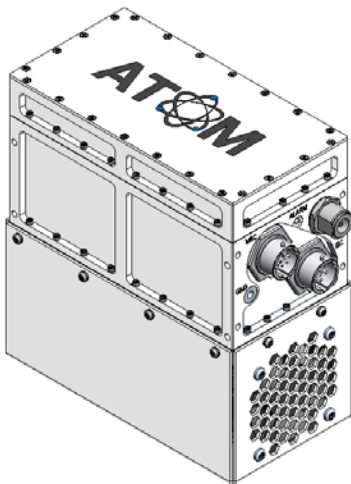
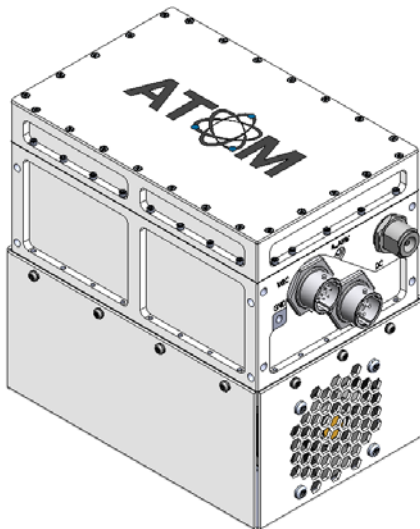


ATOM Ka Band BUC

Band Switching Instruction Manual



Document Number: 041085
Revision A



Norsat International Inc.
110 – 4020 Viking Way
Richmond, British Columbia
Canada V6V 2L4

ATOM Ka Band BUC

INSTRUCTION MANUAL

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TECHNICAL SUPPORT

This manual provides engineers with information necessary to operate the applicable system. Technical support is available from Norsat.

Norsat International Inc.
Attn: Technical Support
110 – 4020 Viking Way
Richmond, BC
Main: 1 (604) 821-2800
Support: 1 800 644 4562
sat.support@norsat.com

REVISION HISTORY

| Rev | CO # | Reason For Change | Reviewed By | Author | Date yy/mm/dd |
|-----|------|--|-------------|--------|---------------|
| 1.0 | 7324 | Initial Release | MJS | WWP | 16/04/26 |
| 2.0 | 7960 | Revise instructions, add band option table | MJS | WWP | 16/11/03 |
| 2.1 | 9714 | Add EIMM band | GTI | WWP | 18/10/25 |
| A | 2014 | Change marketing No., add band | SL | WWP | 20/10/13 |
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| Approver Name: | |
| Approver Signature: | |
| Date: | |

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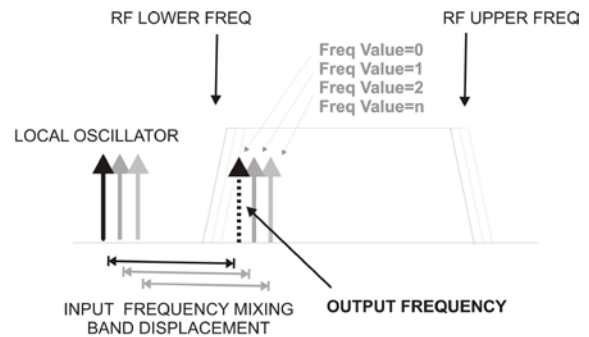
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Chapter 1 Band Switching

Section 1.1 INTRODUCTION

DESCRIPTION OF OPERATION

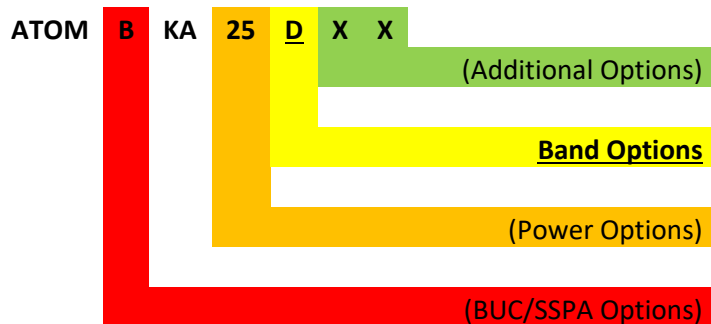
Norsat Ka 25W and 50W BUC's are equipped with band switching technology. Band switching technology enables the operator to select from four sets of predefined band limits and the local oscillator frequencies by soft-commands through the SAT-8500 protocol.



NORSAT KA BAND SWITCHING

KNOWING THE DEVICE

To know what frequency ranges the device is capable of outputting, we need to know the band option in the marketing number of the device.



| Standard Band Options | | | | | |
|-----------------------|--------------------|------------------|------------------|------------------|------------------|
| Mrkt No. | Description | RF Lower 1 (GHz) | RF Upper 1 (GHz) | RF Lower 2 (GHz) | RF Upper 2 (GHz) |
| D | Dual Band/Military | 29.0 | 30.0 | 30.0 | 31.0 |
| C | Commercial Band | 29.0 | 30.0 | N/A | N/A |

There are other specific frequencies defined in Appendix A Frequency Value Table

MODES OF OPERATION

Each band option described above has four switchable predefined frequency settings or the modes of operation. These modes are configured by the correspondent Lower Frequency of the Band (RF Lower), the Upper Frequency of the Band (RF Upper) and the frequency of the Local Oscillator (RF LO). Each mode is referred to a number called Frequency Value that can go from 0 to 3.

