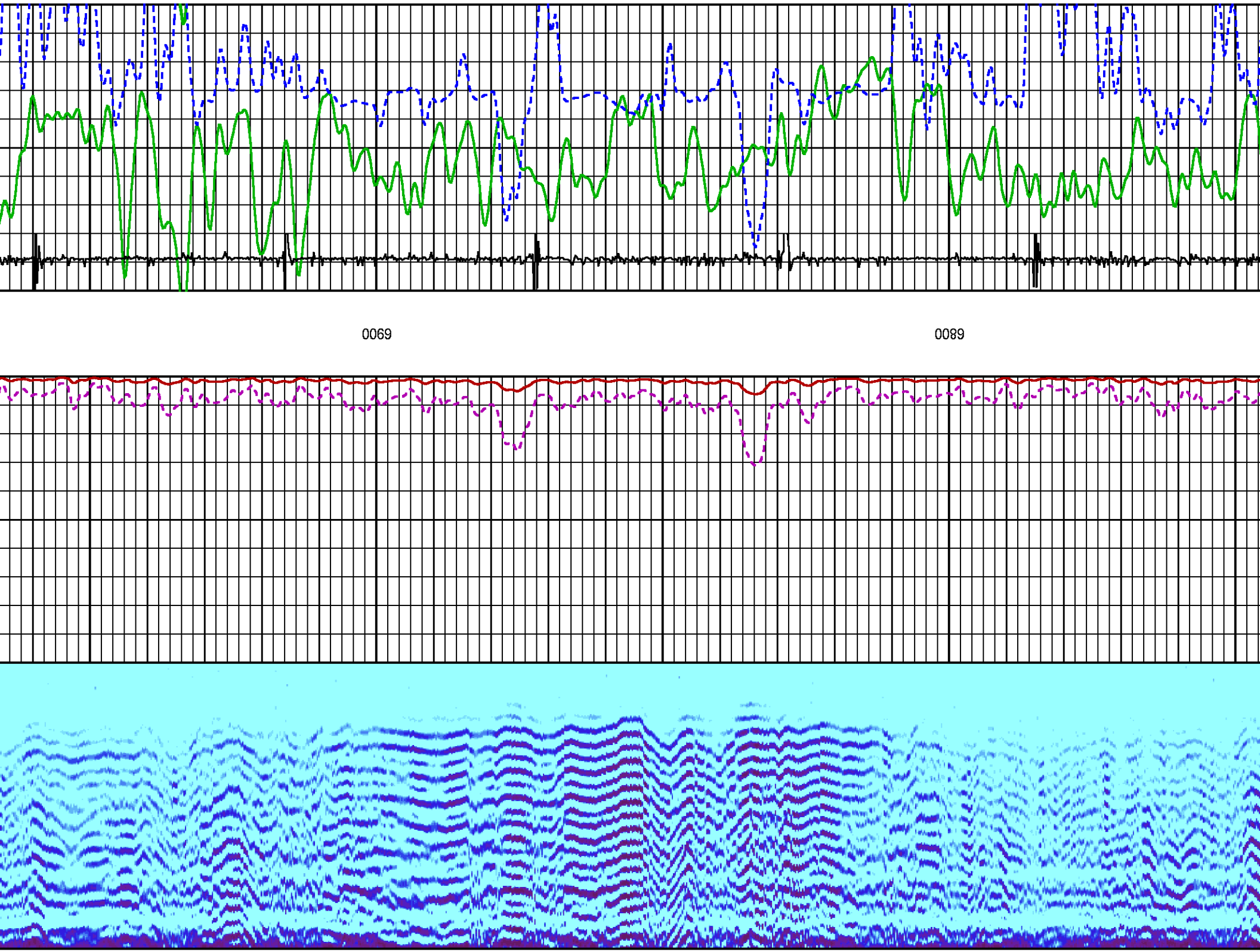
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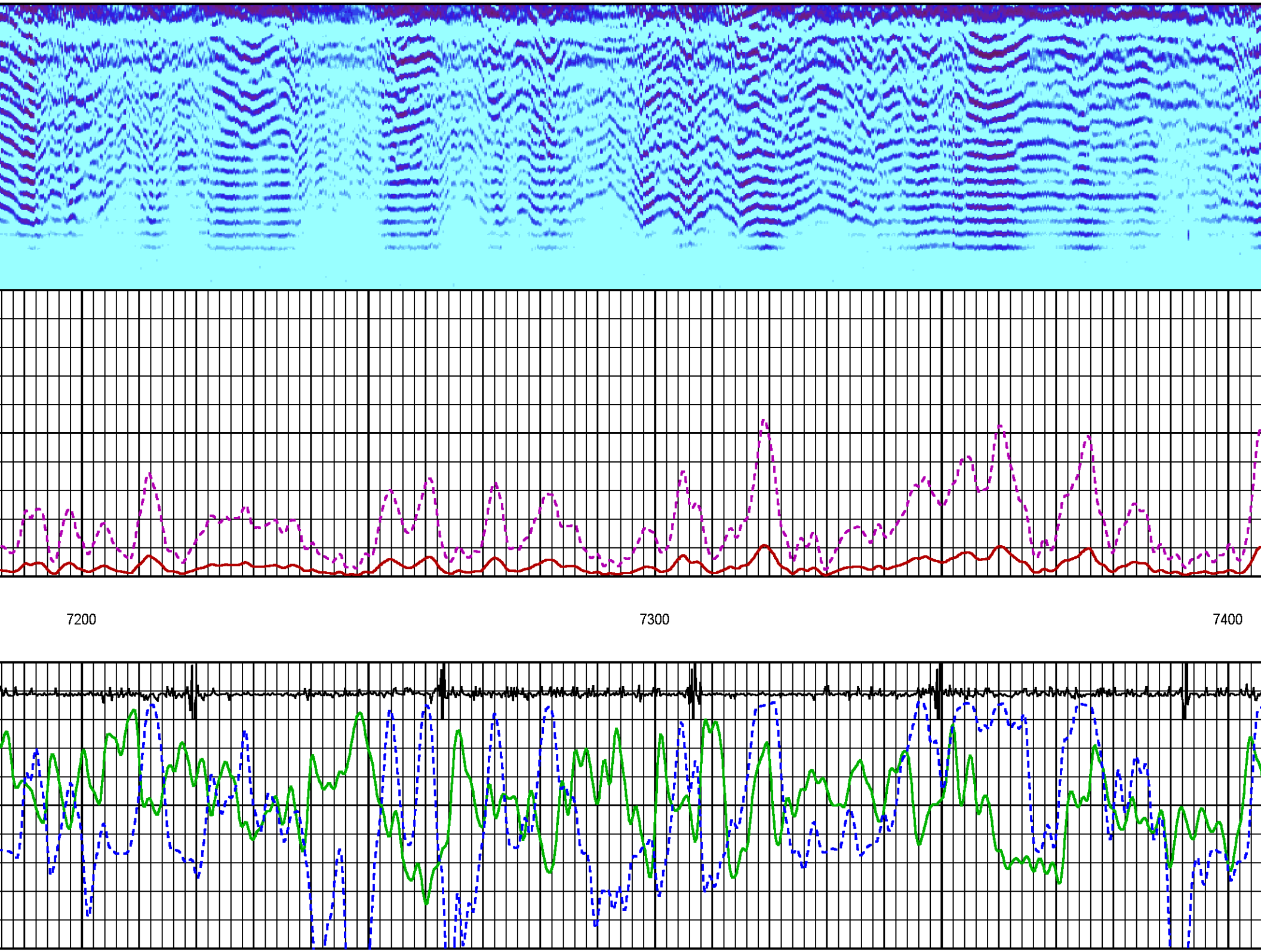
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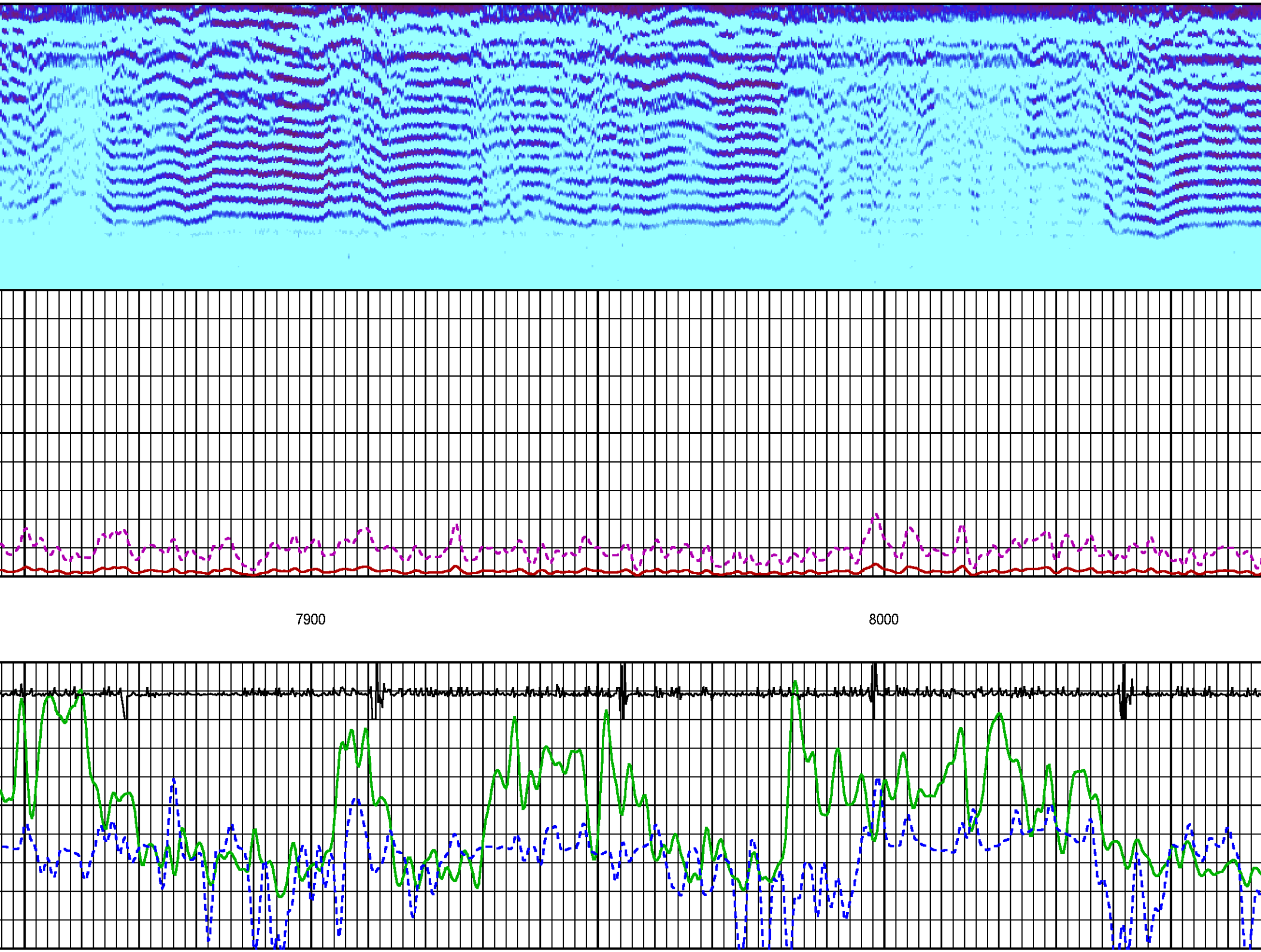
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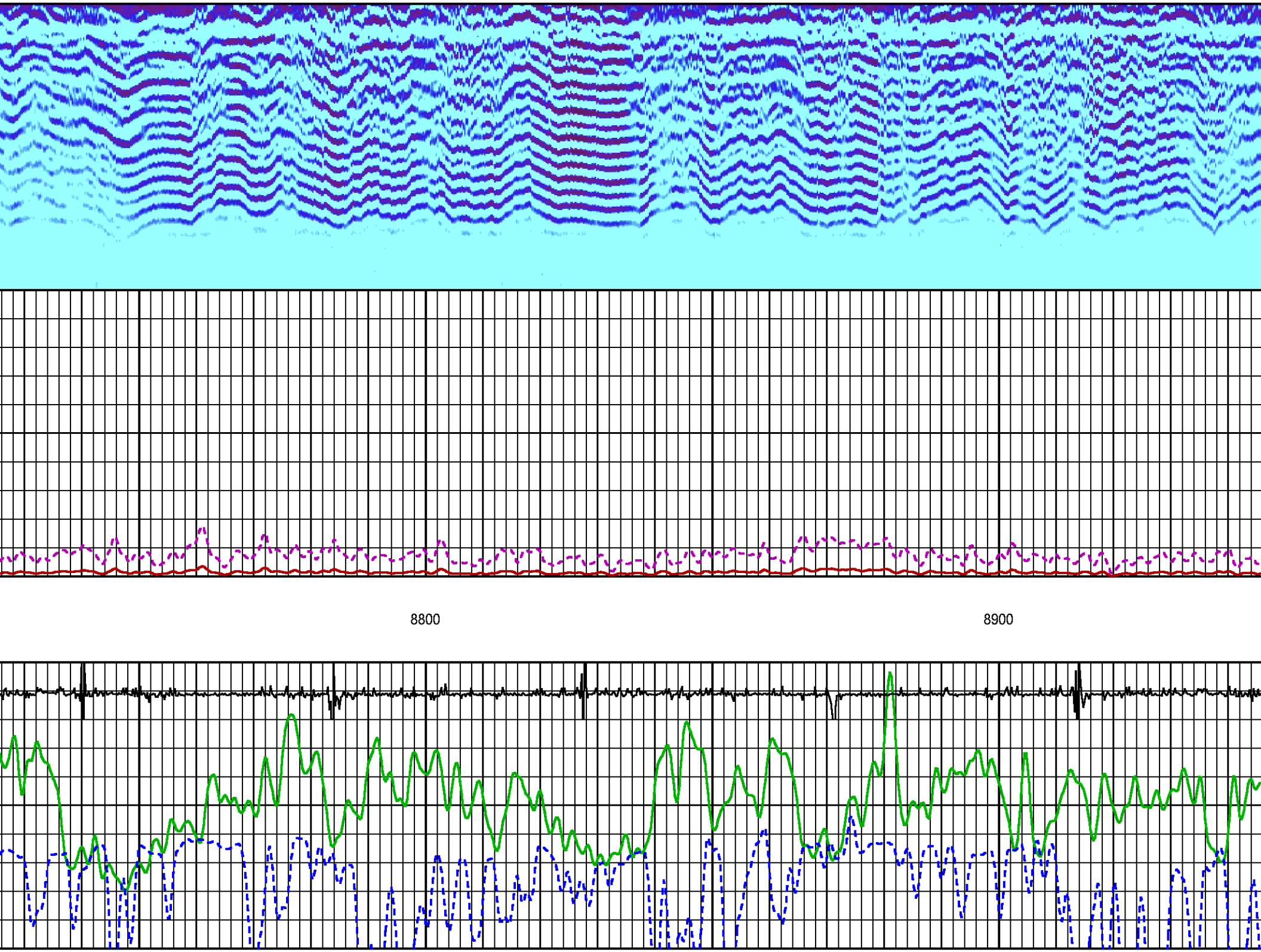
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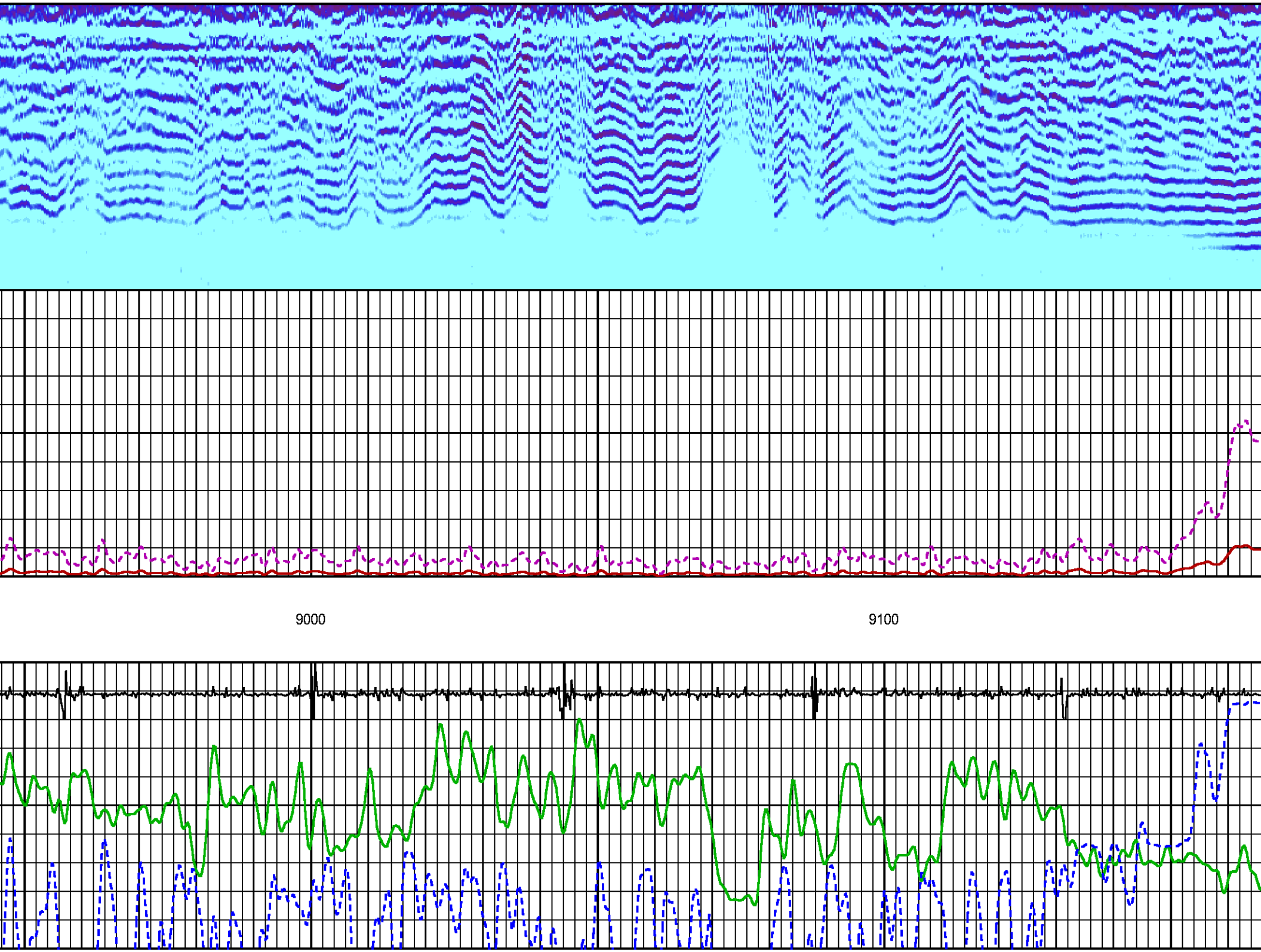
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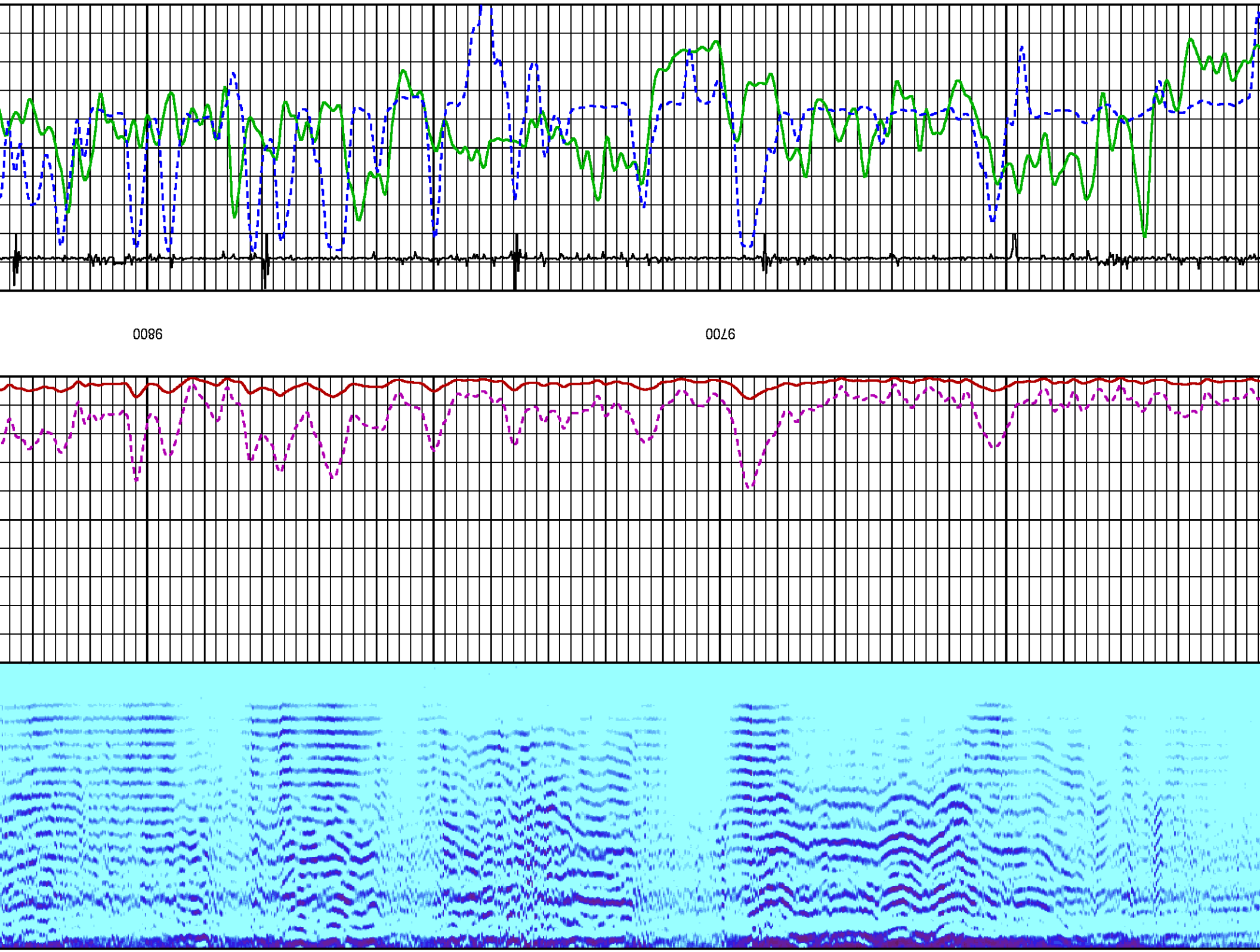
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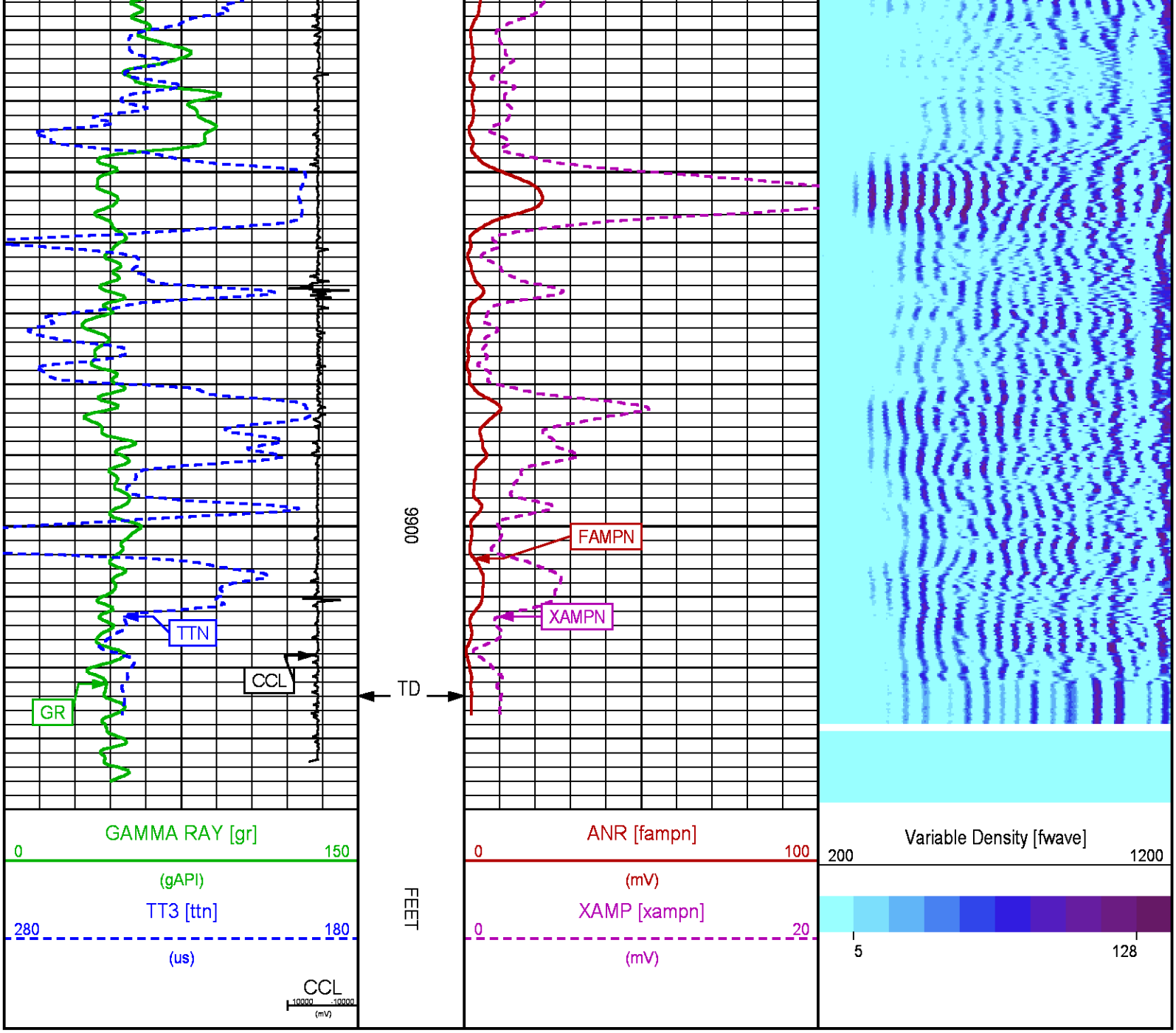


