OPEN PROTOCOL FOR ELECTRICAL NETWORKS

Who = 22
Sound Diffusion
Version 1.1

My Open Staff

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Contents

Chapter 1

Introduction

This file is available from http://www.myopen-legrandgroup.com. The purpose of this document is to describe the Open Web Net Message for WHO = 22 - Sound Diffusion System. In particular, the document contains the *"1.1 Abbreviations"* section which describe some terms, with the relative values, used within the open message. The second chapter, *"WHO 22"*, contains the "WHAT", "DIMENSION" and "WHERE" tables, finally the chapter 3, *"Allowed OPEN messages Session"*, contains command and event session, status request, dimension writing and request for source and speakers.

1.1 Abbreviations

Name	Description	Range of Values
<mmtype>	Multimedia type	[1-4]; 11: • 1 → Voice • 2 → Canal Right • 3 → Canal Left • 4 → Canal Stereo • 11 → All Source
<sourceID>	Source address	[1-4]
<area>	Represents the output area where the source is ON	[1-9]
<point>	Represents the speaker's fonic point	[1-9]
<deviceState>	Represents state of device	[0-1]: • 0 = OFF; • 1 = ON

<freqStep>	Frequency step value	[1-15]: • 1 = 50Hz; • 2 = 100Hz; • 3 = 150Hz; • .....; • .....; • 15 = 750Hz
<freqValue>	Frequency of the selected station	
<modulation>	Modulation type	[1-4]: • 1 = FM; • 2 = AM-LW; • 3 = AM-MW; • 4 = AM-SW
<station>	Number of memorized station	[1-5]: • F500 [1-15]: • F500N
<track>	Represents the number of track to select	[1-999]
<volumeStep>	Represent the step of the volume increase	[1-31]
<volume>	Volume of speaker	[0-31]
<tonesValue>	Indicates the values of tones	[1-63]
<balanceValue>	Indicates the values of balance	[1-63]
<presetType>	Indicates the number of selected preset	[2-11]: • 2 = Normal; • 3 = Dance; • 4 = Pop; • 5 = Rock; • 6 = Classic; • 7 = Techno; • 8 = Party; • 9 = Soft; • 10 = Full bass; • 11 = Full treble; • 16-25 = User defined preset
<3dLevel>	Level of 3D effect	[0-10]

<loudness>	Represent the state of loudness	[0-1]: • 0 = OFF; • 1 = ON
<equalizationX>	Equalization	X[1-3]
<band>		if X values in equalization is: • 1→band=BAND1*BAND2* BAND3; • 2→band=BAND4*BAND5* BAND6; • 3→band=BAND7*BAND8;
Ack	The command has been sent to Bus	*#*1##

Chapter 2

WHO 22

2.1 WHAT Table

Value	Description
0	Turn off
1	Turn on
2	Source turned on
3	Increase volume
4	Decrease volume
5	Automatic tuner search towards higher frequencies
6	Manual tuner search towards lower frequencies
9	Go to a following station
10	Go to a previous station
11	Go to a following track
12	Go to a previous track
22	Sliding request
31	Ask a source to start telling RDS message
32	Ask a source to stop telling RDS message
33	Store the presently tuned frequency on a certain station
34	Turn ON Amplifier with follow me method
35	Turn ON Amplifier to a certain source
36	Increment Low Tones
37	Decrement Low Tones
38	Increment Mid Tones
39	Decrement Mid Tones
40	Increment High Tones
41	Decrement High Tones
42	Increment balance (left>right)
43	Decrement balance (left<right)
55	Next Preset
56	Previous Preset

2.2 DIMENSION Table

Value	Description
1	Volume
2	High Tones
3	Medium Tones
4	Low Tones
5	Frequency
6	Track/station

7	Play status
11	Frequency and Station
12	Device state
17	Balance
18	3D
19	Preset
20	Loudness

2.3 WHERE Table

Description	**Value**
Source	2#sourceID
Speaker	3#area#point
Speaker Area	4#area
General	5#`sender_address`
All Source	6

