

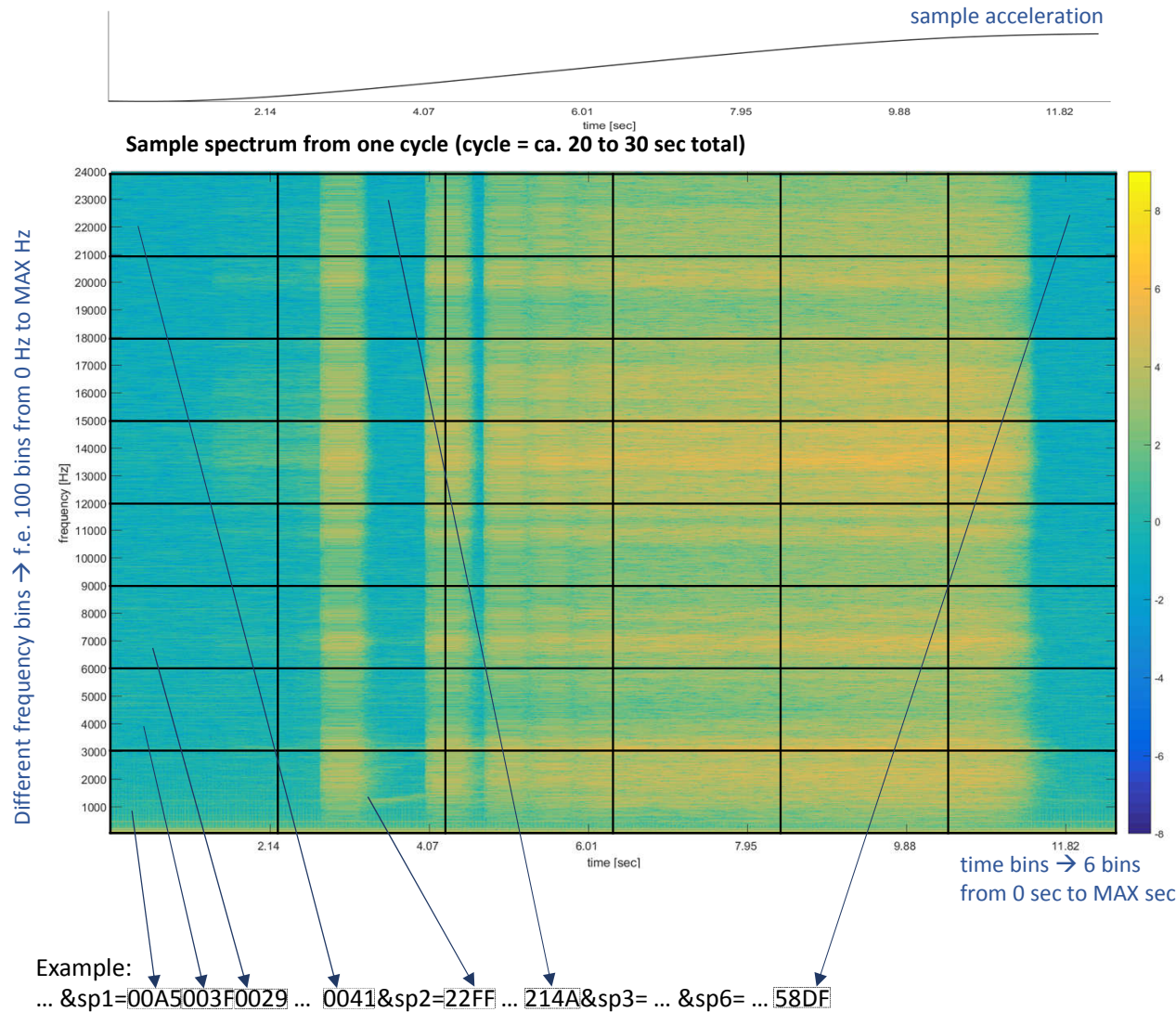
Communication Telegram

Description	Key	Sample value
Date [year_month_date formatted string]	date	2020_07_14
Time [h_m_s formatted string]	time	12_03_49
Vehicle ID [string]	carId	A123B456
Software ID [string]	softwareId	v103s008
System health status [integer value]	sytemhealth	1
System state (init, learning, measurement) [integer value]	systemstate	1
Supply voltage[double value]	supply	23,8
Location GPS latitude [string] pos = north, neg = south	gpslat	52.428
Longitude [string] pos = east, neg = west	gpslong	13.528
Temperature T° [double value in °C]	temp	25.481
How many frequency bins does the spectrogram have	frqBins	100 (currently fixed)
How many time bins does the spectrogram have	timeBins	6 (currently fixed sp1..sp6)
How many seconds was the initial record long (in sec)	maxSampleTimeSec	15
What was the used sample->fft frequency (in Hz)	maxFullFrqHz	22100 (fixed, depends on HW)
What is the last frequency used in the upper most frq-bin (in Hz)	maxSendFrqHz	5000 (tbd)

Communication Telegram Part2

Description	Key	Sample value
Spectrum 1 [long string formatted * see next page]	sp1	* see next page
Spectrum 2 [long string formatted * see next page]	sp2	* see next page
Spectrum 3 [long string formatted * see next page]	sp3	* see next page
Spectrum 4 [long string formatted * see next page]	sp4	* see next page
Spectrum 5 [long string formatted * see next page]	sp5	* see next page
Spectrum 6 [long string formatted * see next page]	sp6	* see next page
Send counter [integer value]	sendCount	25
Checksum [string formatted as 1 byte hex value]	checksum	0x1E

Spectrum „X“ tag [long string formatted]



Tag(s) characteristics

- tag begins with sp“X“= (→ equals 4 char values)
- one time bin and all frequency bins; in sum 100 values
- 6 bins in total for one cycle