REPEAT LOG 0 PSI

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013
Updates: 1 Patches: 6

Plotted: Mon Dec 7 09:42:28 2015

PARAMETER AND FILTER SUMMARY REPORT

FILE:	/dat1a/CH101064/n012g01.prm		
LOGGING MODE:	DEPTH	DIRECTION:	UP
TOP DEPTH:	9643.250 ft	BOTTOM DEPTH:	9931.000 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ()	medium (1)		"	"
TRAVEL TIME	FILTER ()	medium (1)		"	"

RAL CCL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0		TOP	BOTTOM

ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgpn*)	187	us	TOP	BOTTOM
	AMP WINDOW LENGTH	25	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	173	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	4	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (strn*)	-72	us	"	"
BASELINE NOISE (NEAR)	NOISE WINDOW START	125	us	"	"
	NOISE WINDOW LENGTH	25	us	"	"

CURVE DESCRIPTION REPORT

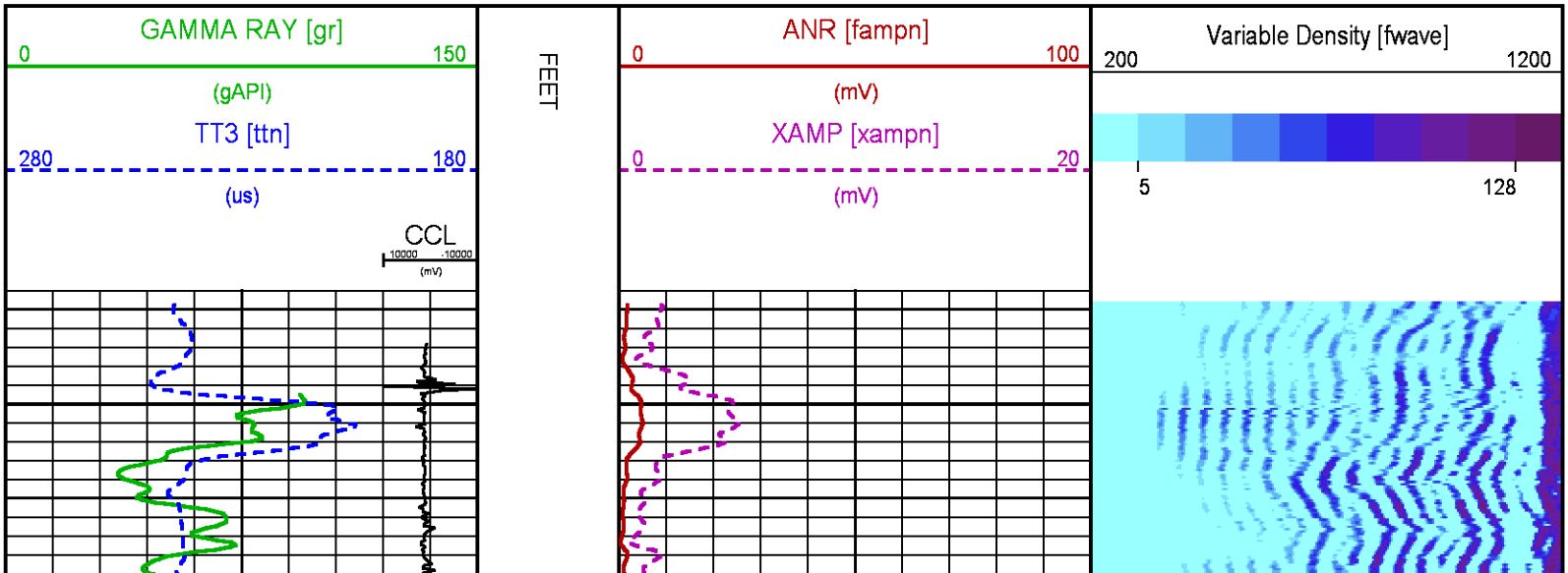
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Dec 7 08:50:34 2015	CASING COLLAR LOCATOR
F1:FAMPN	Dec 7 08:50:34 2015	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	Dec 7 08:50:34 2015	FAR WAVE FORM
F1:GR	Dec 7 08:50:34 2015	GAMMA RAY
F1:TTN	Dec 7 08:50:34 2015	TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER
F1:XAMPN	Dec 7 08:50:34 2015	FIXED GATE AMPLITUDE NEAR RECEIVER TIMES FIVE

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	5.75	GR	1.75	XAMPN	11.25		
FAMPN	11.25	TTN	11.25				

Presentation : HL6670:/dat1a/CH101064/WPX_CBL_REPEAT_PRESENTATION.fvpdf [5"/100' Scale]
Plot Interval : 9639.25 - 9936 Feet

Data File 1 : F1 : HL6670:/dat1a/CH101064/n012g01REPEAT21_8.xtf
Created On : Dec 7 08:50:34 2015
Company : WPX ENERGY
Well : FEDERAL RU 21-8
Field : RUILISON
File Interval : 9638.25 - 9937.5 Feet
OCT : n012g



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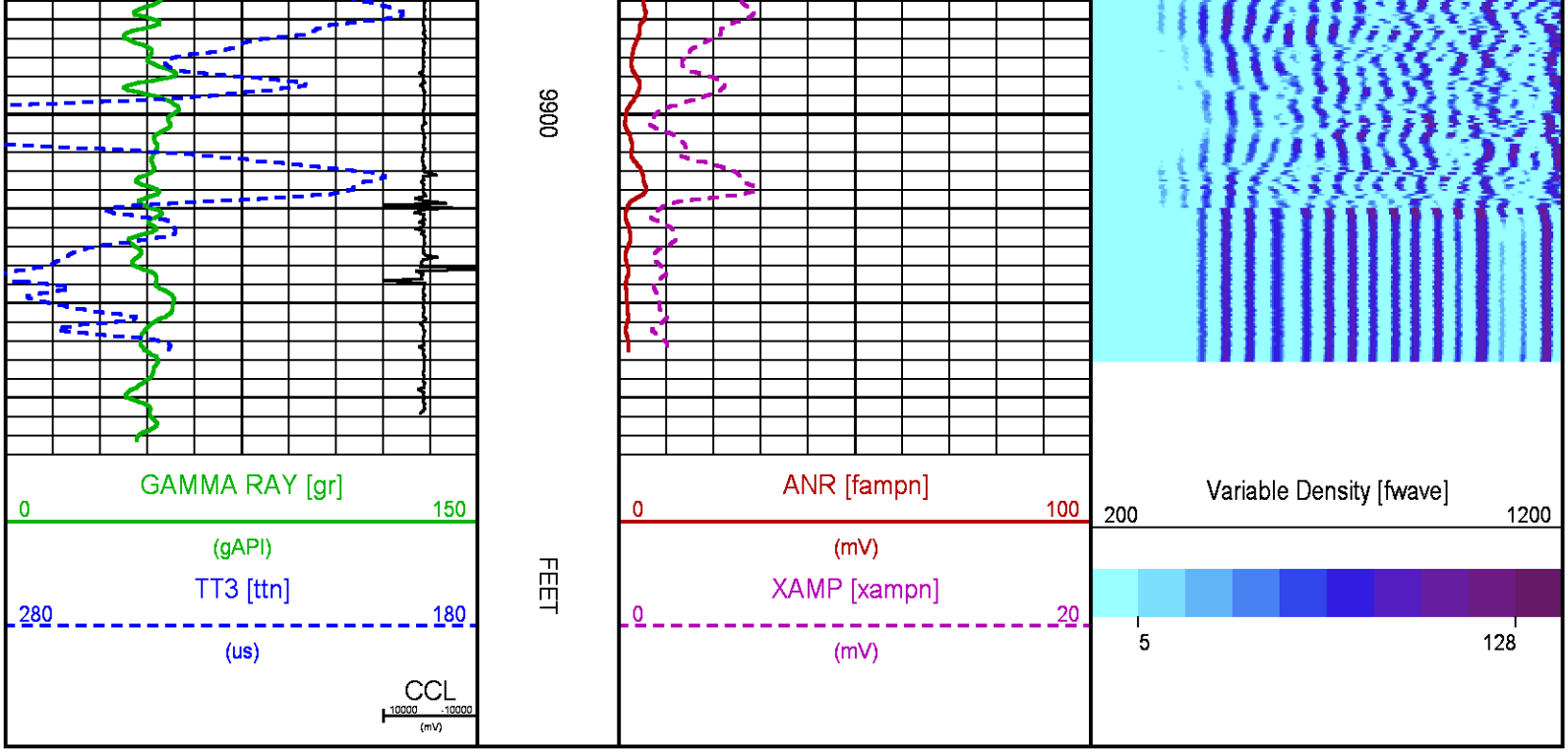


SECONDARY PRESENTATION 0 PSI

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013
Updates: 1 Patches: 6

Plotted: Mon Dec 7 11:41:52 2015

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/CH101064/n012g03.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 6.750 ft BOTTOM DEPTH: 8823.250 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ()	medium (1)		"	"
TRAVEL TIME	FILTER ()	medium (1)		"	"

RAL CCL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0		TOP	BOTTOM

ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	187	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	187	us	"	"
	AMP WINDOW START (fgp3*)	187	us	"	"
	AMP WINDOW START (fgp4*)	187	us	"	"
	AMP WINDOW START (fgp5*)	187	us	"	"
	AMP WINDOW START (fgp6*)	187	us	"	"
	AMP WINDOW START (fgp7*)	187	us	"	"
	AMP WINDOW START (fgp8*)	187	us	"	"

	AMP WINDOW START (fgpn*)	187	us	"	"
	AMP WINDOW LENGTH	25	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	173	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	4	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-72	us	"	"
	TOOL DELAY (str2*)	-72	us	"	"
	TOOL DELAY (str3*)	-72	us	"	"
	TOOL DELAY (str4*)	-72	us	"	"
	TOOL DELAY (str5*)	-72	us	"	"
	TOOL DELAY (str6*)	-72	us	"	"
	TOOL DELAY (str7*)	-72	us	"	"
	TOOL DELAY (str8*)	-72	us	"	"
	TOOL DELAY (strn*)	-72	us	"	"
BASELINE NOISE (NEAR)	NOISE WINDOW START	125	us	"	"
	NOISE WINDOW LENGTH	25	us	"	"

PERCENT BOND CEMENT MAP

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RAL FREE PIPE AMPLITUDE	FREE AMP REC 1	80	mV	TOP	BOTTOM
	FREE AMP REC 2	80	mV	"	"
	FREE AMP REC 3	80	mV	"	"
	FREE AMP REC 4	80	mV	"	"
	FREE AMP REC 5	80	mV	"	"
	FREE AMP REC 6	80	mV	"	"
	FREE AMP REC 7	80	mV	"	"
	FREE AMP REC 8	80	mV	"	"
RAL FULL BOND AMPLITUDE	FULL BOND AMP REC 1	2	mV	"	"
	FULL BOND AMP REC 2	2	mV	"	"
	FULL BOND AMP REC 3	2	mV	"	"
	FULL BOND AMP REC 4	2	mV	"	"
	FULL BOND AMP REC 5	2	mV	"	"
	FULL BOND AMP REC 6	2	mV	"	"
	FULL BOND AMP REC 7	2	mV	"	"
	FULL BOND AMP REC 8	2	mV	"	"

CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	Dec 7 09:33:31 2015	FIXED GATE AMPLITUDE T-R1
F1:AR2	Dec 7 09:33:31 2015	FIXED GATE AMPLITUDE T-R2
F1:AR3	Dec 7 09:33:31 2015	FIXED GATE AMPLITUDE T-R3
F1:AR4	Dec 7 09:33:31 2015	FIXED GATE AMPLITUDE T-R4
F1:AR5	Dec 7 09:33:31 2015	FIXED GATE AMPLITUDE T-R5
F1:AR6	Dec 7 09:33:31 2015	FIXED GATE AMPLITUDE T-R6
F1:AR7	Dec 7 09:33:31 2015	FIXED GATE AMPLITUDE T-R7
F1:AR8	Dec 7 09:33:31 2015	FIXED GATE AMPLITUDE T-R8
F1:CCL	Dec 7 09:33:31 2015	CASING COLLAR LOCATOR
F1:FAMPN	Dec 7 09:33:31 2015	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	Dec 7 09:33:31 2015	FAR WAVE FORM
F1:GR	Dec 7 09:33:31 2015	GAMMA RAY
F1:PBMAP	Dec 7 09:33:31 2015	PERCENT BOND CEMENT MAP
F1:TTN	Dec 7 09:33:31 2015	TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER
F1:XAMPN	Dec 7 09:33:31 2015	FIXED GATE AMPLITUDE NEAR RECEIVER TIMES FIVE