Chapter 3

Allowed OPEN messages Session

3.1 Command session - Source

3.1.1 Turn OFF - What = 0

Command	Open Frame
Client → Server	*22*0#<mmtype>#<area>*2#<sourceID>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*2#<sourceID>*12*<deviceState>*<mmtype>##

3.1.2 Turn ON - What = 1

Command	Open Frame
Client → Server	*22*1#<mmtype>#<area>*2#<sourceID>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*2#<sourceID>*12*<deviceState>*<mmtype>##
Server → Client	*22*21#<mmtype>#<area>*5#2#<sourceID>##
Server → Client	*22*2#<mmtype>#<area>*5#2#<sourceID>##

3.1.3 Frequency Up - What = 5

Command	Open Frame	Note
Client → Server	*22*5#*2#<sourceID>##	source allowed: radio the search is automatic
Client → Server	*22*5#<freqStep>*2#<sourceID>##	source allowed: radio
Server → Client	Ack	

Event Session	Open Frame
Server → Client	*#22*where*5*<modulation>*<freqValue>##

3.1.4 Frequency Down - What = 6

Command	Open Frame	Note
Client → Server	*22*6#*2#<sourceID>##	source allowed: radio the search is automatic
Client → Server	*22*6#<freqStep>*2#<sourceID>##	
Server → Client	Ack	

Event Session	Open Frame
Server → Client	*#22*where*5*<modulation>*<freqValue>##

3.1.5 Next Station - What = 9

Command	Open Frame	Note
Client → Server	*22*9#*2#<sourceID>##	source allowed: radio
Server → Client	Ack	

Event Session	Open Frame
Server → Client	*#22*5#2#<sourceID>*5*<modulation>*<freqValue>##
Server → Client	*#22*5#2#<sourceID>*11*<modulation>*<freqValue>*<station>##
Server → Client	*#22*2#<sourceID>*6*<station>##

3.1.6 Previous Station - What = 10

Command	Open Frame	Note
Client → Server	*22*10#*2#<sourceID>##	source allowed: radio
Server → Client	Ack	

Event Session	Open Frame
Server → Client	*#22*5#2#<sourceID>*5*<modulation>*<freqValue>##
Server → Client	*#22*5#2#<sourceID>*11*<modulation>*<freqValue>*<station>##
Server → Client	*#22*2#<sourceID>*6*<station>##

3.1.7 Next Track - What = 11

Command	Open Frame	Note
Client → Server	*22*11#*2#<sourceID>##	source allowed: • Aux; • Multimedia SCS Source
Client → Server	*22*11#<freqStep>*2#<sourceID>##	source allowed: • Aux; • Multimedia SCS Source • <freqStep>= if not specified the step is = 1
Server → Client	Ack	

Event Session	Open Frame
Server → Client	No event session

3.1.8 Previous Track - What = 12

Command	Open Frame	Note
Client → Server	*22*12#*2#<sourceID>##	source allowed: • Aux; • Multimedia SCS Source
Client → Server	*22*12#<freqStep>*2#<sourceID>##	source allowed: • Aux; • Multimedia SCS Source • <freqStep>= if not specified the step is = 1
Server → Client	Ack	

Event Session	Open Frame
Server → Client	No event session

3.1.9 Go To Source - What = 22

Command	Open Frame	Note
Client → Server	*22*22#<mmtype>#<area>*2#<sourceID>##	
Server → Client	Ack	

Event Session	Open Frame
Server → Client	*#22*5#2#<sourceID>*5*<modulation>*<freqValue>##
Server → Client	*#22*5#2#<sourceID>*11*<modulation>*<freqValue>*<station>##
Server → Client	*#22*2#<sourceID>*6*<station>##

3.1.10 Start RDS message - What = 31

Command	Open Frame	Note
Client → Server	*22*31#<sourceID>##	source allowed: radio
Server → Client	Ack	

Event Session	Open Frame
Server → Client	*#22*where*10*VAL1*VAL2*VALn##

3.1.11 Stop RDS message - What = 32

Command	Open Frame	Note
Client → Server	*22*32#<sourceID>##	source allowed: radio
Server → Client	Ack	

Event Session	Open Frame
Server → Client	No event session

3.1.12 Store Station - What = 33

Command	Open Frame	Note
Client → Server	*22*33#<station>*2#<sourceID>##	source allowed: radio
Server → Client	Ack	