- one value is a HEX coded string value like F47C ; min is 0000 max is FFFF (16 bit res.)
- string length total is $6 \cdot 100 \cdot 4 + 6 \cdot 4 = 2424$ chars
- to reduce data volume an 8 bit resolution may be possible (00 to FF in hex)

Elements to be defined

- max recording time for one cycle [in sec]
- max time bins
- max analysis frequency [in Hz]
- max frequency bins
- resolution

Sample communication

Sample from the 5m dummy sender

```
'https://WW.XX.YY.ZZ:PORT/sensorin.cgi?date=2021_03_04&time=13_33_36&carId=A123B456&softwareId=v101s012&sytemHealth=1&syste  
mState=4&supplyVoltage=5.03&gpsLat=52.42853&gpsLong=13.52882&temp=25.481&frqBins=100&timeBins=6&maxSampleTimeSec=15&maxFull  
FrqHz=22100&maxSendFrqHz=5000&sp1=E47013391D8AA83DAEEB00663479879E692A72E19A151080614E85D461748164B8953C3D15B87301B9E59B05C  
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582263AADB3F2037AF73835FB8BA3011F53D89671F9920A88AFD6B6817F5DF37&sp2=BB2EF0D58C8DDCDBC1768C9E2B07CF400ECE0B228D43AC380AA2A  
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24BB6B45E88F10&sp4=00000000000100000001000200000001000200030000000100020003000400000001000200030004000500000001000200030004  
0005000600000001000200030004000500060007000000010002000300040005000600070008000000100020003000400050006000700080009000000  
100020003000400050006000700080009000A0000000100020003000400050006000700080009000A000B00000001000200030004000500060007000800  
09000A000B000C000000010002000300040005000600070008&sp5=00000295052B07C10A570CED0F83121914AF174519DB1C711F07219D243326C9295F  
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FD0643040502440102004000000040010202440405064308FD0C2E0FD513EC18721D5F22B128602E6834C33B694255497F50E05871602A68036FF477F6&  
sendCount=24&checksum=0x1E'
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