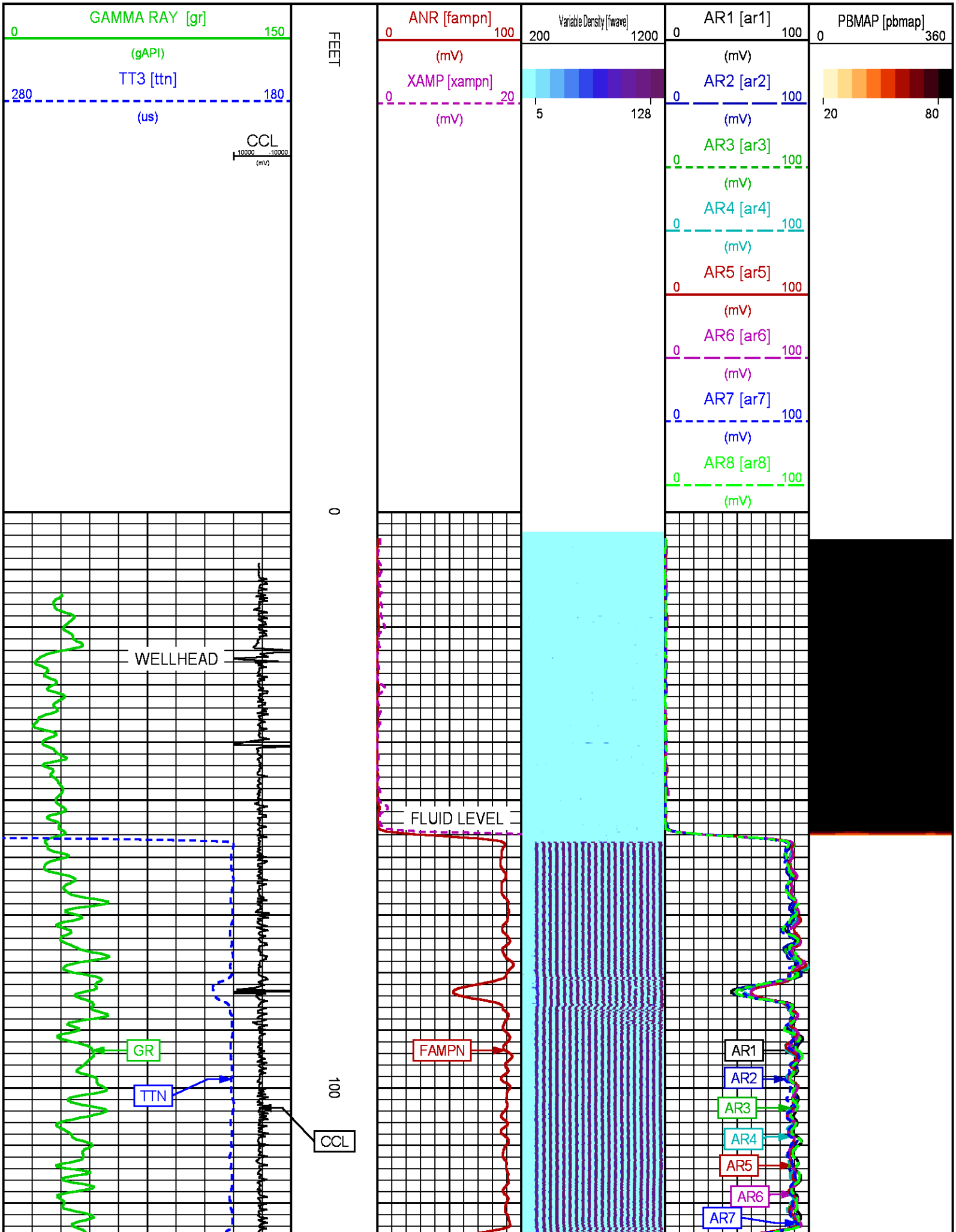
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
AR1	11.25	AR5	11.25	CCL	5.75	XAMPN	11.25
AR2	11.25	AR6	11.25	FAMPN	11.25		
AR3	11.25	AR7	11.25	GR	1.75		
AR4	11.25	AR8	11.25	TTN	11.25		

Presentation : HL6670:/dat1a/CH101064/WPX_CBL_SECONDARY_PRESENTATION.fvpdf [5"/100' Scale]
Plot Interval : 0 - 9929 Feet

Data File 1 : F1 : HL6670:/dat1a/CH101064/FEDRU218s.xtf
Created On : Dec 7 09:33:31 2015
Company : WPX ENERGY
Well : FEDERAL RU 21-8
Field : RUILISON
File Interval : 3.5 - 9939 Feet

OCT : n012g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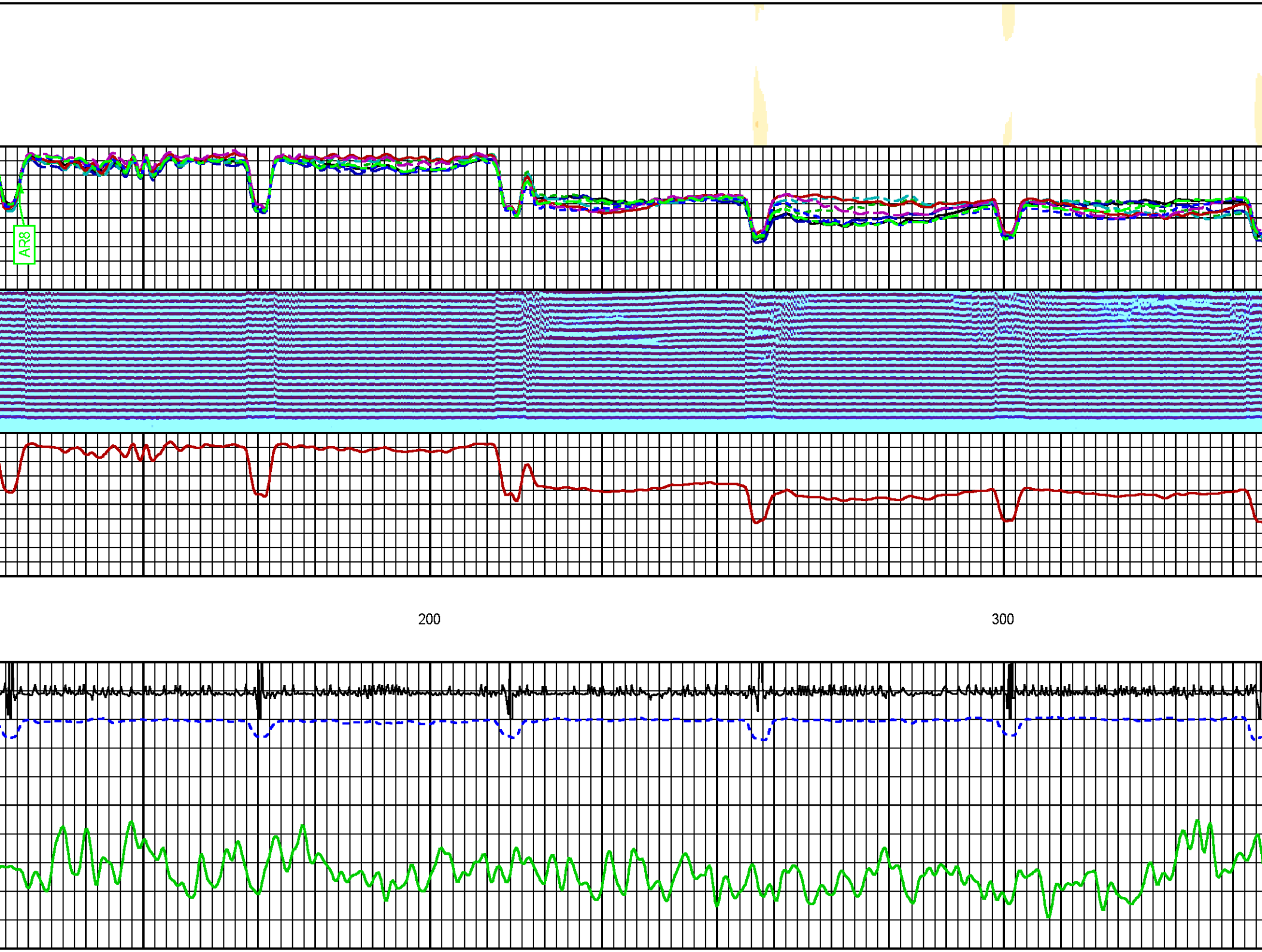
0
150
(gAPI)
TT3 [ttn]
280
180
(us)
CCL
10000 -10000
(mV)
FEET
0
100
ANR [fampn]
0
100
(mV)
XAMP [xampn]
0
20
(mV)
Variable Density [fwave]
200
1200
5
128
AR1 [ar1]
0
100
(mV)
AR2 [ar2]
AR3 [ar3]
AR4 [ar4]
AR5 [ar5]
AR6 [ar6]
AR7 [ar7]
AR8 [ar8]
PBMAP [pbmap]
0
360
20
80
WELLHEAD
FLUID LEVEL
GR
TTN
CCL
FAMPN
AR1
AR2
AR3
AR4
AR5
AR6
AR7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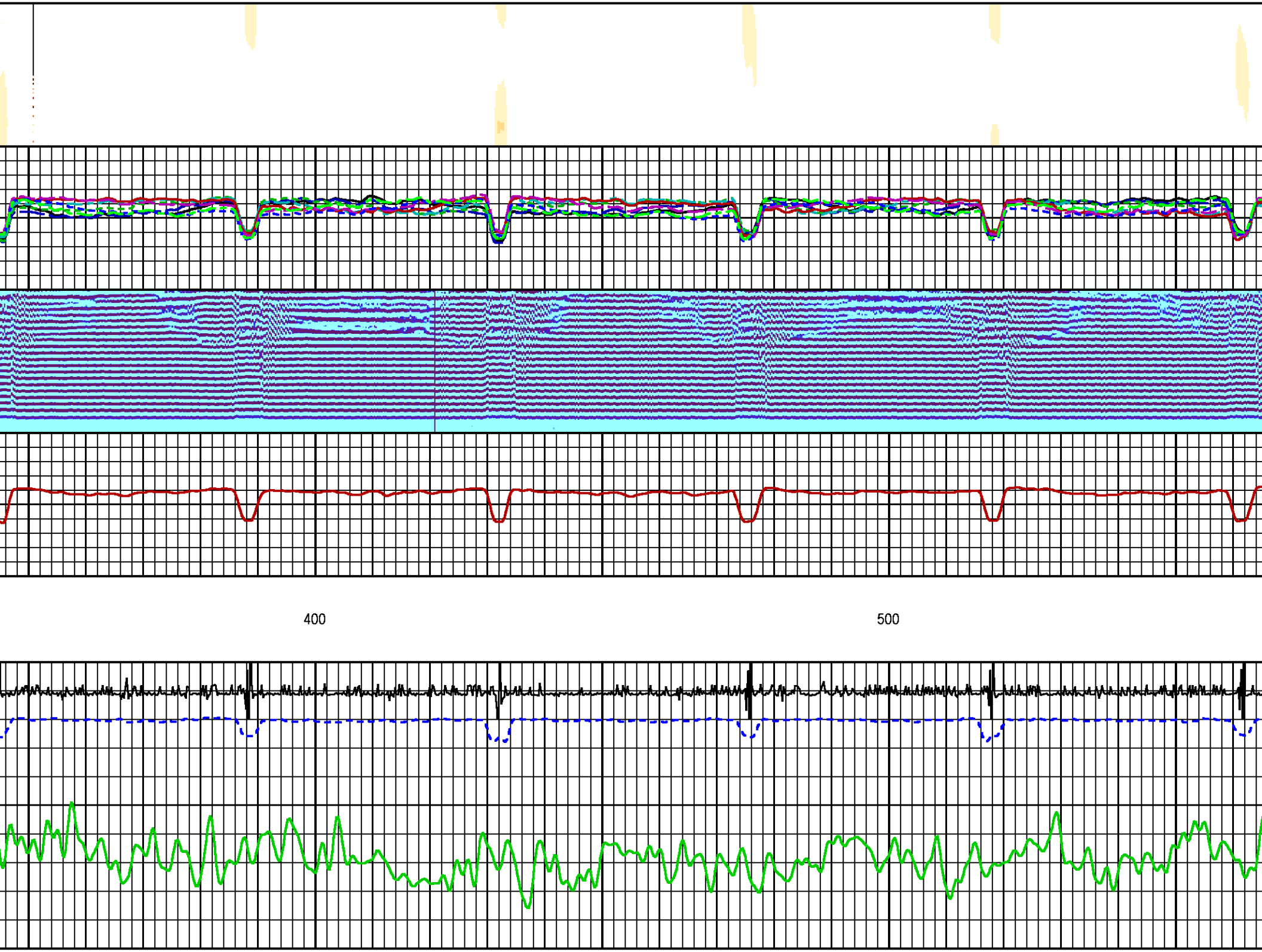
200
300