Event Session	Open Frame
Server → Client	*#22*5#2#<sourceID>*5*<modulation>*<freqValue>##
Server → Client	*#22*5#2#<sourceID>*11*<modulation>*<freqValue>*<station>##
Server → Client	*#22*2#<sourceID>*6*station##

3.2 Command session - Speaker

3.2.1 Turn OFF - What = 0

Command	Open Frame
Client → Server	*22*0#<mmtype><area>*3#<area><point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*12*<deviceState>*<mmtype>##

3.2.2 Turn ON - What = 1

Command	Open Frame
Client → Server	*22*1#<mmtype><area>*3#<area><point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*12*<deviceState>*<mmtype>##
Server → Client	*#22*3#<area>#<point>*1*<volume>*##

3.2.3 Increase Volume - What = 3

Command	Open Frame
Client → Server	*22*3#<volumeStep>*3#<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*1*<volume>*##

3.2.4 Decrease Volume - What = 4

Command	Open Frame
Client → Server	*22*4#<volumeStep>*3#<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*1*<volume>*##

3.2.5 Turn ON whit Follow me - What = 34

Command	Open Frame
Client → Server	*22*34#<mmtype>#<area>*3#<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*22*2#<mmtype>#<area>*5#2#<sourceID>##
Server → Client	*#22*3#<area>#<point>*12*<deviceState>*<mmtype>##

3.2.6 Turn ON Amplifier to certain source - What = 35

Command	Open Frame
Client → Server	*22*35#4#<area>#<sourceID>*3#<area># <point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*22*21#<mmtype>#<area>*5#2#<sourceID>##
Server → Client	*22*2#<mmtype>#area*5#2#<sourceID>##
Server → Client	*#22*3#<area>#<point>*12*<deviceState>*<mmtype>##
Server → Client	*#22*3#<area>#<point>*1*<volume>##

3.2.7 Increment Low Tones - What = 36

Command	Open Frame
Client → Server	*22*36#<tonesValue>*3#<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*2*<tonesValue>##
Server → Client	*#22*3#<area>#<point>*4*<tonesValue>##

3.2.8 Decrement Low Tones - What = 37

Command	Open Frame
Client → Server	*22*37#<tonesValue>*3#<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*2*<tonesValue>##
Server → Client	*#22*3#<area>#<point>*4*<tonesValue>##

3.2.9 Increment Mid Tones - What = 38

Command	Open Frame
Client → Server	*22*38#<tonesValue>*3#<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*3*<tonesValue>##

3.2.10 Decrement Mid Tones - What = 39

Command	Open Frame
Client → Server	*22*39#<tonesValue>*3#<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*3*<tonesValue>##

3.2.11 Increment High Tones - What = 40

Command	Open Frame
Client → Server	*22*40#<tonesValue>*3#<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*2*<tonesValue>##
Server → Client	*#22*3#<area>#<point>*4*<tonesValue>##

3.2.12 Decrement High Tones - What = 41

Command	Open Frame
Client → Server	*22*41#<tonesValue>*3#<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*2*<tonesValue>##
Server → Client	*#22*3#<area>#<point>*4*<tonesValue>##

3.2.13 Increment Balance: Left > Right - What = 42

Command	Open Frame
Client → Server	*22*42#<balanceValue>*3#<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*17*<value>##

3.2.14 Decrement Balance: Left < Right - What = 43

Command	Open Frame
Client → Server	*22*43#<balanceValue>*3#<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*17*<value>##

3.2.15 Next Preset - What = 55

Command	Open Frame
Client → Server	*22*55##<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*19*<presetType>##
Server → Client	*#22*3#<area>#<point>*18*<3dLevel>##
Server → Client	*#22*3#<area>#<point>*20*<loudness>##
Server → Client	*#22*3#<area>#<point>*21#1*<band>##
Server → Client	*#22*3#<area>#<point>*21#2*<band>##
Server → Client	*#22*3#<area>#<point>*21#3*<band>##

