Additional D Protocol Extensions Proposal

Updated 2/23/2004

Summary

This is a summary of differences between what we are currently using and this proposal.

1. Change opcode 0x01 such that it can be used for ack as well as nack. Previously it was only used for nack. This provides the advantage that both ack and nack use the Extended Response format.
2. All commands and responses have a unique opcode/sub-opcode pair. Previously a given command and response could use the same opcode/sub-opcode pair.
3. The response to the set zoom limit command is now either ack or nack. Previously the response contained the zoom limit that was set (which may have varied from the actual value that was sent in the command).

Details

Opcode 0x01 - Standard Extended Response

Byte 3	Byte 4	Byte 5	Byte 6
Resp Type	0x01	Additional Info	Additional Info

Resp Type indicates whether the response is a nack or an ack. 0=Nack, 1=ack.

The information in the Additional Info bytes is specific to the command that is being responded to. If Additional Info is not used for particular response, the bytes should be set to zero.

Opcode 0x73 - Version Information Macro Opcode

Byte 3	Byte 4	Byte 5	Byte 6
Sub Opcode	0x73	Various	Various

Sub Opcode usage:

0x00	Request version of application that is running on the main CPU.
0x01	Response to sub opcode 0x00
0x02	Request build number of application that is running on the main CPU.
0x03	Response to sub opcode 0x02

Byte 3	Byte 4	Byte 5	Byte 6
0x00	0x73	0x00	0x00

Byte 3	Byte 4	Byte 5	Byte 6
0x01	0x73	Version MSB	Version LSB

Units for version are hundredths of a version. Divide by 100 to get the major version number, the remainder is the minor version number.

Byte 3	Byte 4	Byte 5	Byte 6
0x02	0x73	0x00	0x00

Byte 3	Byte 4	Byte 5	Byte 6
0x03	0x73	Build MSB	Build LSB

Build is interpreted as a 16 bit unsigned integer.

The response for unsupported types is NACK.

Opcode 0x75 Everest Macro Opcode

Byte 3	Byte 4	Byte 5	Byte 6
Sub Opcode	0x75	Various	Various

Sub Opcode usage:

0x00	Query azimuth zero offset command
0x01	Query azimuth zero offset response
0x02	Set zoom limit command
0x03	Query zoom limit command
0x04	Query zoom limit response
0x05	Query alarms command
0x06	Query alarms response
0x07	Delete pattern command
0x08	Set manual left pan limit command
0x09	Set manual right pan limit command
0x0A	Set scan left pan limit command
0x0B	Set scan right pan limit command
0x0C	Get limit value command
0x0D	Get limit value response
0x0E	Enable/disable limits command
0x0F	Get defined presets command
0x10	Get defined presets response
0x11	Get defined patterns command
0x12	Get defined patterns response

Byte 3	Byte 4	Byte 5	Byte 6
0x00	0x75	0x00	0x00

Byte 3	Byte 4	Byte 5	Byte 6
0x01	0x75	Offset (MSB)	Offset (LSB)

Offset is in hundredths of degrees.

Byte 3	Byte 4	Byte 5	Byte 6
0x02	0x75	limit (MSB)	limit (LSB)

Limit is in hundredths. Ex. a value of 18400 means x184. Acceptable values are device specific.

The response to this command is Ack or Nack.

Byte 3	Byte 4	Byte 5	Byte 6
0x03	0x75	0x00	0x00

Byte 3	Byte 4	Byte 5	Byte 6
0x04	0x75	limit (MSB)	limit (LSB)

Limit is in hundredths. Ex. a value of 18400 means x184.

Byte 3	Byte 4	Byte 5	Byte 6
0x05	0x75	0x00	0x00

Byte 3	Byte 4	Byte 5	Byte 6
0x06	0x75	0x00	Alarm bit mask

The format of the alarm bit mask is the same as the format of the alarms in the General Response.

DELETE PATTERN COMMAND

Byte 3	Byte 4	Byte 5	Byte 6
0x07	0x75	0x00	pattern number

Pattern numbers start at 1. Valid pattern numbers for Spectra III are 1-4.

The response is Ack if the pattern was deleted. The response is Nack if the pattern was not deleted or the pattern number is out of range. Currently the only reason a pattern would not be deleted is if it was not defined.