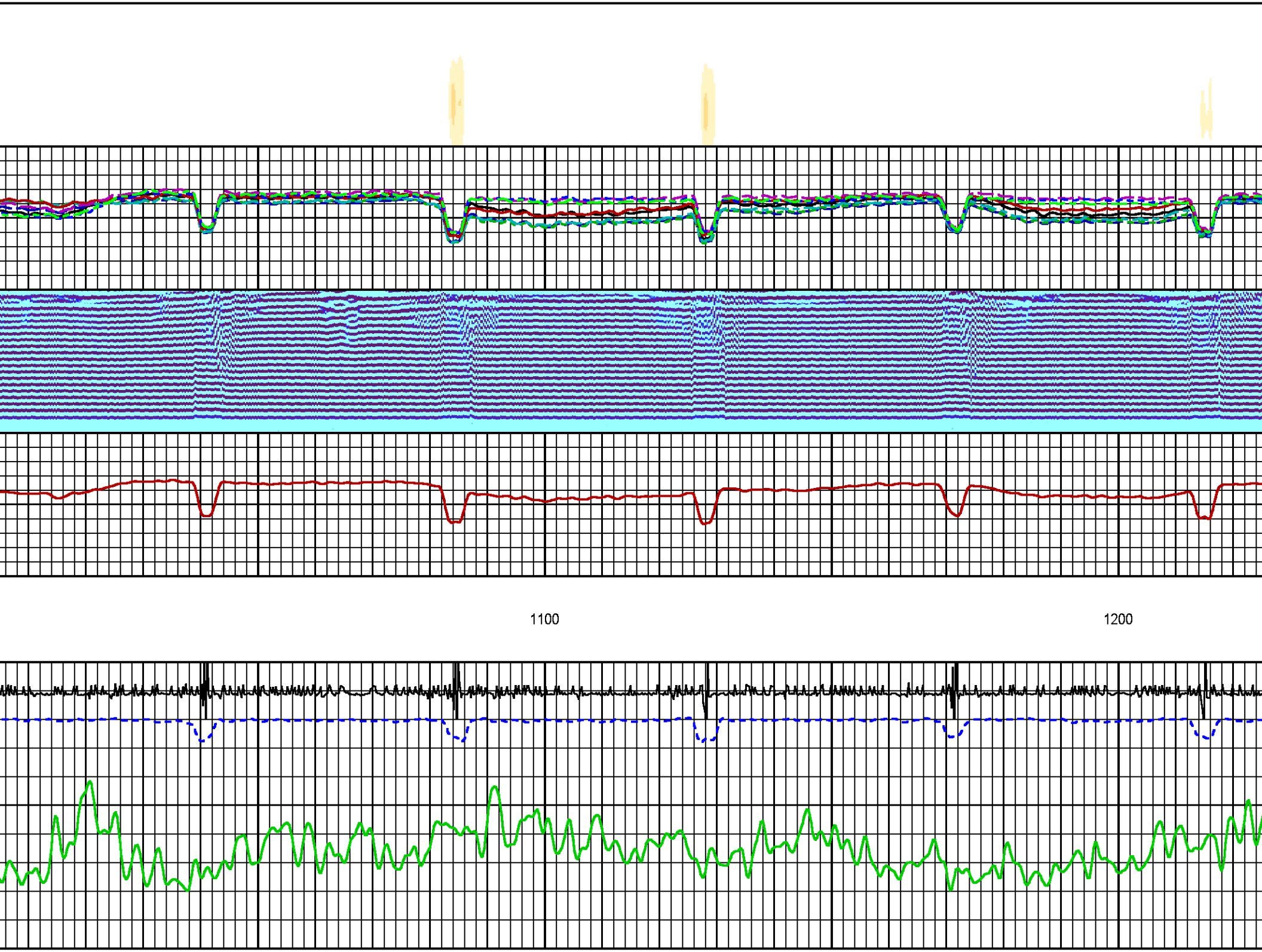

400
500

600
700

800

900

1000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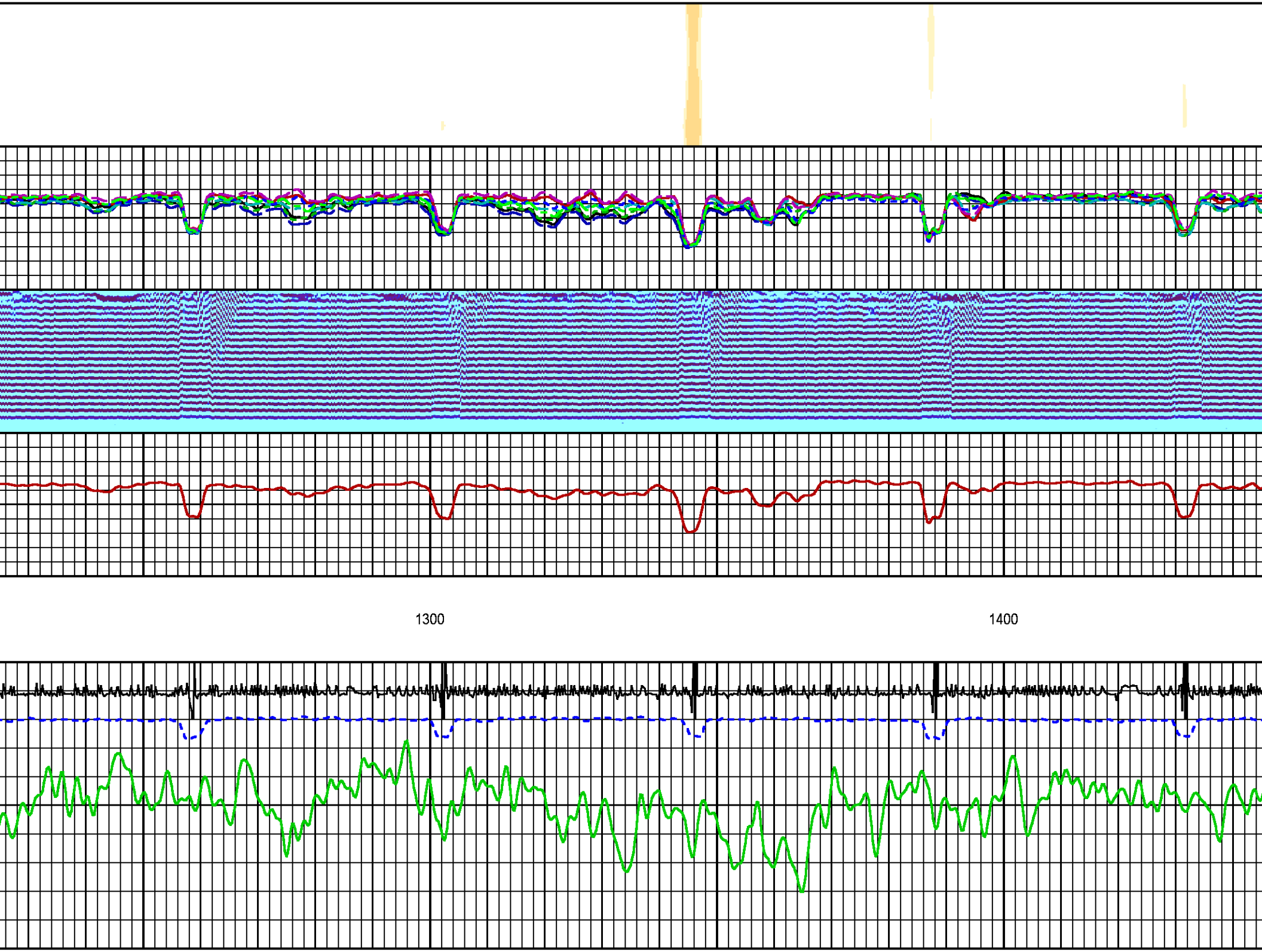
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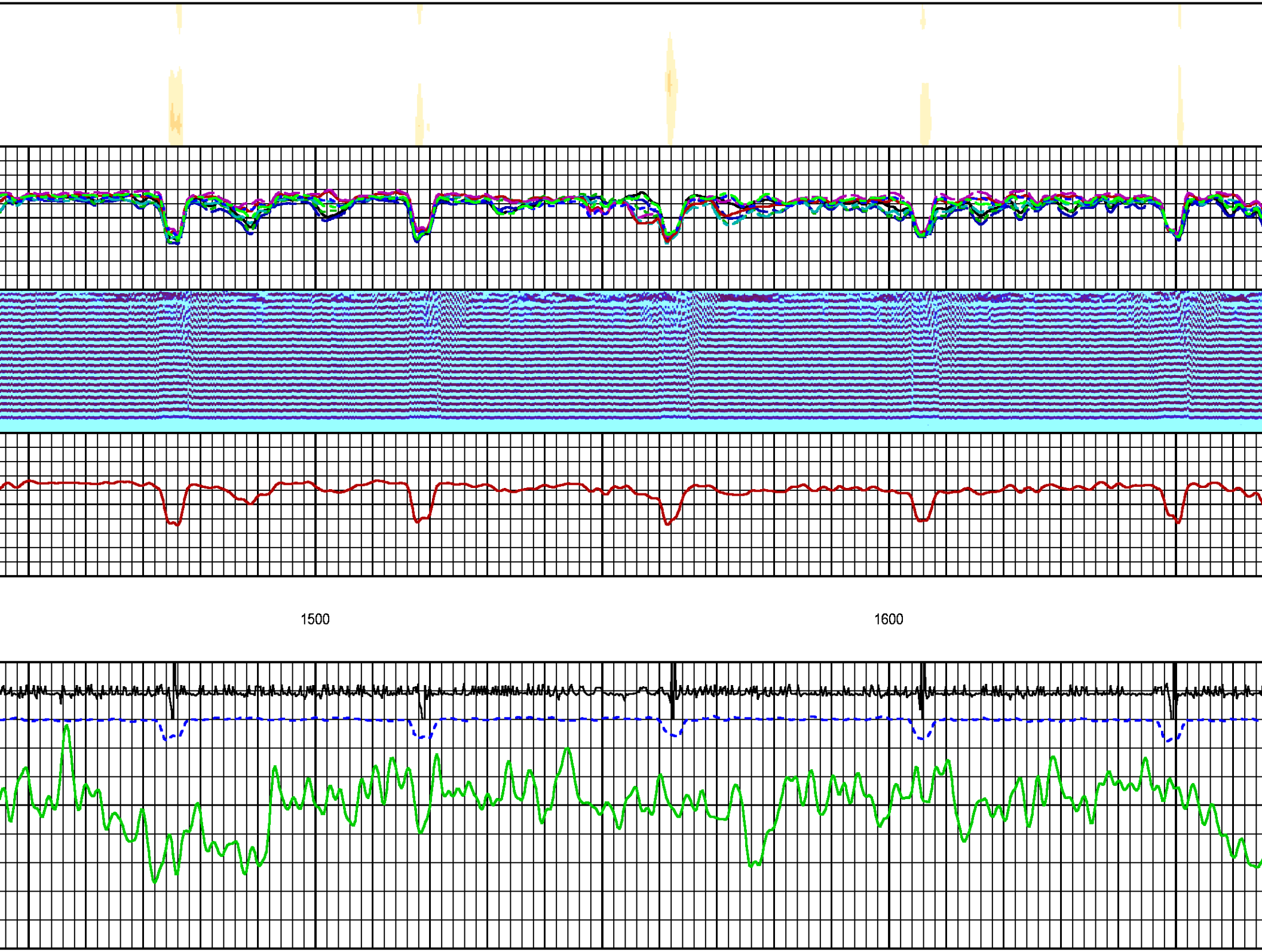
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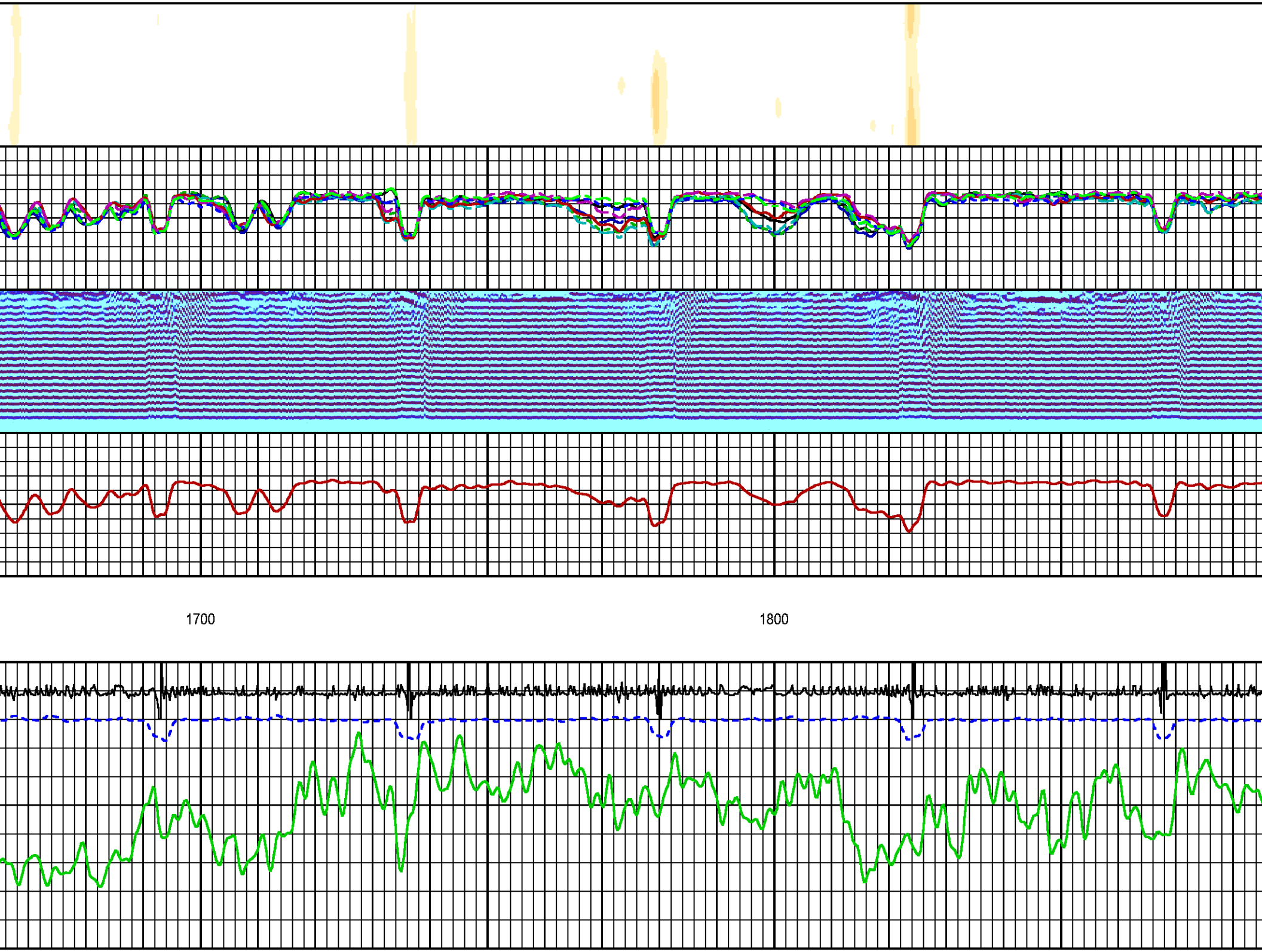
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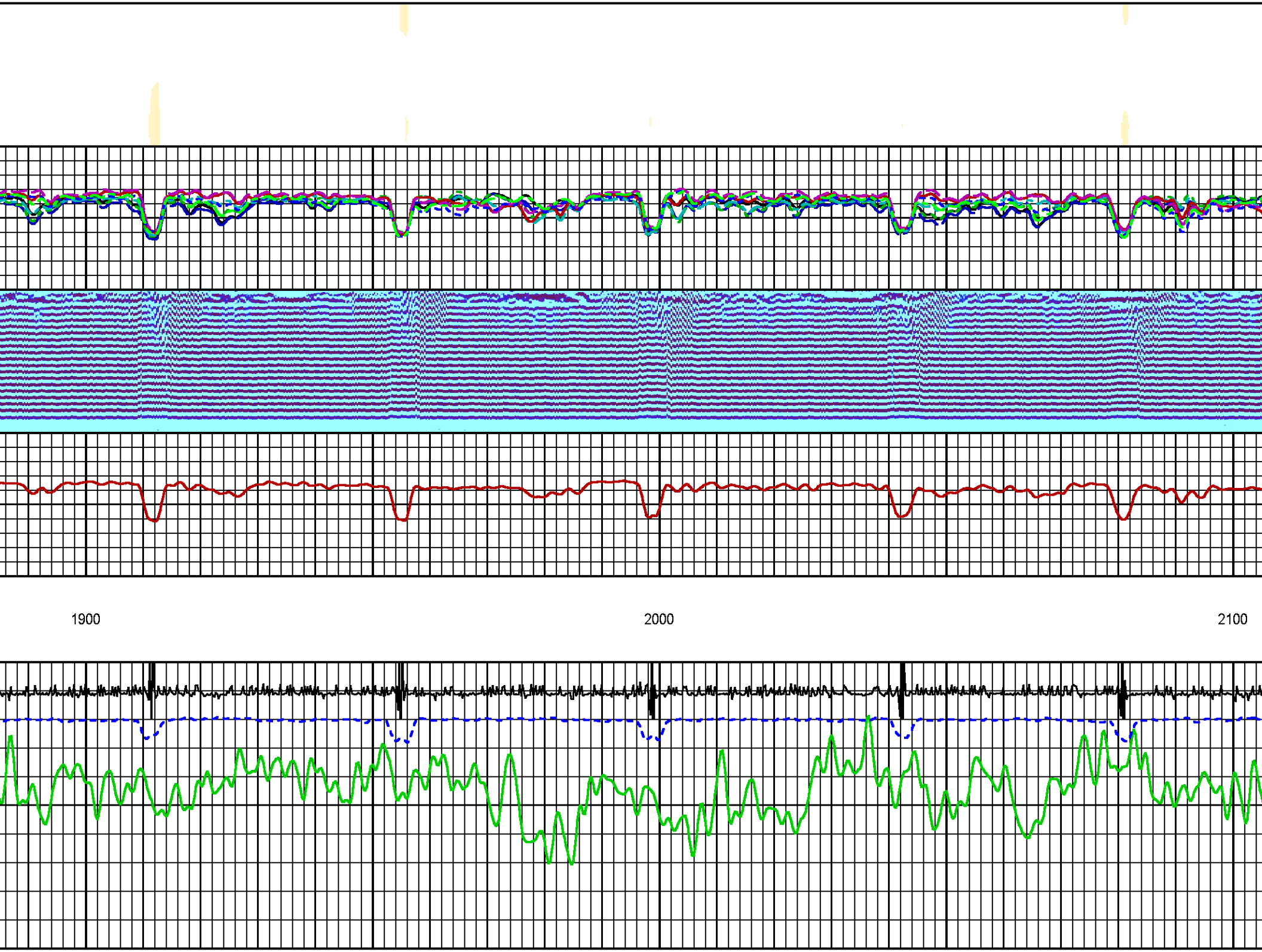
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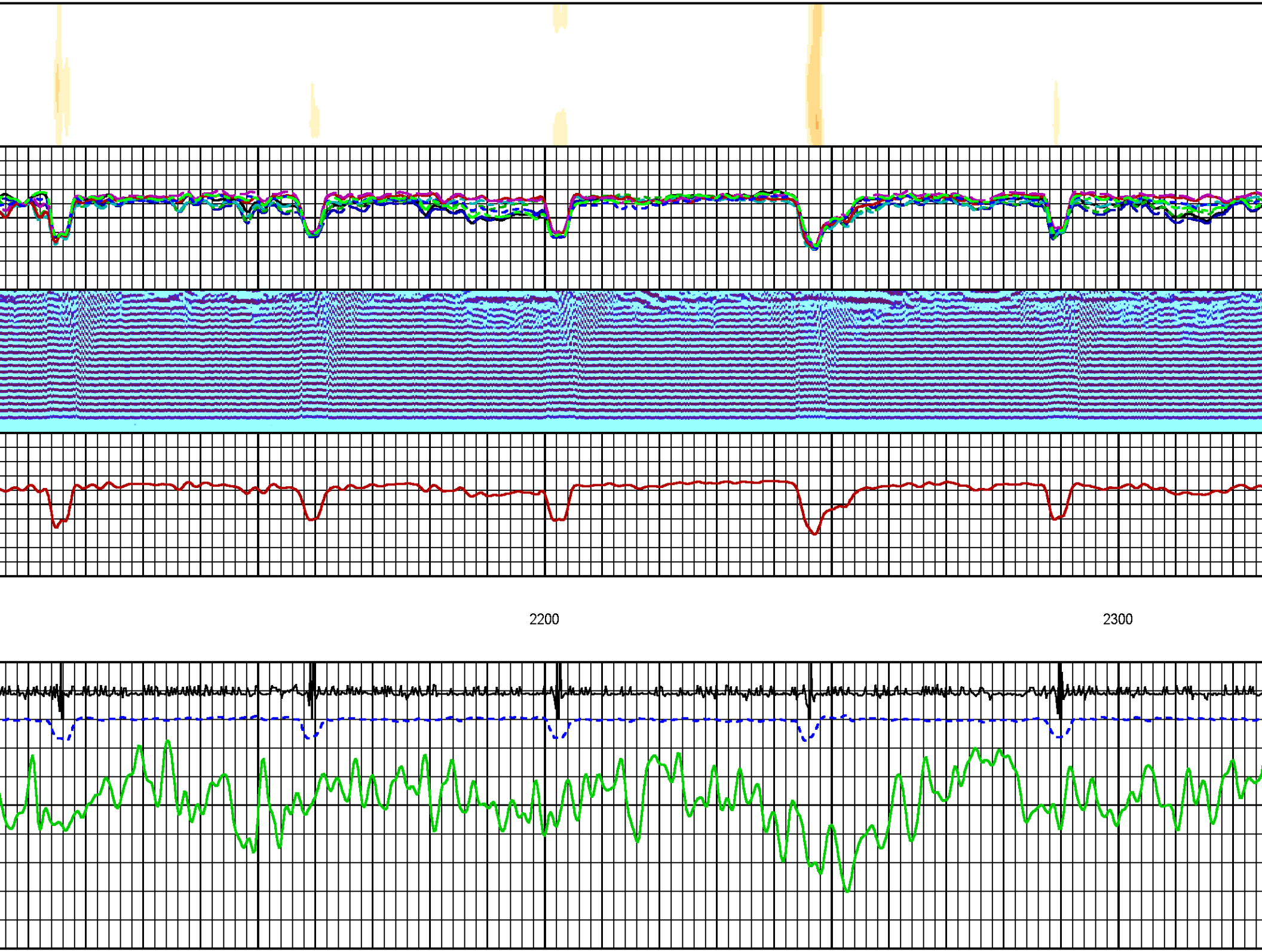