3.2.16 Previous Preset - What = 56

Command	Open Frame
Client → Server	*22*56##<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*19*<presetType>##
Server → Client	*#22*3#<area>#<point>*18*<3dLevel>##
Server → Client	*#22*3#<area>#<point>*20*<loudness>##
Server → Client	*#22*3#<area>#<point>*21#1*<band>##
Server → Client	*#22*3#<area>#<point>*21#2*<band>##
Server → Client	*#22*3#<area>#<point>*21#3*<band>##

3.3 Status request

3.3.1 Source

Command	Open Frame
Client → Server	*#22*<where>##
Server → Client	Ack

Event Session	Open Frame	Note
Server → Client	*#22*2#<sourceID>*12*<deviceState>*<mmtype>##	if where is 5#2#sourceID in status request then we have a dimension 12 for each source and speaker

3.3.2 Speaker

Command	Open Frame
Client → Server	*#22*3#<area>#<point>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*12*<deviceState>*<mmtype>##

3.4 Dimension writing

3.4.1 Source

3.4.1.1 State Memorized Station - Dimension = 11

Command	Open Frame
Client → Server	*#22*5#2#<sourceID>*#11*<modulation>*<freqValue>*<station>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*5#2#<sourceID>*5*<modulation>*<freqValue>##
Server → Client	*#22*5#2#<sourceID>*11*<modulation>*<freqValue>*<station>##

3.4.1.2 Device state - Dimension = 12

Command	Open Frame
Client → Server	*#22*5#2#<sourceID>*#12*<deviceState>*<mmtype>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	No event session

3.4.2 Speakers

3.4.2.1 Volume - Dimension = 1

Command	Open Frame
Client → Server	*#22*3#<area>#<point>#1*<volumeStep>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#16*<area><point>*1*<volume>##
Server → Client	*#22*3#<area>#<point>*1*<volume>##

3.4.2.2 High tones - Dimension = 2

Command	Open Frame
Client → Server	*#22*3#<area>#<point>#2*<tonesValue>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*2*<tonesValue>##
Server → Client	*#22*3#<area>#<point>*4*4##

3.4.2.3 Medium tones - Dimension = 3

Command	Open Frame
Client → Server	*#22*3#<area>#<point>#3*<tonesValue>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*2*<tonesValue>##
Server → Client	*#22*3#<area>#<point>*4*4##

3.4.2.4 Low tones - Dimension = 4

Command	Open Frame
Client → Server	*#22*3#<area>#<point>#4*<tonesValue>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*2*<tonesValue>##
Server → Client	*#22*3#<area>#<point>*4*4##

3.4.2.5 Device state - Dimension = 12

Command	Open Frame
Client → Server	*#22*3#<area>#<point>*#12*<deviceState>*<mmtype>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	No event session

3.4.2.6 Balance - Dimension = 17

Command	Open Frame
Client → Server	*#22*3#<area>#<point>*#17*<balanceValue>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*17*<balanceValue>##

3.4.2.7 Preset - Dimension = 19

Command	Open Frame
Client → Server	*#22*3#<area>#<point>*#19*<presetType>##
Server → Client	Ack

Event Session	Open Frame

Server → Client	*#22*3#<area>#<point>*20*<loudness>##
Server → Client	*#22*3#<area>#<point*18*<3dLevel>##
Server → Client	*#22*3#<area>#<point*19*<presetType>##
Server → Client	*#22*5#3#<area>#<point*21#<equalization1>*<band>##
Server → Client	*#22*5#3#<area>#<point*21#<equalization2>*<band>##
Server → Client	*#22*5#3#<area>#<point*21#<equalization3>*<band>##

3.4.2.8 Loudness - Dimension = 20

Command	Open Frame
Client → Server	*#22*3#<area>#<point>*#20*<loudness>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*20*<loudness>##
Server → Client	*#22*3#<area>#<point>*18*<3dLevel>##
Server → Client	*#22*3#<area>#<point>*19*<presetType>##

3.5 Dimension request

3.5.1 Source

3.5.1.1 State frequency - Dimension = 5

Command	Open Frame
Client → Server	*#22*5#2#<sourceID>*5##
Server → Client	*#22*5#2#<sourceID>*5*<modulation>*<freqValue>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*5#2#<sourceID>*5*<modulation>*<freqValue>##
Server → Client	*#22*2#<sourceID>*11*<modulation>*<freqValue>*<station(or track)>##