SET MANUAL LEFT PAN LIMIT COMMAND

Byte 3	Byte 4	Byte 5	Byte 6
0x08	0x75	limit (MSB)	limit (LSB)

Units for limit are hundredths of degrees. The range of values is 0-35999.

The response is Ack if the limit is in range. The response is Nack if the limit is out of range.

SET MANUAL RIGHT PAN LIMIT COMMAND

Byte 3	Byte 4	Byte 5	Byte 6
0x09	0x75	limit (MSB)	limit (LSB)

Units for limit are hundredths of degrees. The range of values is 0-35999.

The response is Ack if the limit is in range. The response is Nack if the limit is out of range.

SET SCAN LEFT PAN LIMIT COMMAND

Byte 3	Byte 4	Byte 5	Byte 6
0x0A	0x75	limit (MSB)	limit (LSB)

Units for limit are hundredths of degrees. The range of values is 0-35999.

The response is Ack if the limit is in range. The response is Nack if the limit is out of range.

SET SCAN RIGHT PAN LIMIT COMMAND

Byte 3	Byte 4	Byte 5	Byte 6
0x0B	0x75	limit (MSB)	limit (LSB)

Units for limit are hundredths of degrees. The range of values is 0-35999.

The response is Ack if the limit is in range. The response is Nack if the limit is out of range.

GET LIMIT VALUE COMMAND

Byte 3	Byte 4	Byte 5	Byte 6
0x0C	0x75	0x00	limit id

Request a limit. The following ids are used in Spectra III

Id	Usage
0x00	Manual left pan limit
0x01	Manual right pan limit
0x02	Scan left pan limit
0x03	Scan right pan limit

The response is opcode 0x75, sub opcode 0x0D.

GET LIMIT VALUE RESPONSE

Byte 3	Byte 4	Byte 5	Byte 6
0x0D	0x75	limit (MSB)	limit (LSB)

This is the response to opcode 0x75, sub opcode 0x0C.

Units for limit are hundredths of degrees. The range of values is 0-35999.

The limit that is returned depends on the limit id in the command that is being responded to.

ENABLE/DISABLE LIMITS COMMAND

Byte 3	Byte 4	Byte 5	Byte 6
0x0E	0x75	0x00	new limits state

Enables or disables the manual limits and scan limits. Allowed values for new limits state are:

Value	Usage
0x00	disables the limits
0x01	enables the limits

The response to this command is ack if new limits state is a valid value. Otherwise the response is nack.

GET DEFINED PRESETS COMMAND

Byte 3	Byte 4	Byte 5	Byte 6
0x0F	0x75	0x00	preset bank

Preset bank indicates which group of 16 presets are being queried. For Spectra III preset bank can range from 0 to 5. Bank 0 covers presets 1-16, bank 1 covers presets 17-32, etc.

The response to this command is opcode 0x75, sub opcode 0x10.

GET DEFINED PRESETS RESPONSE

Byte 3	Byte 4	Byte 5	Byte 6
0x10	0x75	bitmask (MSB)	bitmask (LSB)

This is the response to opcode 0x75, sub opcode 0x0F.

The bits in the bitmask indicate which presets are defined on the unit. An on bit indicates the preset is defined. An off bit indicates the preset is not defined. The range of presets represented depends on the preset bank parameter of the command that is being responded to. The lowest number preset in the bitmask is calculated as follows:

(preset_bank x 16) +1

GET DEFINED PATTERNS COMMAND

Byte 3	Byte 4	Byte 5	Byte 6
0x11	0x75	0x00	pattern bank

Pattern bank indicates which group of 16 patterns are being queried. For Spectra III the only valid pattern bank is 0. Since the maximum number of patterns that Spectra allows is 4, only the 4 least significant bits will ever be set to 1.

The response to this command is opcode 0x75, sub opcode 0x12.

GET DEFINED PATTERNS RESPONSE

Byte 3	Byte 4	Byte 5	Byte 6
0x12	0x75	bitmask (MSB)	bitmask (LSB)

This is the response to opcode 0x75, sub opcode 0x11.

The bits in the bitmask indicate which patterns are defined on the unit. An on bit indicates the preset is defined. An off bit indicates the preset is not defined. The range of presets represented depends on the pattern bank parameter of the command that is being responded to. The lowest number pattern in the bitmask is calculated as follows:

(pattern_bank x 16) +1

The response for unsupported sub opcodes is NACK.