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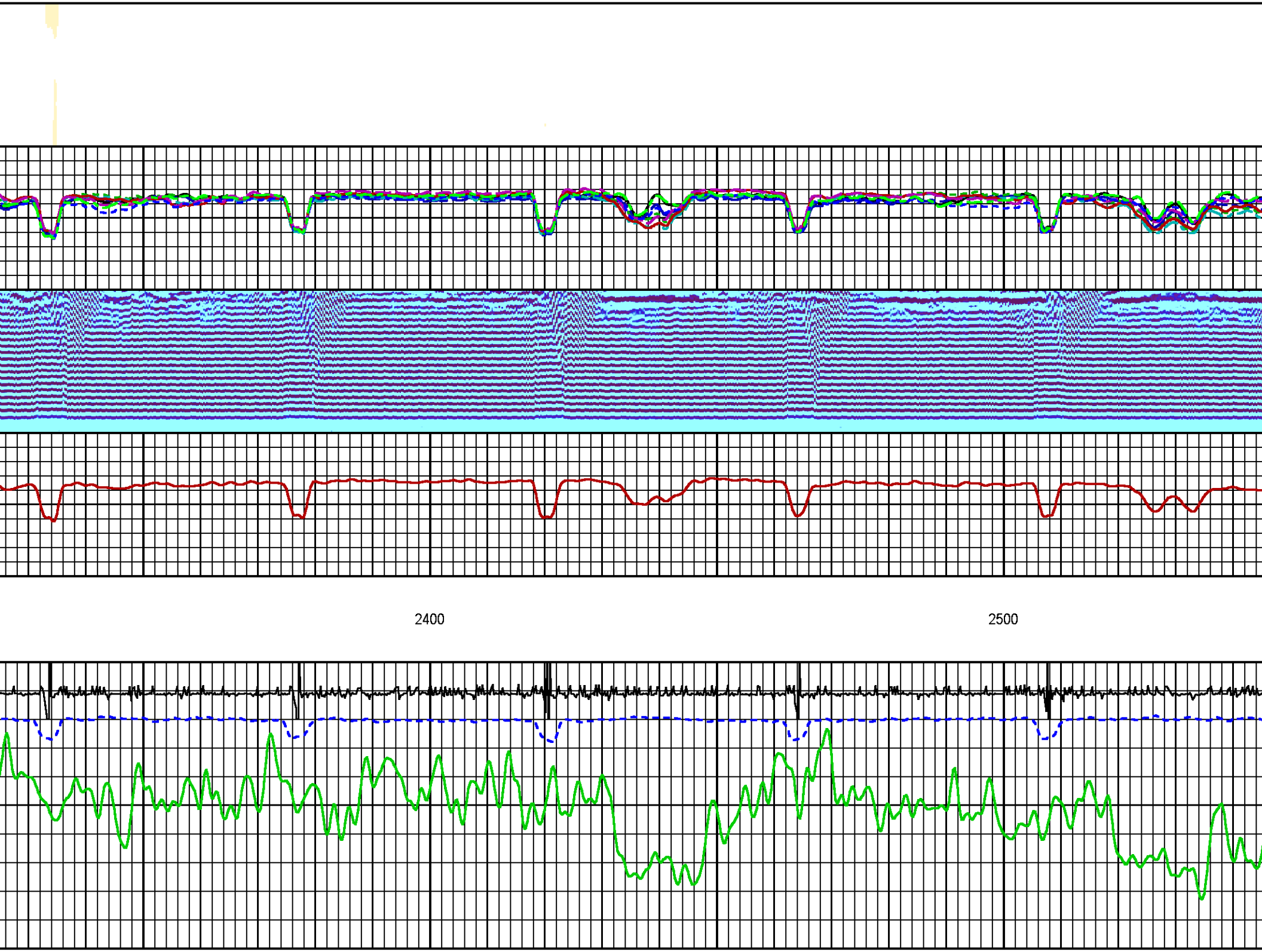
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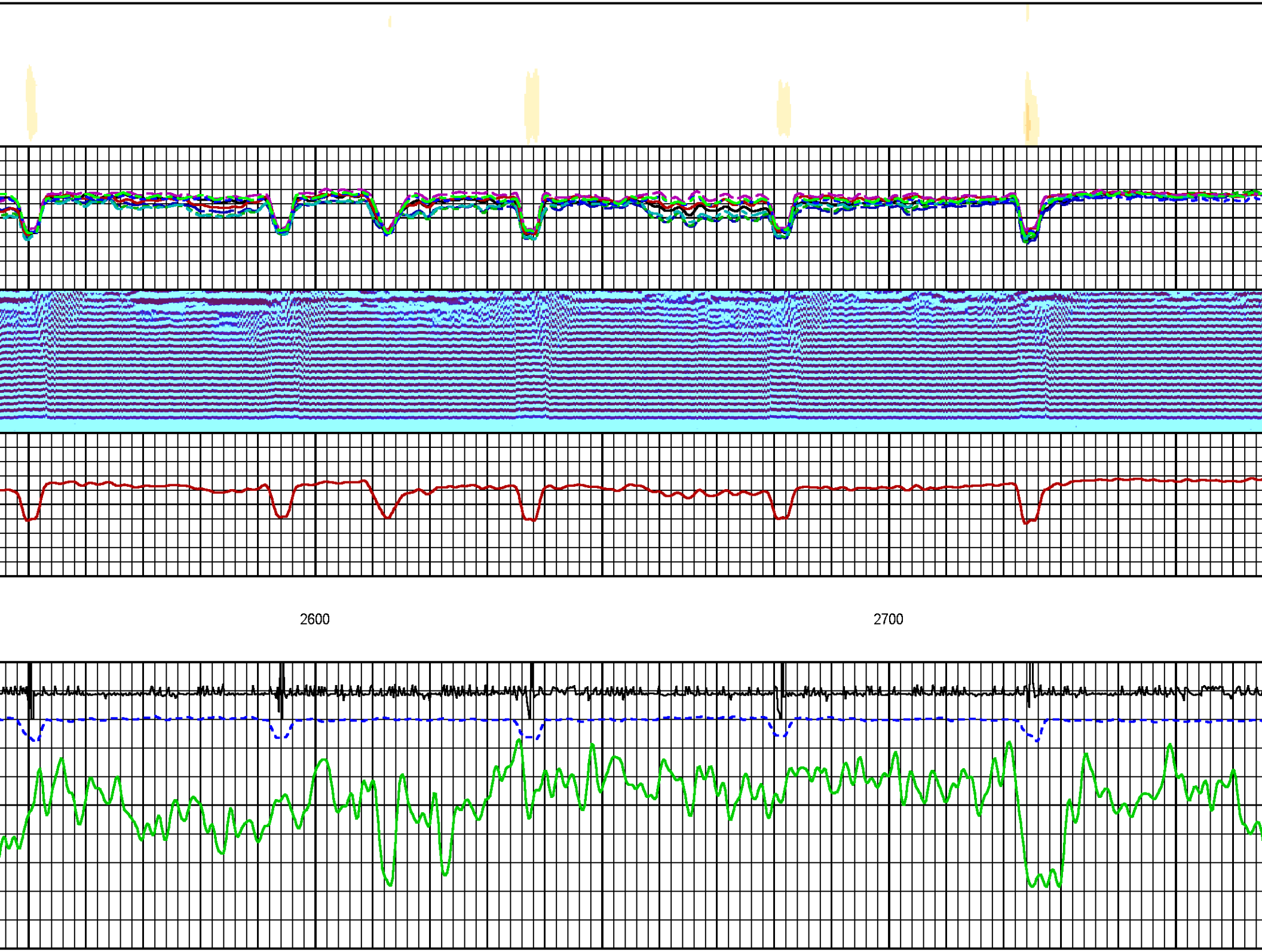
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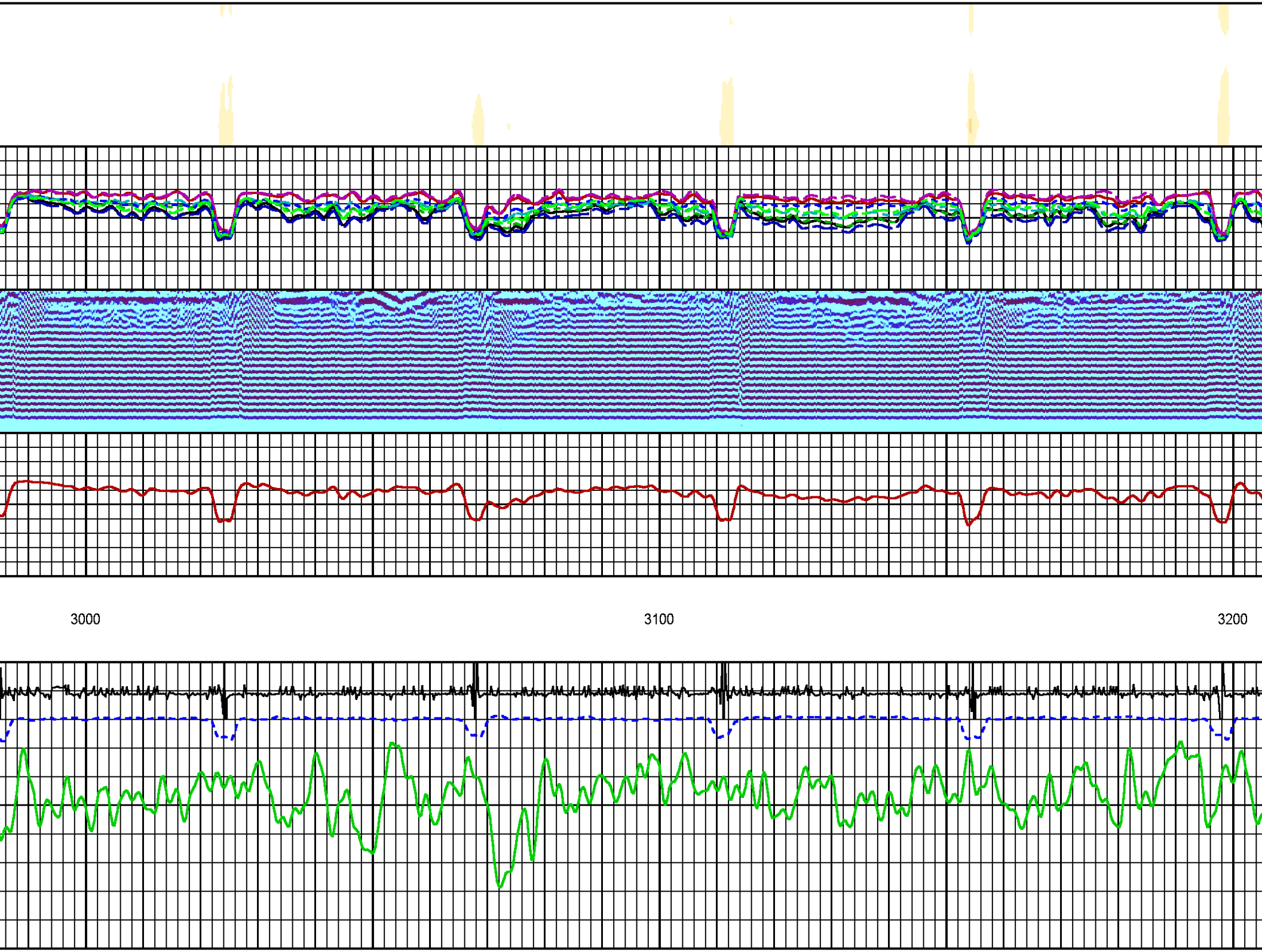
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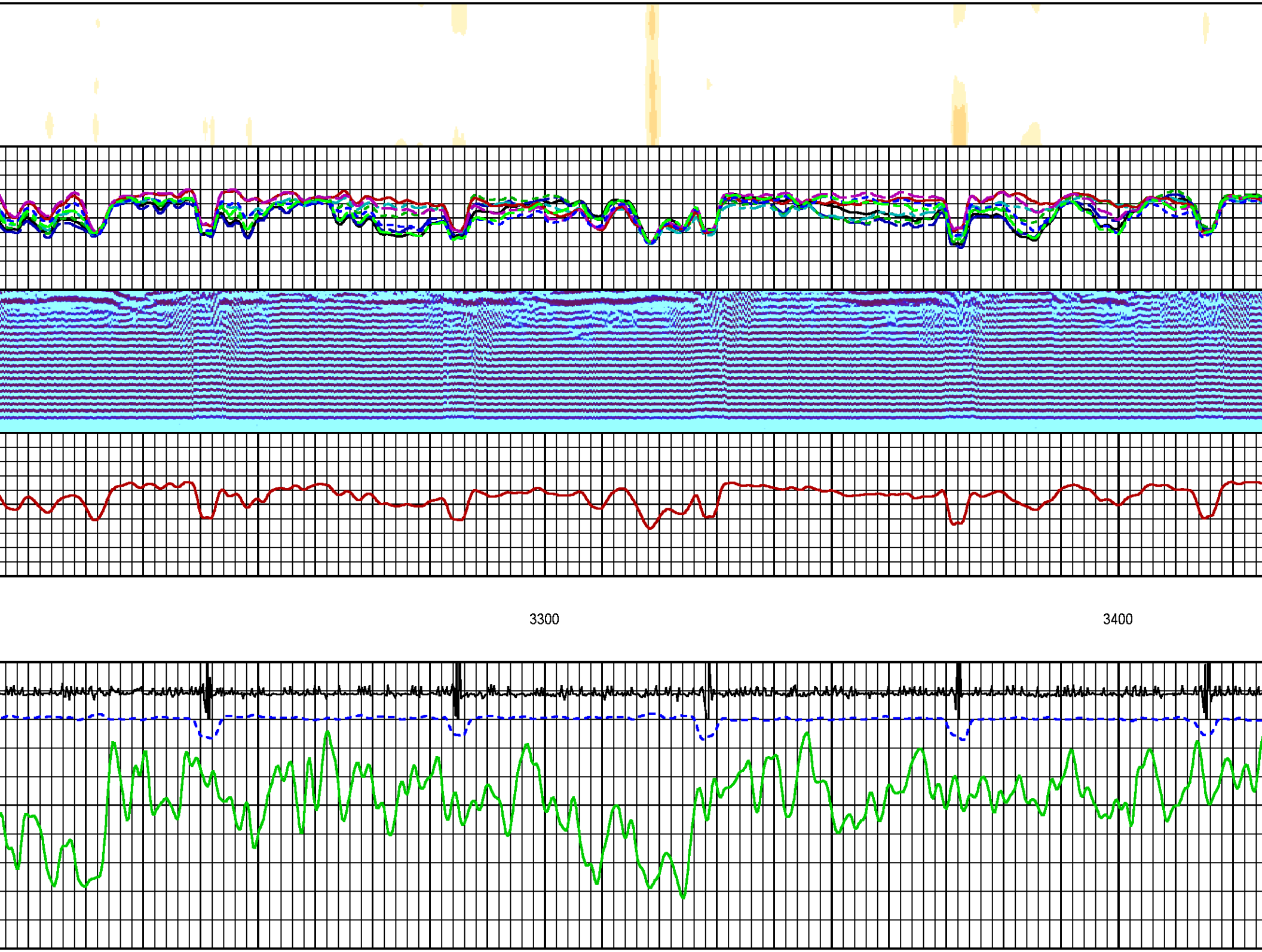
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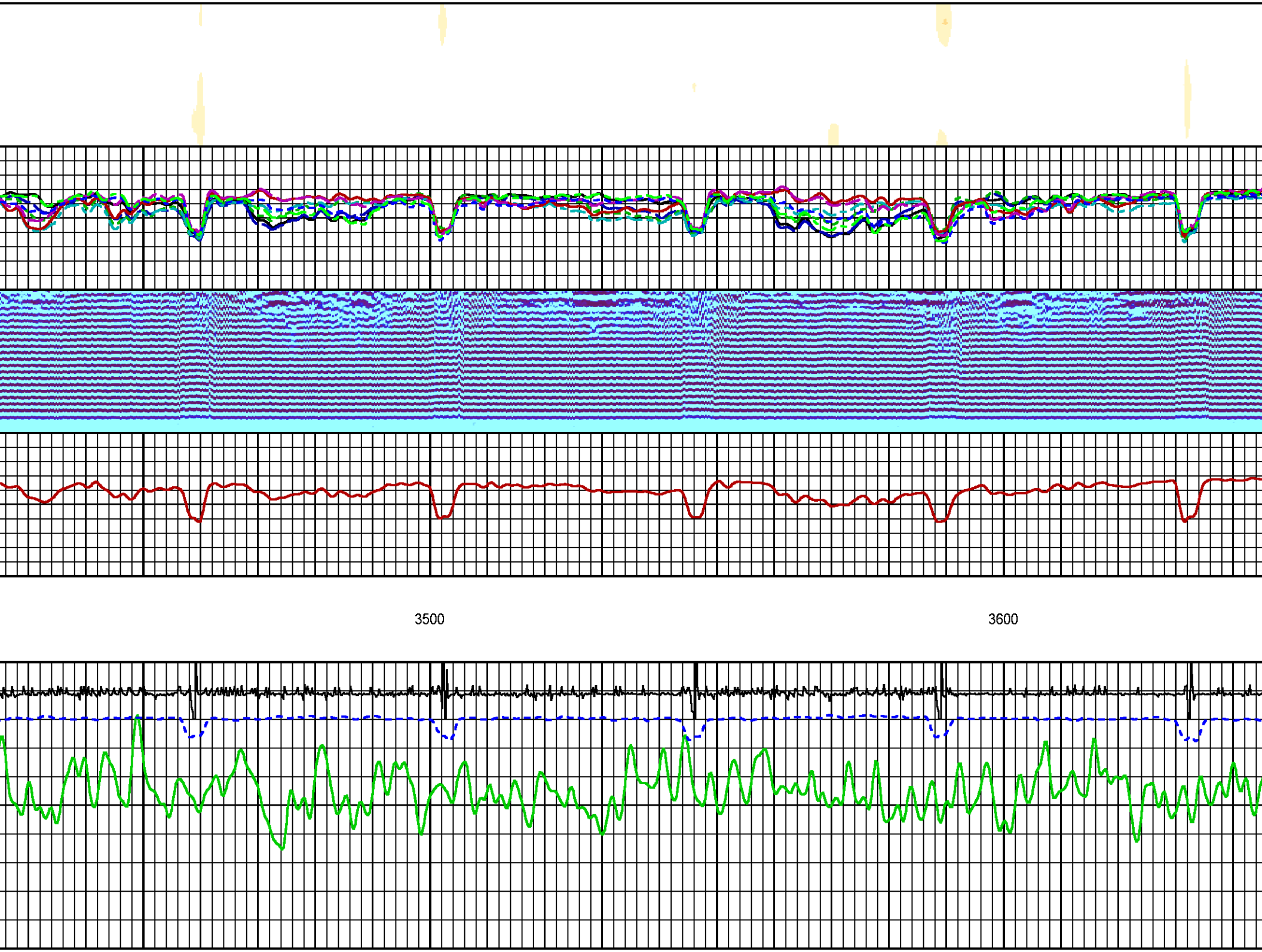
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3700