Please refer to **Appendix A** for Frequency Value Table. Use this table to determine the Frequency Values and corresponding frequency settings for each band option.

Section 1.2

SAT-8500 PROTOCOL COMMANDS FOR BAND SWITCHING

There are two commands to handle the Frequency Value in the SAT-8500 ATOM Communication Protocol <setfreq> and <getfreq>. Both commands can be sent either manually through the hardwired serial communications line using an Asynchronous Terminal or by using the ATOM Control Software automated GUI or by using the Custom Command tab. Also applies for the WEB version of ATOM Control if the device is equipped with SAT-8800 Ethernet connectivity.

SAT-8500 SETFREQ

setfreq

This command set the Frequency Value for Norsat Band Switching devices.

Command Format:

```
setfreq value <freq value><CR>
```

Command Values:

| Value | Data Type | Notes |
|--------------|------------------|--|
| <freq value> | Integers 0,1,2,3 | Refer to Appendix A Frequency Value Table for Frequency Values and corresponding frequency settings for each band option. |

Response Format:

```
<CR><LF>ok<CR><LF>
```

SAT-8500 GETFREQ

getfreq

This command returns the Frequency Value for Norsat Band Switching devices.

Command Format:

```
getfreq<CR>
```

Command Values:

None

Response Format:

<CR><LF>ok value <Freq Value> lower <RF Lower> upper <RF Upper> LO <RF LO><CR><LF>

Response Values:

| Value | Data Type | Notes |
|--------------|-------------------|--|
| <freq value> | Integers 0,1,2,3 | Refer to Appendix A Frequency Value Table for Frequency Values and corresponding frequency settings for each band option. |
| <RF Lower> | Float ≥ 28.5 | The lower limit of the band |
| <RF Upper> | Float ≤ 31.0 | The higher limit of the band |
| <RF LO> | Float | The frequency of the Local Oscillator. |

Example:

<CR><LF>ok value 3 lower 30.0 upper 31.0 lo 29.00<CR><LF>

Appendix A

Frequency Value Table

This table shows all the available band options and their nominal frequency ranges:

| Band Options | First Band (GHz) | Second Band (GHz) | Third Band (GHz) | Fourth Band (GHz) | BUC Example Part No. |
|-------------------------------|------------------|-------------------|------------------|-------------------|----------------------|
| Dual Band/Military (D) | 29.0-30.0 | 30.0-31.0 | N/A | N/A | 041094 |
| Commercial (C) | 29.0-30.0 | N/A | N/A | N/A | 041864 |
| Specific Band 01 | 28.5-29.5 | 29.5-30.5 | N/A | N/A | 042852 |
| Specific Band 02 | 28.0-29.0 | 29.0-30.0 | N/A | N/A | 042394 |
| Specific Band 03 | 27.5-28.5 | 28.25-29.25 | 29.0-30.0 | N/A | 052482 |

This table shows the Frequency Values and their corresponding frequency settings for each band option:

| Band Options | Frequency Value | RF Lower (GHz) | RF Upper (GHz) | Lower Input Freq (GHz) | RF LO (GHz) |
|-------------------------------|-----------------|----------------|----------------|------------------------|-------------|
| Dual Band/Military (D) | 0 | 29 | 30 | 0.95 | 28.05 |
| | 1 | 30 | 31 | 0.95 | 29.05 |
| | 2 | 29.5 | 30 | 0.95 | 28.55 |
| | 3 | 30 | 31 | 1 | 29 |
| Commercial (C) | 0 | 29 | 30 | 0.95 | 28.05 |
| | 1 | 29 | 30 | 0.95 | 28.05 |
| | 2 | 29.5 | 30 | 0.95 | 28.55 |
| | 3 | 29.5 | 30 | 0.95 | 28.55 |
| Specific Band 01 | 0 | 29 | 30 | 0.95 | 28.05 |
| | 1 | 28.5 | 29.5 | 0.95 | 27.55 |
| | 2 | 29.5 | 30 | 0.95 | 28.55 |
| | 3 | 29.5 | 30.5 | 0.95 | 28.55 |
| Specific Band 02 | 0 | 28 | 29 | 0.95 | 27.05 |
| | 1 | 29 | 30 | 0.95 | 28.05 |
| | 2 | 29.5 | 30 | 0.95 | 28.55 |
| | 3 | 29.5 | 30 | 0.95 | 28.55 |
| Specific Band 03 | 0 | 27.5 | 28.5 | 0.95 | 26.55 |
| | 1 | 28.25 | 29.25 | 0.95 | 27.3 |
| | 2 | 29 | 30 | 0.95 | 28.05 |
| | 3 | 27.5 | 28.5 | 0.95 | 26.55 |