3.5.1.2 State station/track - Dimension = 6

Command	Open Frame
Client → Server	*#22*5#2#<sourceID>*6##
Server → Client	*#22*5#2#<sourceID>*6*<station(or track)>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*2#<sourceID>*5*<modulation>*<freqValue>##
Server → Client	*#22*2#<sourceID>*6*<station(or track)>##
Server → Client	*#22*2#<sourceID>*11*<modulation>*<freqValue>*<station(or track)>##

3.5.1.3 State memorized station - Dimension = 11

Command	Open Frame
Client → Server	*#22*5#2#<sourceID>*11##
Server → Client	*#22*5#2#<sourceID>*11*<modulation>*<freqValue>*<station(or track)>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*5#2#<sourceID>*5*<modulation>*<freqValue>##
Server → Client	*#22*5#2#<sourceID>*11*<modulation>*<freqValue>*<station(or track)>##

3.5.1.4 Device state - Dimension = 12

Command	Open Frame
Client → Server	*#22*5#2#<sourceID>*12##
Server → Client	*#22*2#<sourceID>*12*<deviceState>*<mmtype>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*2#<sourceID>*12*<deviceState>*<mmtype>##

3.5.2 Speakers

3.5.2.1 Volume - Dimension = 1

Command	Open Frame
Client → Server	*#22*3#<area>#<point>*1##
Server → Client	*#22*3#<area>#<point>*1*<volume>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#16*<area><point>*1*<volume>##
Server → Client	*#22*3#<area>#<point>*1*<volume>##

3.5.2.2 High tones - Dimension = 2

Command	Open Frame
Client → Server	*#22*3#<area>#<point>*2##
Server → Client	*#22*3#<area>#<point>*2*<tonesValue>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*3*<tonesValue>##
Server → Client	*#22*3#<area>#<point>*4*<tonesValue>##

3.5.2.3 Medium tones - Dimension = 3

Command	Open Frame
Client → Server	*#22*3#<area>#<point>*3##
Server → Client	*#22*3#<area>#<point>*3*<tonesValue>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*3*<tonesValue>##
Server → Client	*#22*3#<area>#<point>*4*<tonesValue>##

3.5.2.4 Low tones - Dimension = 4

Command	**Open Frame**
Client → Server	*#22*3#<area>#<point>*4##
Client → Server	*#22*3#<area>#<point>*4*<tonesValue>##
Server → Client	Ack

Event Session	**Open Frame**
Server → Client	*#22*3#<area>#<point>*2*<tonesValue>##
Server → Client	*#22*3#<area>#<point>*4*<tonesValue>##

3.5.2.5 Device state - Dimension = 12

Command	Open Frame
Client → Server	*#22*3#<area>#<point>*12##
Server → Client	*#22*3#<area>#<point>*12*<deviceState>*<mmtype>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*16*3*<area><point>##
Server → Client	*#22*3#<area>#<point>*12*<deviceState>*<mmtype>##

3.5.2.6 Balance - Dimension = 17

Command	Open Frame
Client → Server	*#22*3#<area>#<point>*17##
Server → Client	Ack

Event Session	Open Frame
Server → Client	#22*3#<area#<point>*17*<balanceValue>##

3.5.2.7 Preset - Dimension = 19

Command	Open Frame
Client → Server	*#22*3#<area>#<point>*19##
Server → Client	*#22*3#<area>#<point>*19*<presetType>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*20*<loudness>##
Server → Client	*#22*3#<area>#<point>*18*<3dLevel>##
Server → Client	*#22*3#<area>#<point>*19*<presetType>##

3.5.2.8 Loudness - Dimension = 20

Command	Open Frame
Client → Server	*#22*3#<area>#<point>*20##
Server → Client	*#22*3#<area>#<point>*20*<loudness>##
Server → Client	Ack

Event Session	Open Frame
Server → Client	*#22*3#<area>#<point>*20*<loudness>##
Server → Client	*#22*3#<area>#<point>*18*<3dLevel>##
Server → Client	*#22*3#<area>#<point>*19*<presetType>##