3800

3900
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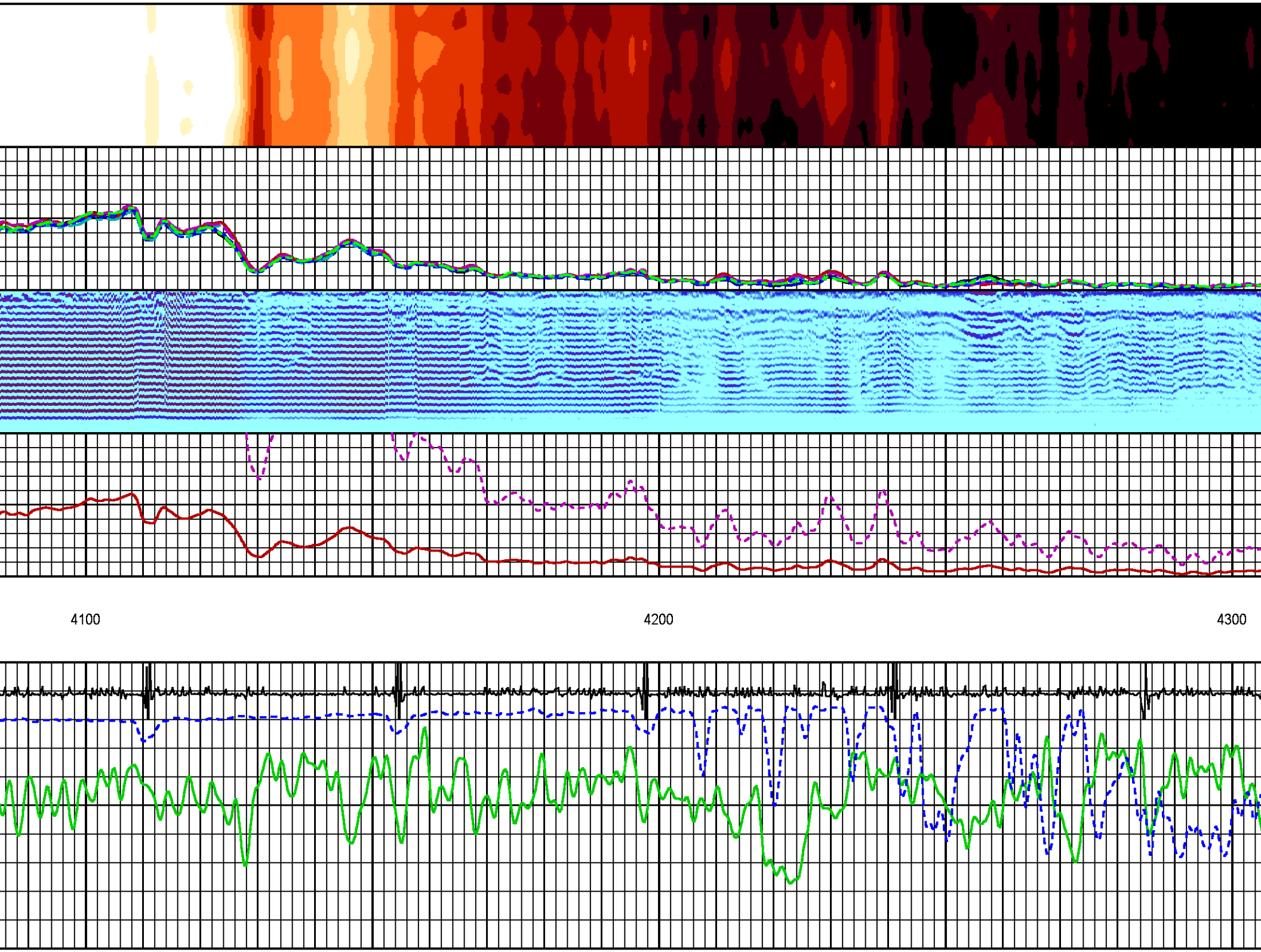
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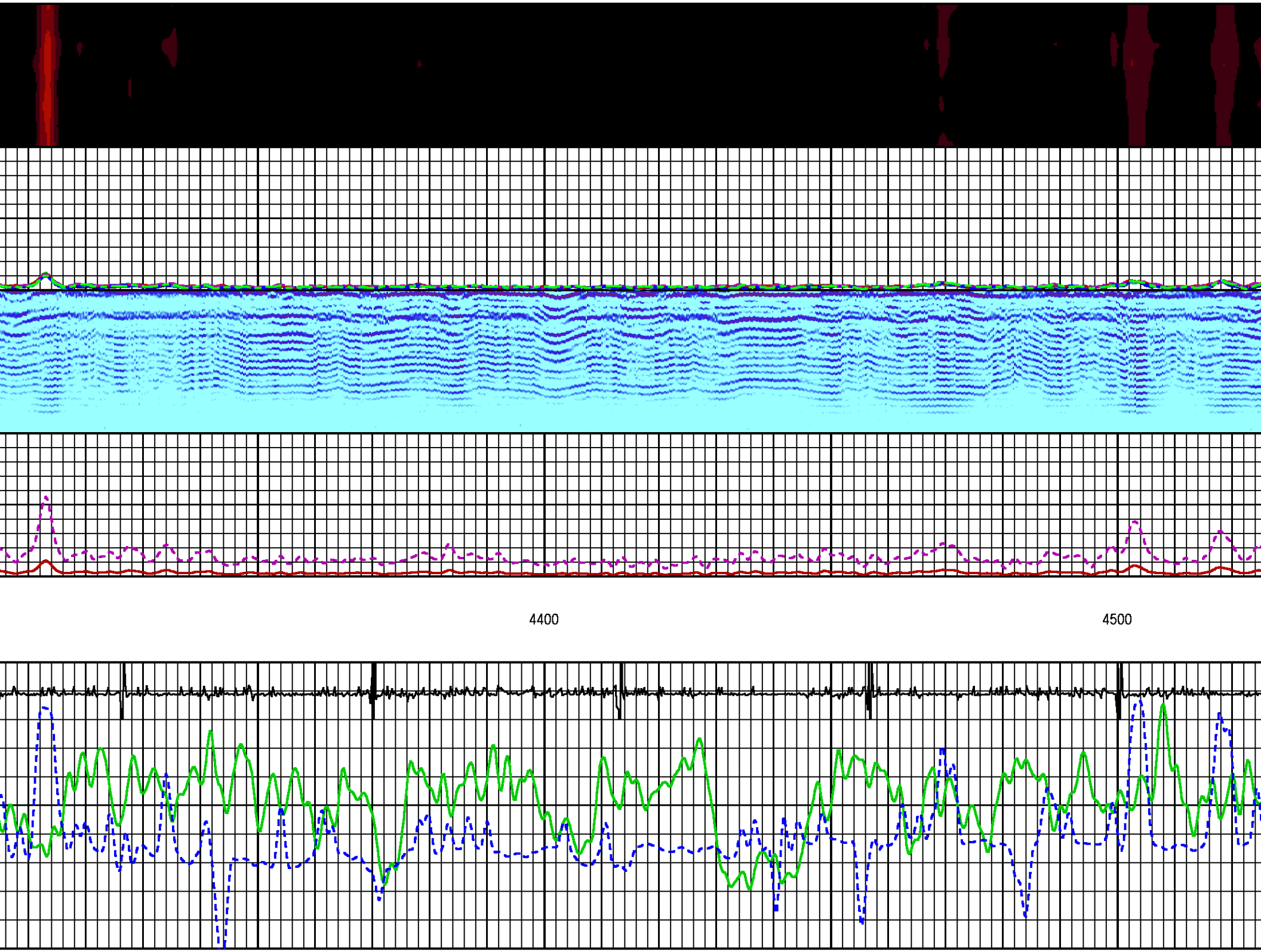
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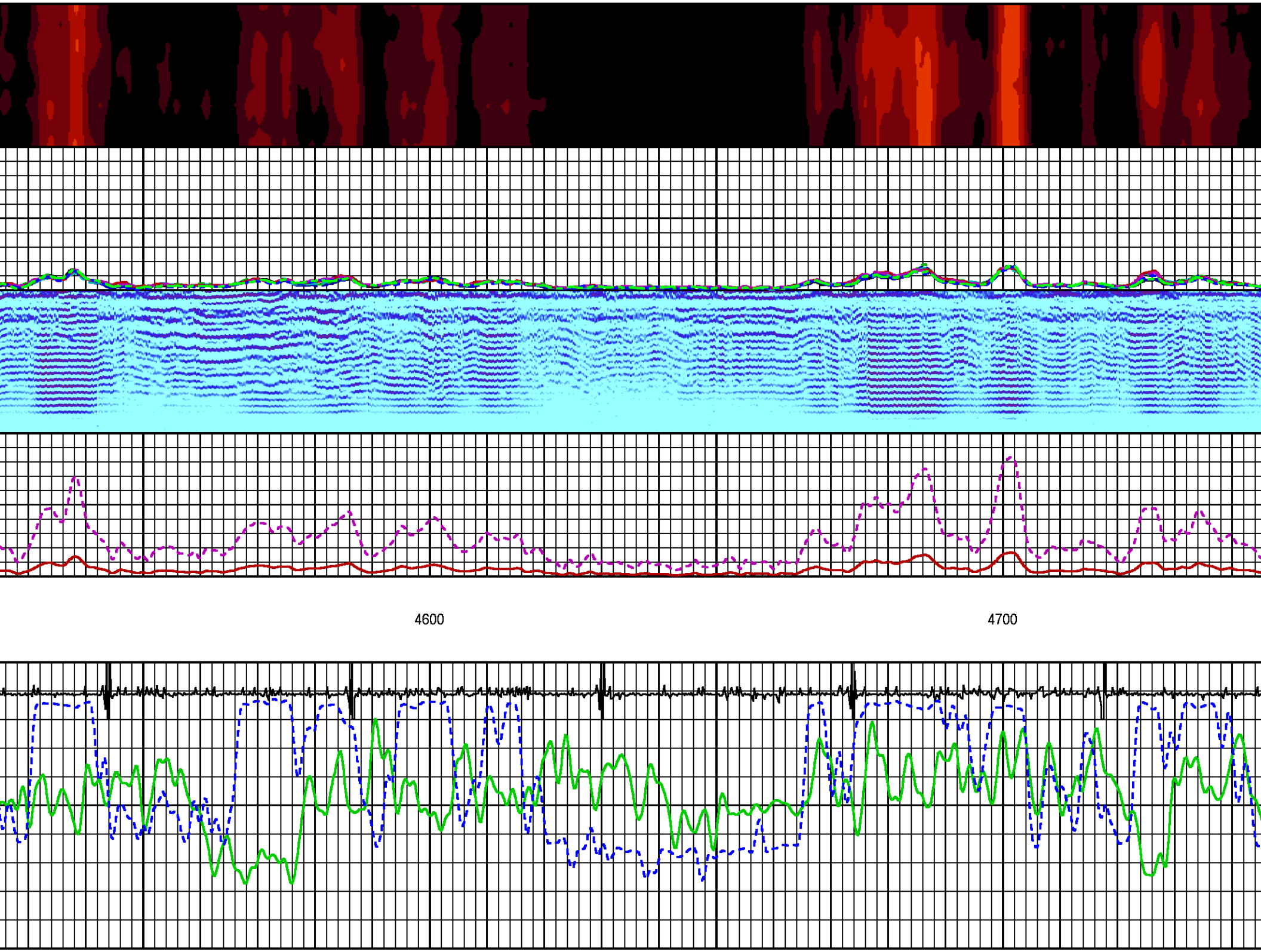
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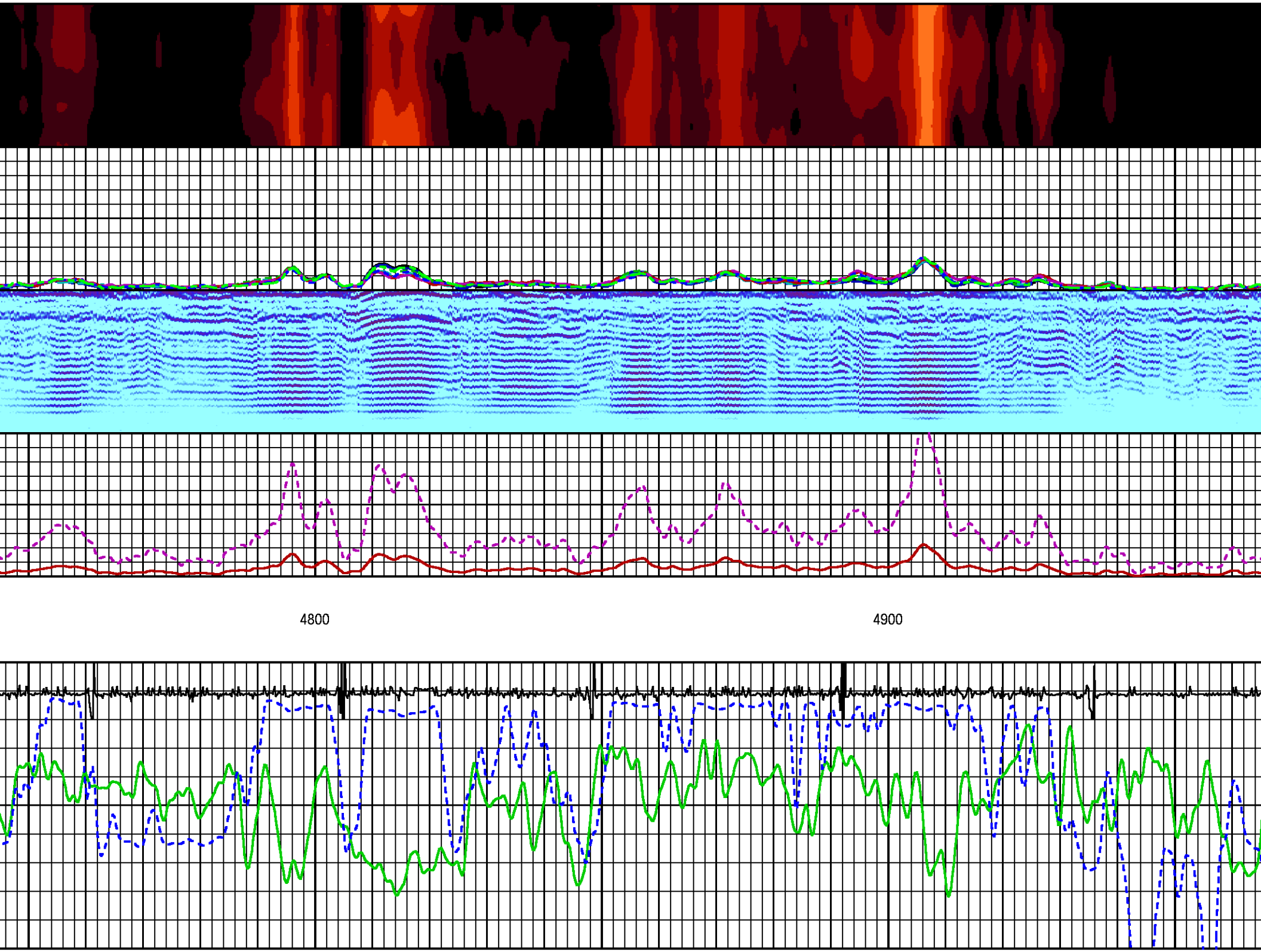
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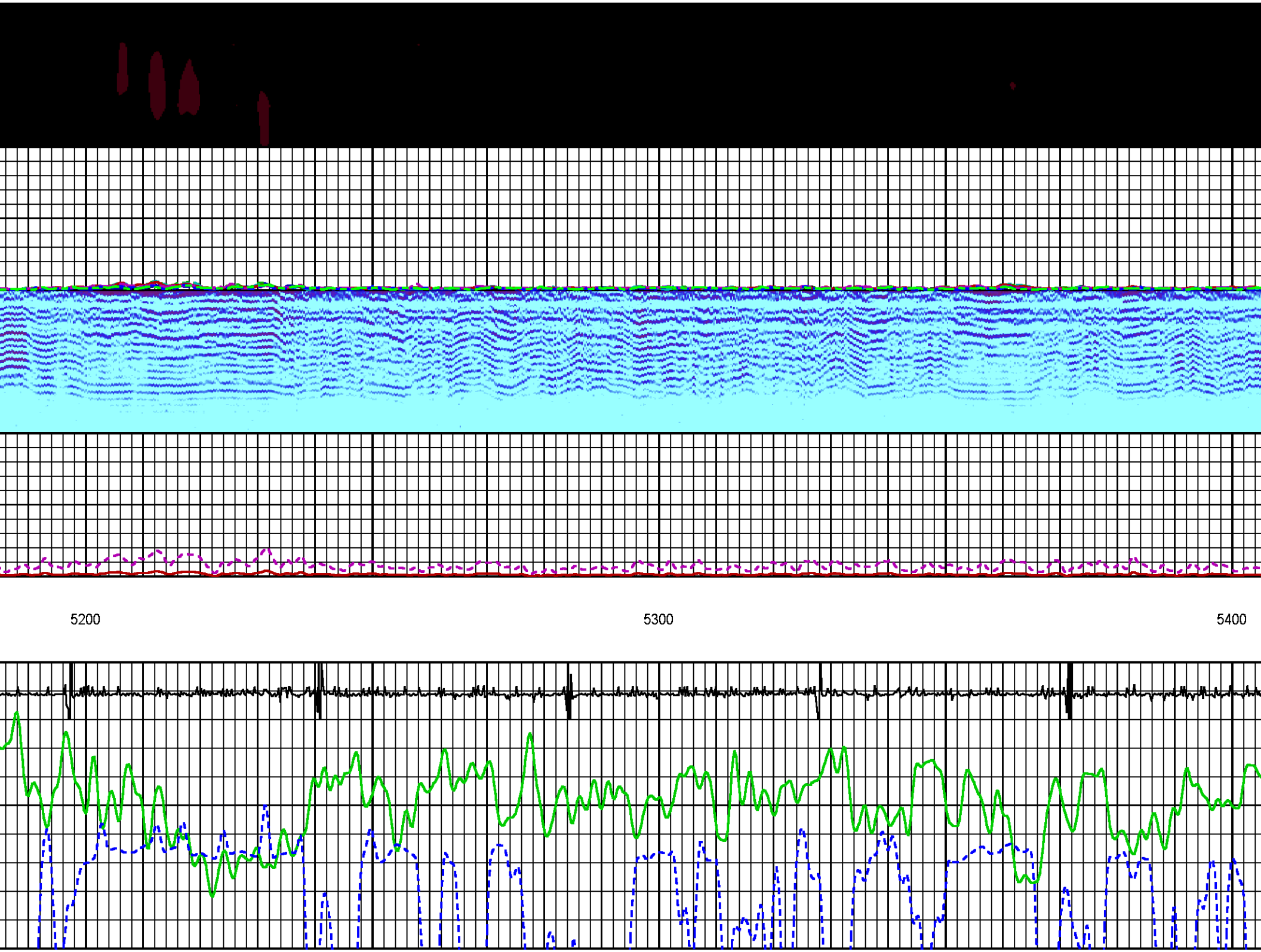
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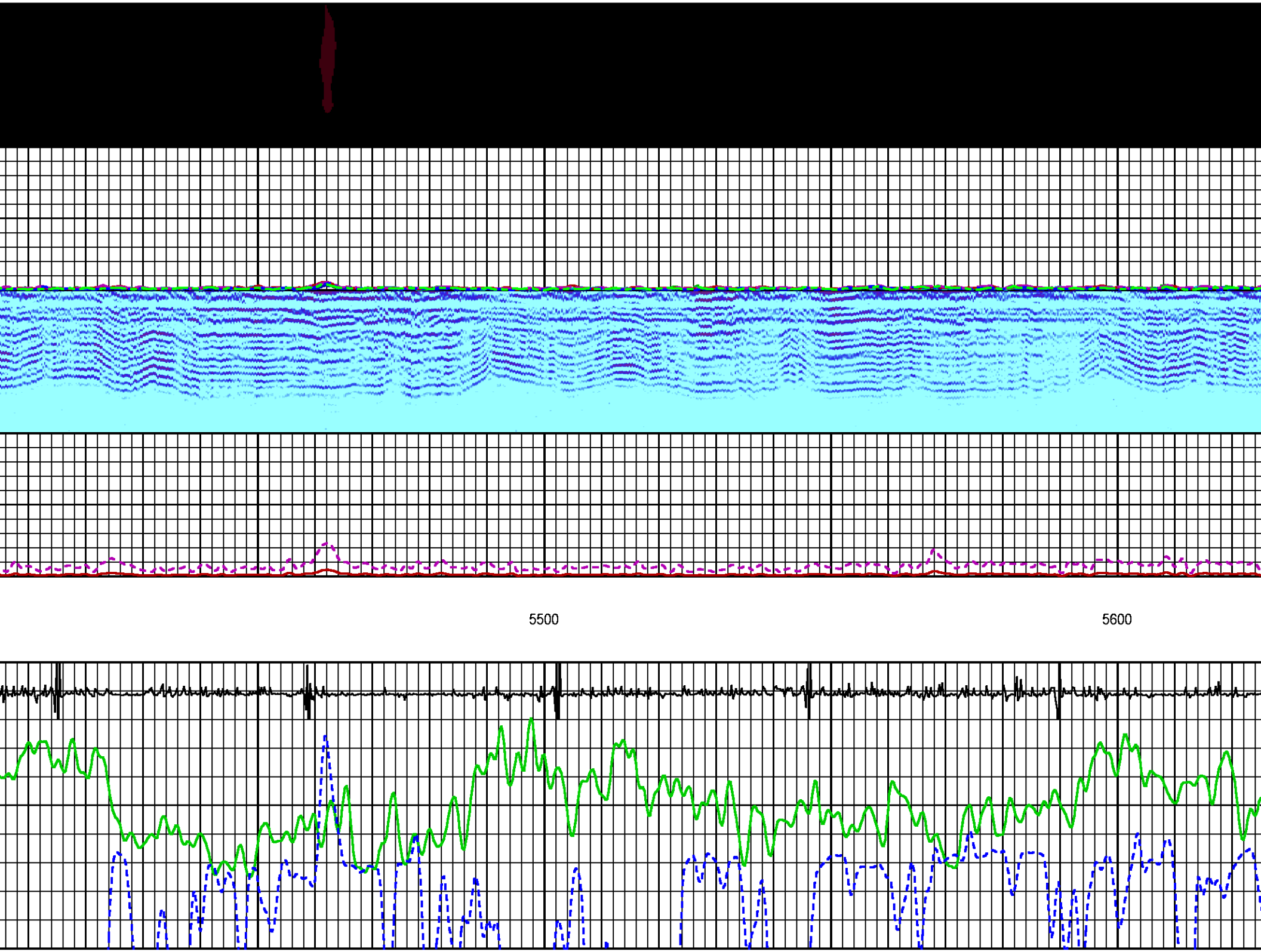
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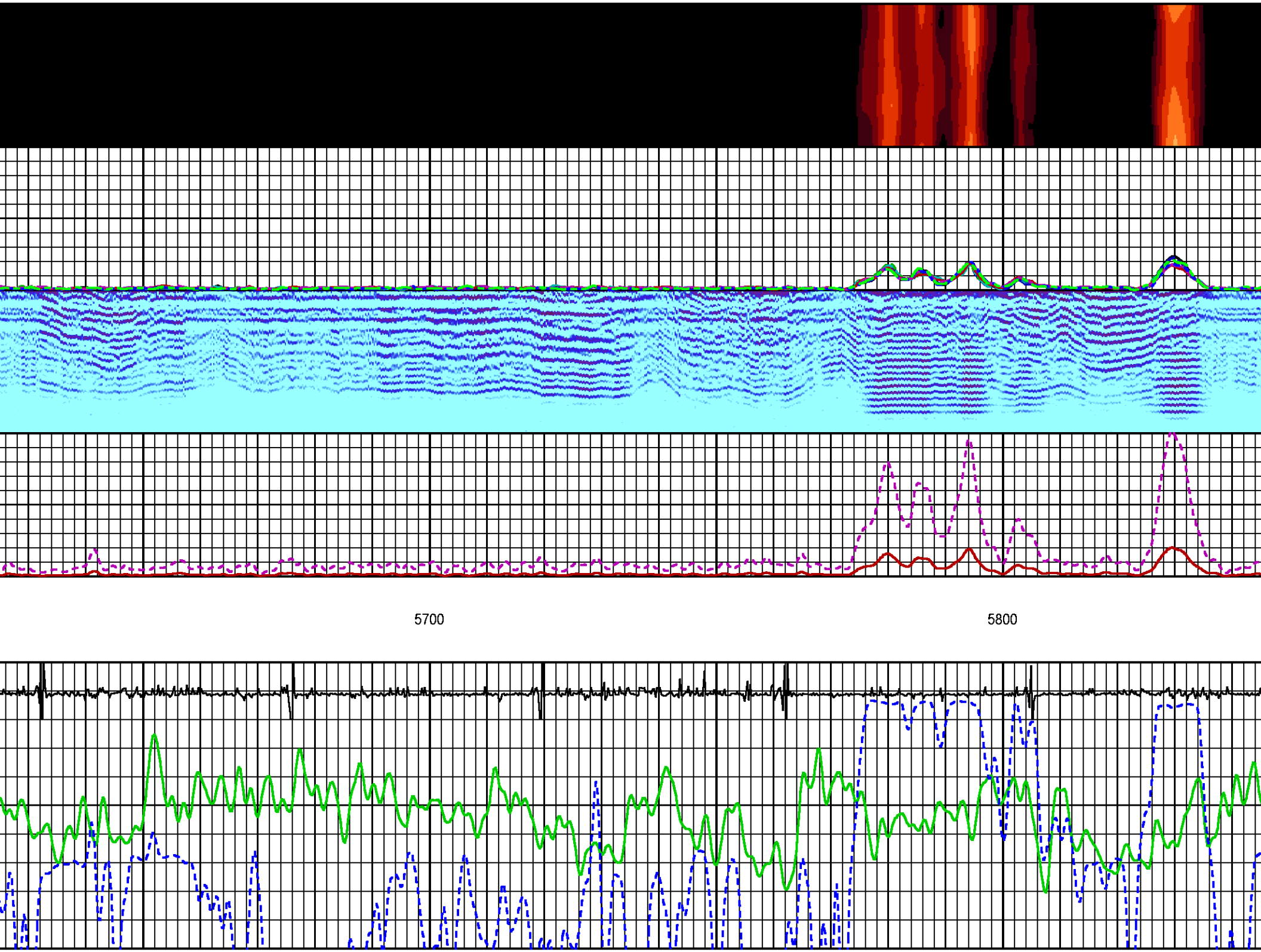
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5800

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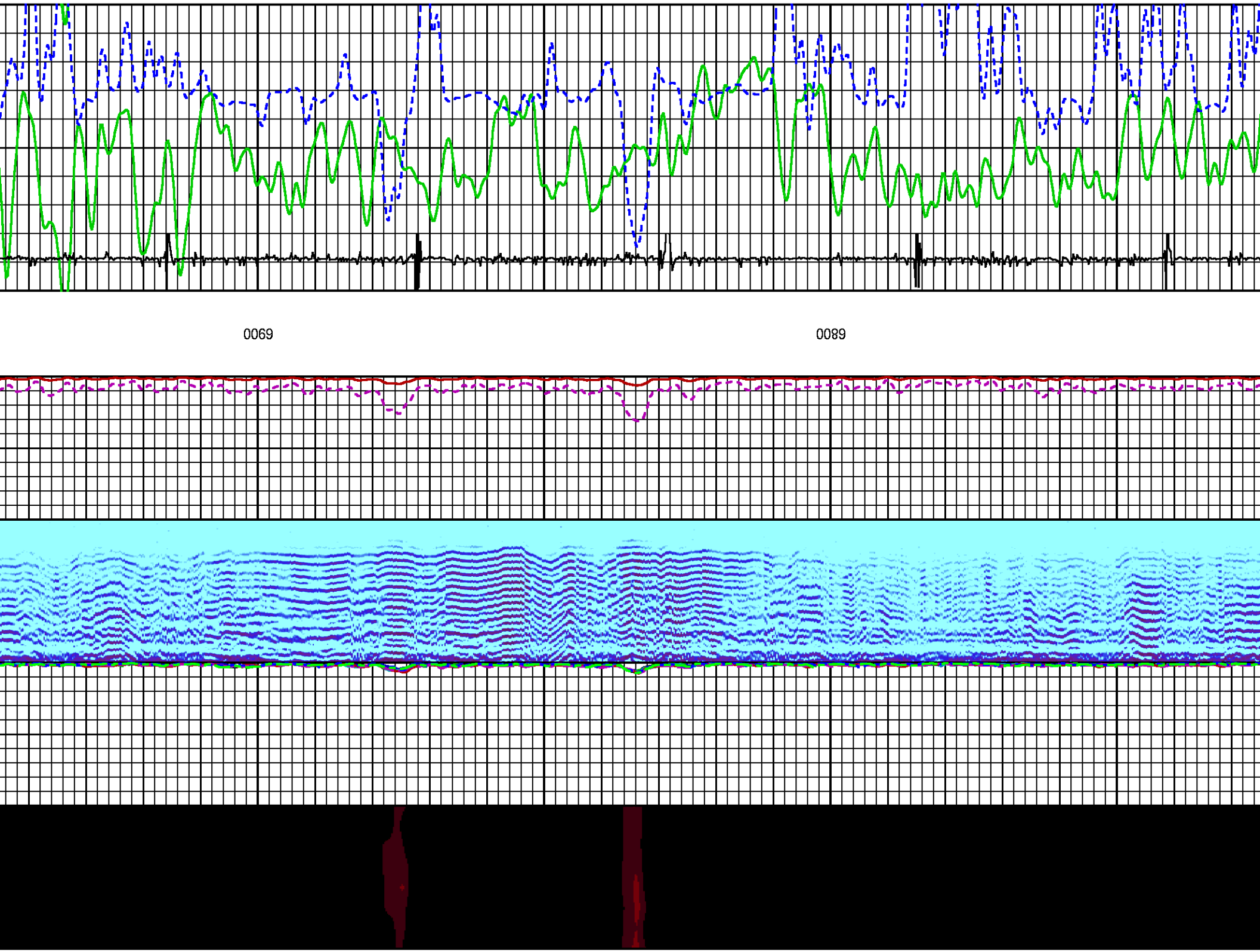
6000

6100
SHORT JOINT
6200

6300
6400
6500

6600

6700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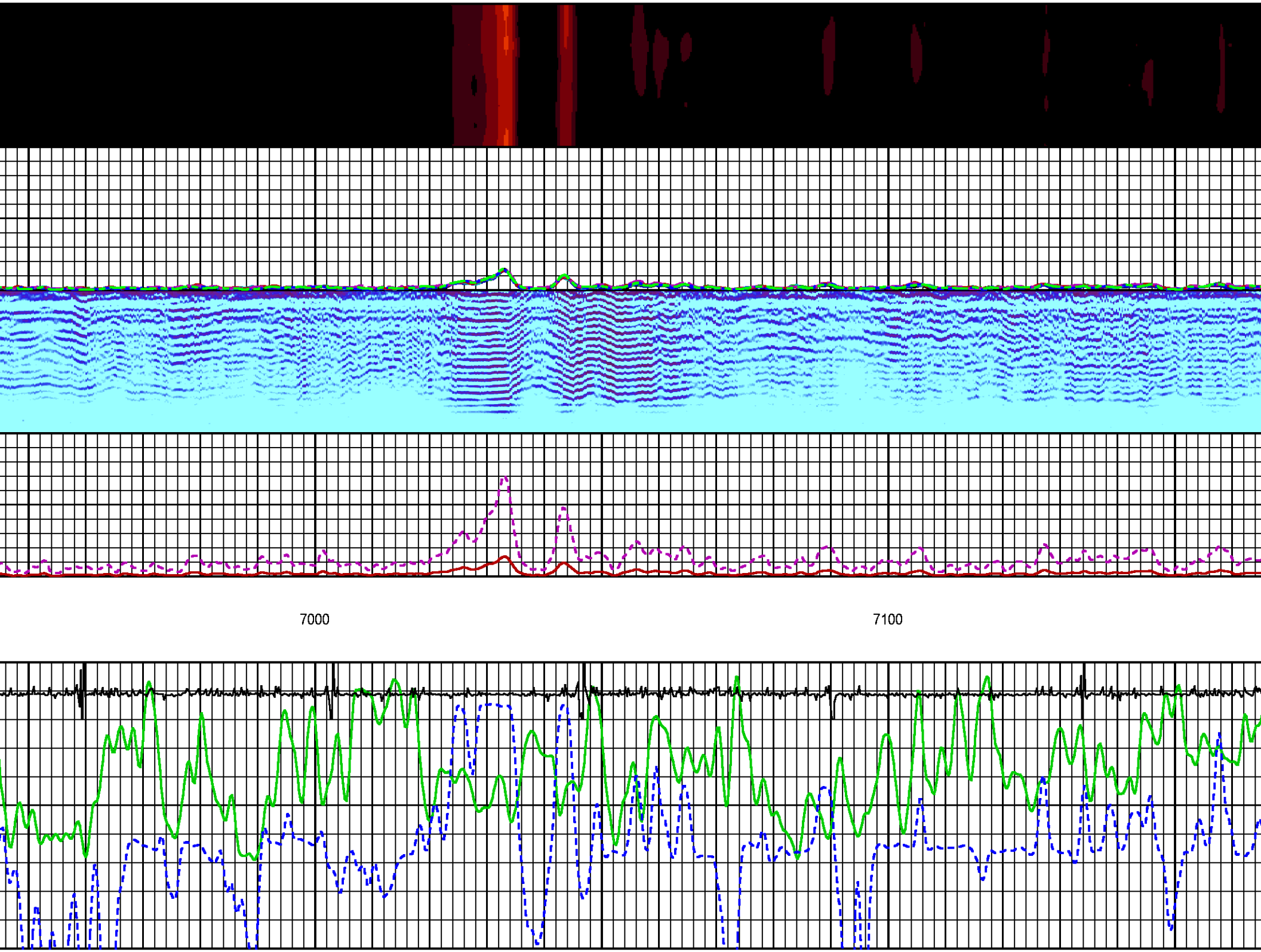
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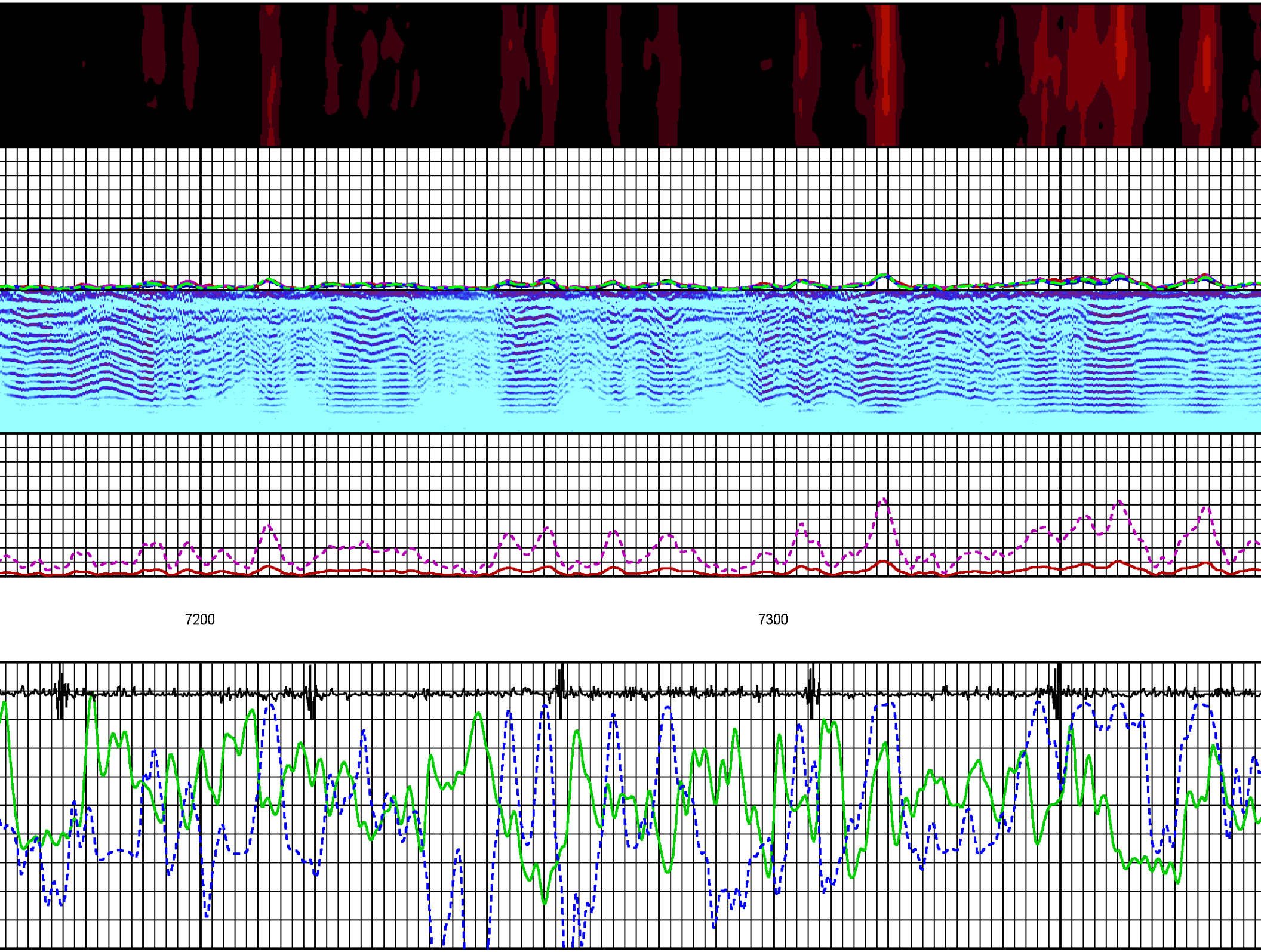
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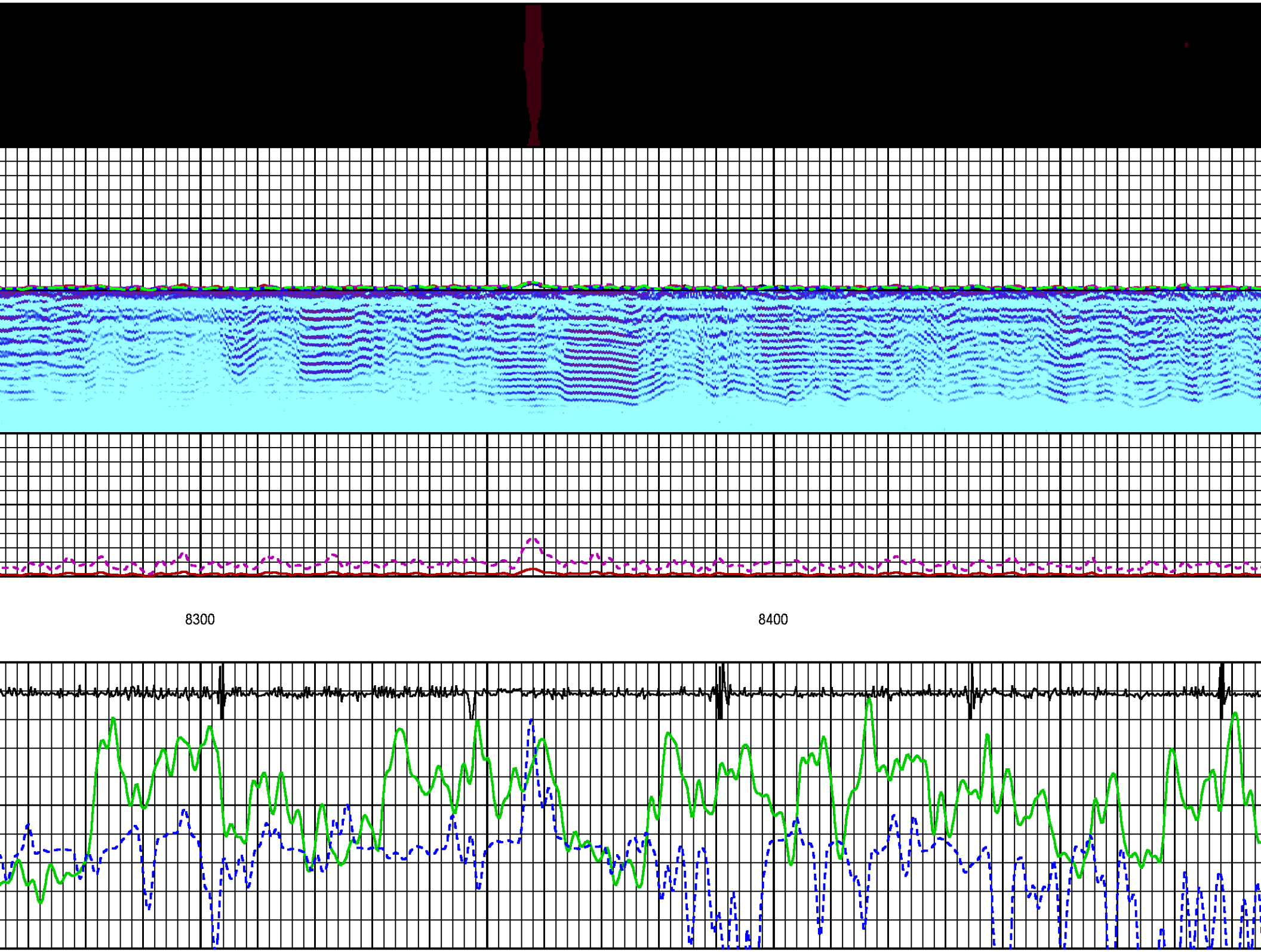
8200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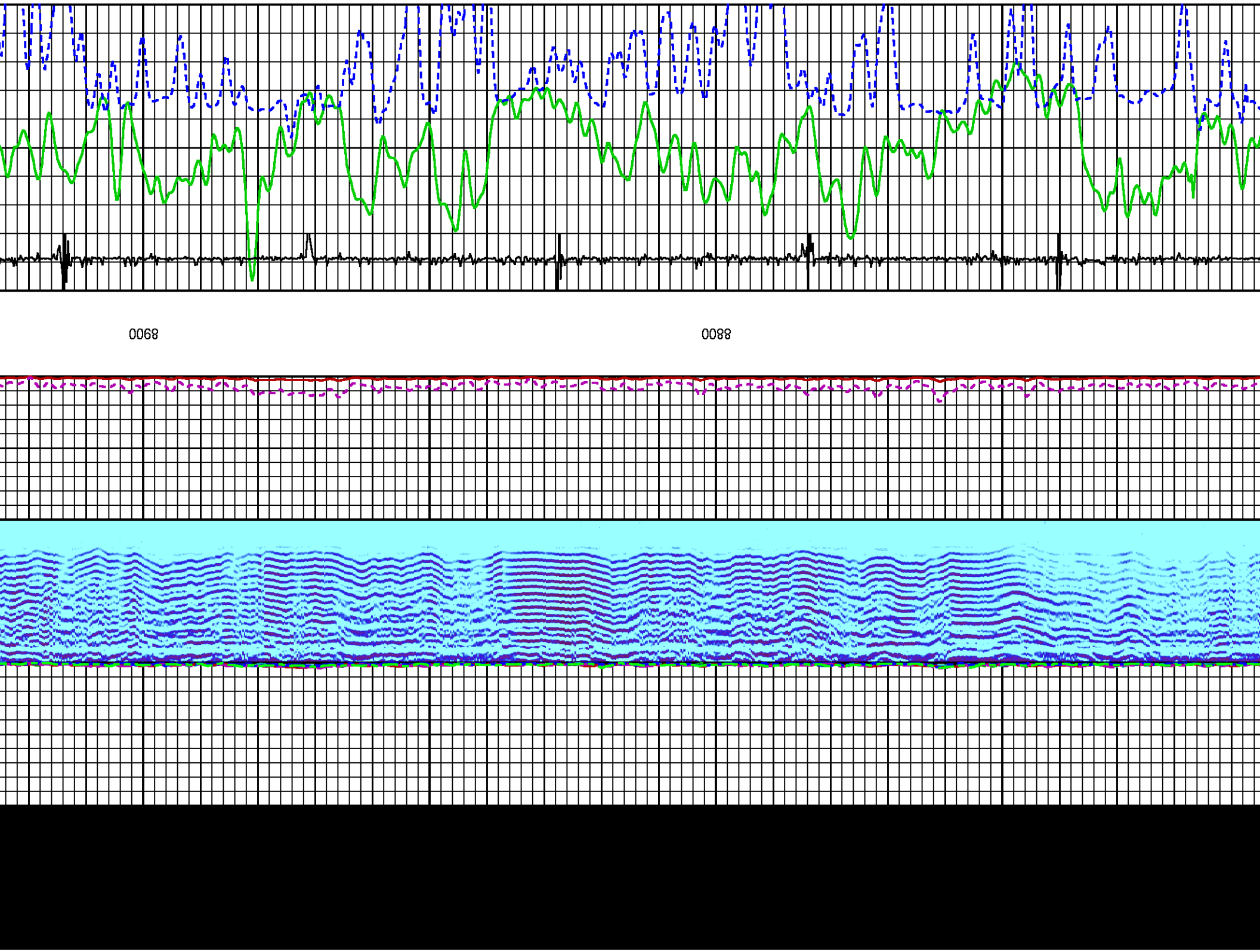
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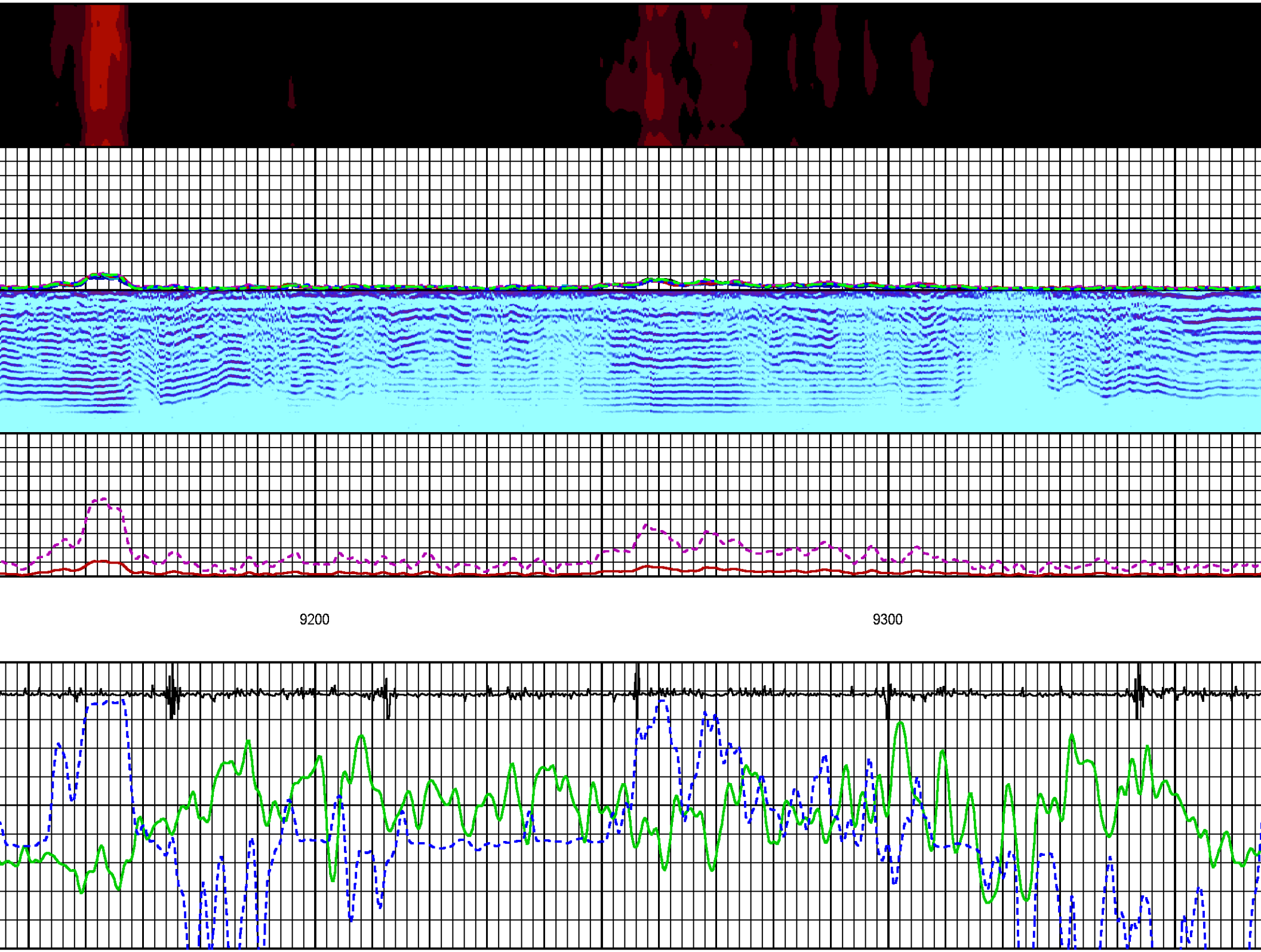
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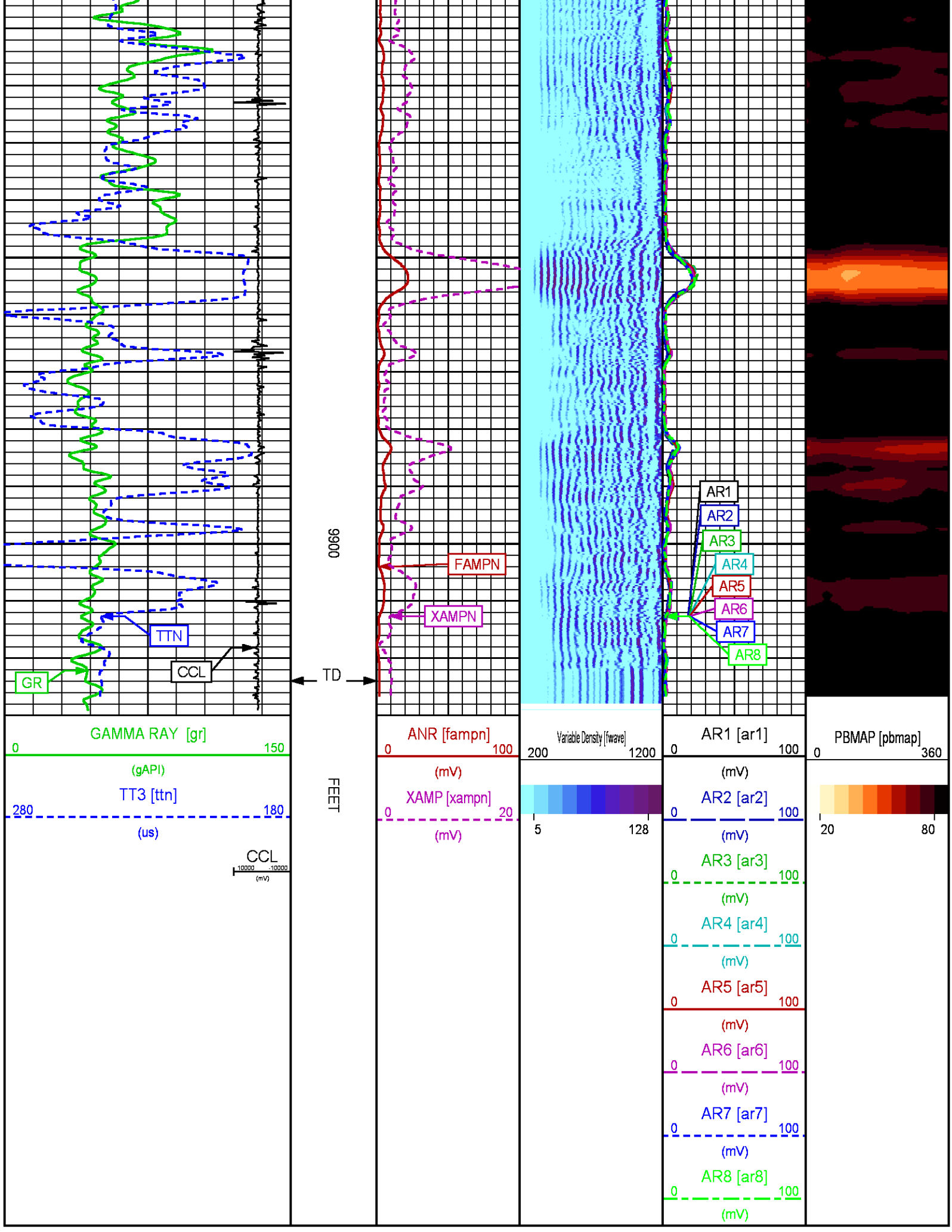
9600
9700
9800


GR
TTN
CCL
TD
9900
FEET
FAMPN
XAMPN
AR1
AR2
AR3
AR4
AR5
AR6
AR7
AR8
GAMMA RAY [gr]
0
150
(gAPI)
TT3 [ttn]
280
180
(us)
CCL
10000
-10000
(mV)
ANR [fampn]
0
100
(mV)
XAMP [xampn]
0
20
(mV)
Variable Density [fwave]
200
1200
5
128
AR1 [ar1]
0
100
(mV)
AR2 [ar2]
AR3 [ar3]
AR4 [ar4]
AR5 [ar5]
AR6 [ar6]
AR7 [ar7]
AR8 [ar8]
PBMAP [pbmap]
0
360
20
80

CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/CH101064/n354h.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 2812LA 10274382 DATE/TIME PERFORMED: Fri Dec 4 13:53:27 2015

UNIT #: 3880TA HL6670 CALB JIG #: 4702NK WA-612

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	55.64	250.42	194.8	1.078	59.99	269.99	210

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 2812LA 10274382 DATE/TIME PERFORMED: Fri Dec 4 13:55:35 2015

UNIT #: 3880TA HL6670 VERI JIG #: 4702NK WA-612

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	57.07	255.69	1.078	61.53	275.67	214.14 (200.00 – 220.00)

RPM_PNC_3D PRIMARY CALIBRATION SUMMARY

TOOL: 8283PA 10585555 DATE/TIME PERFORMED: Fri Dec 4 15:05:21 2015

UNIT: 3880TA HL6670 CALIBRATOR: 2437XB 112674 SOURCE: 8281AA 11724361 HOURS: 8281AA 52

	ISS	Mtr Vlts (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	805195	123	2231	2198	2236	107	7	0.9751
Interpolated	1300000	147	2205	2182	2233			

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	805195	6721	1074	149	26.16 (25.35 – 26.40)	0.14 (0.00 – 0.20)	24.34 (23.60 – 24.80)	0.32 (0.00 – 0.40)

	ISS	ILS	IXS	SS	SS2	LS	CSS	CLS
Raw Data	805195	174199	27474	91124	32411	8405	55042	13455
Fit Quality %		0.817	1.056	1.090	1.085	0.923	0.976	0.912

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	805195	1.43 (1.42 – 1.45)	4.62 (3.55 – 5.52)	29.32 (22.20 – 32.70)	14.63 (10.99 – 16.34)	10.85 (10.06 – 11.10)	3.86 (3.57 – 3.95)	4.09 (3.76 – 4.22)
Fit Quality %		0.034	0.365	0.305	0.242	0.120	0.126	0.108
Reduced	1396913	1.43 (1.42 – 1.45)	4.63 (4.33 – 5.52)	29.34 (27.60 – 32.70)	14.63 (13.70 – 16.34)	10.85 (10.06 – 11.10)	3.86 (3.57 – 3.95)	4.09 (3.76 – 4.22)

TPSETEMP PRIMARY CALIBRATION SUMMARY

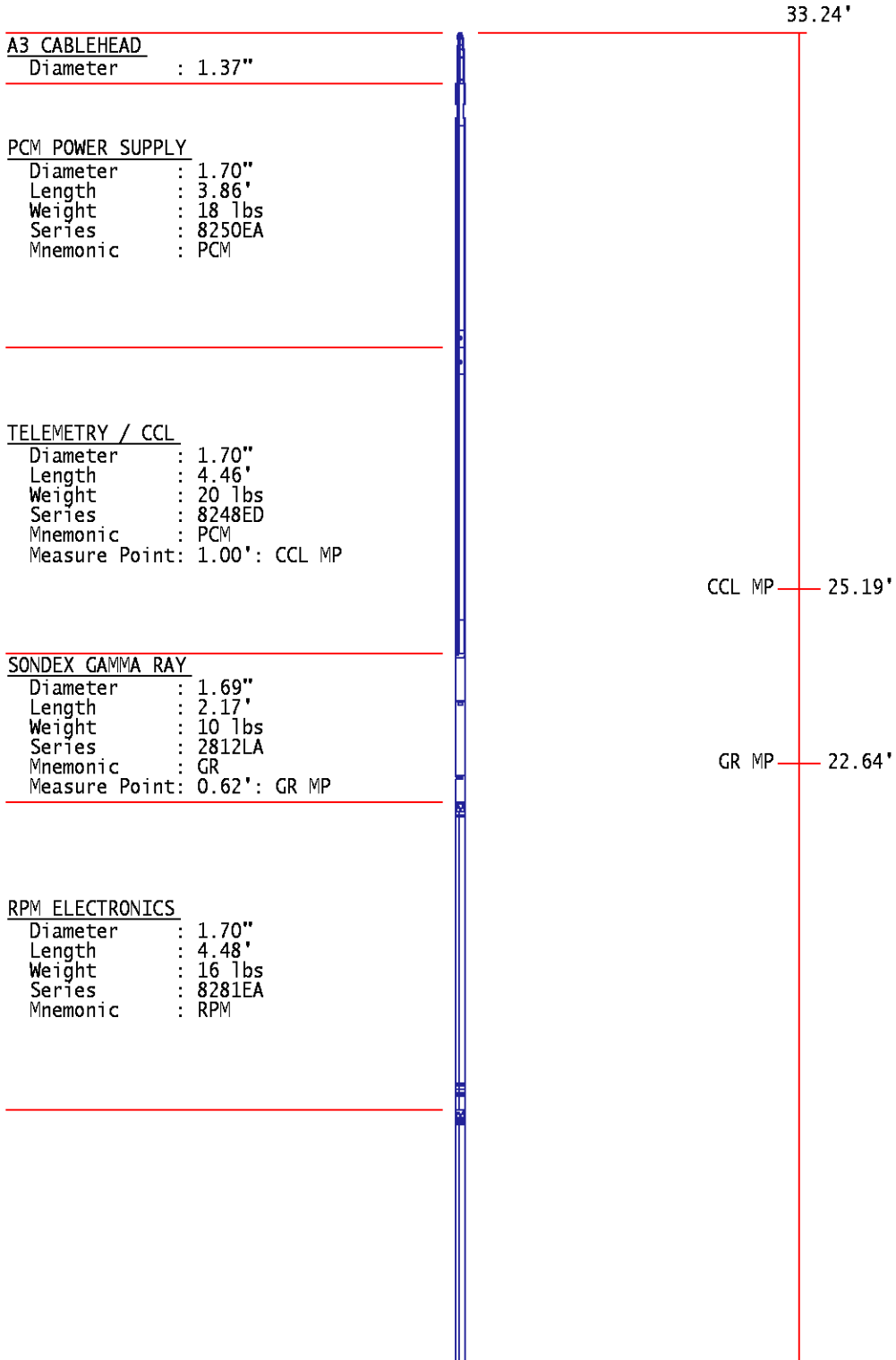
TOOL #: 8255XA 120516 DATE/TIME PERFORMED: Fri Oct 9 14:47:11 2015

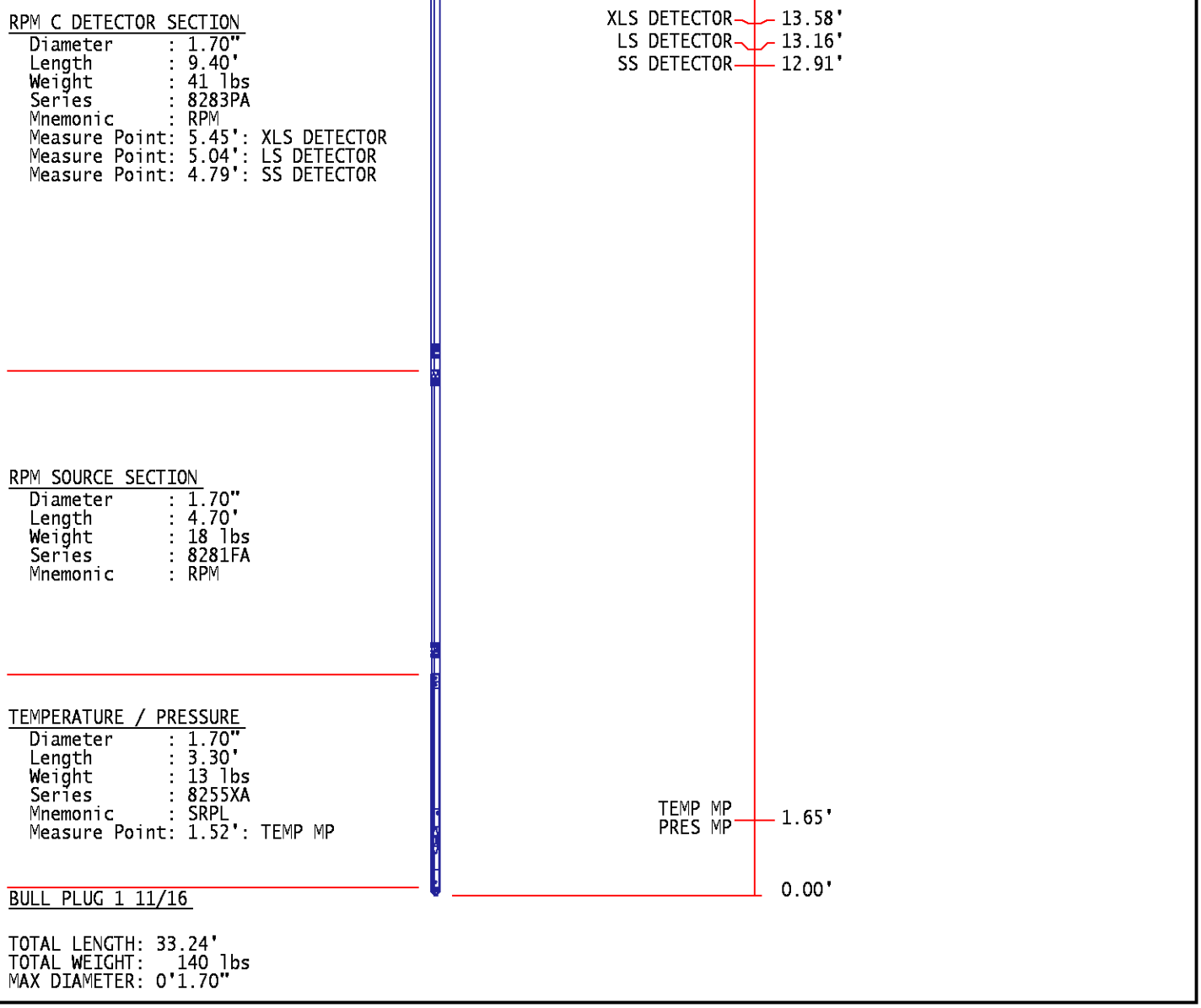
UNIT #: 3880TA HL6670

	T(0)	T(1)	T(2)	T(3)
Corr Coeff for Temp	-2.032071E+01	1.041576E-01	1.407105E-06	-1.763022E-10

INSTRUMENT CONFIGURATION

Source File: /dat1a/CH101064/RPM-tdg





BAKER HUGHES

EOLIPS

COMPANY	WPX ENERGY
WELL	FEDERAL RU 21-8
FIELD	RUILISON
COUNTY	GARFIELD
STATE	COLORADO

FILE NO: CH101064

API NO: 05045227830000

LOCATION:

SHL: 653' FNL & 1876' FWL

BHL: 627' FNL & 1436' FWL

SEC 8 TWP 7S RGE 93W

ELEVATIONS:

KB 7760 FT

DF

GL 7736 FT

SEC 8 T7S R93W

RU 21-8 PAD

H&P 318

DATE 07-DEC-2015