

HUGHES NETWORK SYSTEMS

FIELD SERVICE BULLETIN

SUBJECT: Updated Commissioning Rules

FSB NUMBER: FSB_081118_01B

FSB ISSUE DATE: 11/18/08

SUBMITTED BY: J. Callow

APPROVED BY: D. Dostalík

CHANGE TO BE IMPLEMENTED BY:

AUTHORIZED HUGHES REPRESENTATIVE

CUSTOMER

DOCUMENTATION AFFECTED:

Training, Installation Specifications

CATEGORY:

HARDWARE

FIRMWARE

SOFTWARE

OTHER

EFFECTIVE DATE:

IMPLEMENT:

IMMEDIATELY

NEXT SERVICE CALL

OTHER: approximately 11 a.m. (EDT) November 18, 2008

- COMMENTS:** 1) HNS and Earthlink Customers (U.S. except Hawaii and Puerto Rico): Pages 2 – 7
 2) HNS Customers in Hawaii, Puerto Rico, Central America, Caribbean: Page 8 – 9
 3) Earthlink Customers in Hawaii, Puerto Rico, Central America, Caribbean: Page 10
 4) Shared Gateway VAR and Agristar and SME Customers (All Locations): Pages 11 – 15
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Installers should follow normal pointing and commissioning procedures using *DIRECWAY Consumer Installation Requirements* (Rev. K), *DIRECWAY Reflector Installation Guide* and the Field Service Order (FSO).

REMOVED MATERIAL DISPOSITION

SHIP TO N/A

ATTENTION N/A

COMMENTS N/A

| |
|--|
| HNS Customers |
| United States, Canada, Puerto Rico, Virgin Islands |

A. HN7XXX Home and Professional Service Plans (.74m w/1w radio)*

| SM5-11K | | | | | | | | G16-15K | | HZN1-23K | |
|---------|----|----|----|----|----|----|----|---------|------|----------|----|
| AL | CT | IA | KY | MS | NV | PA | TX | HI | V.I. | AK** | ND |
| AR | DC | ID | LA | NC | NY | RI | UT | ME | VT | MI | WA |
| AZ | DE | IL | MA | NE | OH | SC | VA | NH | Can | MN | WI |
| CA | FL | IN | MD | NJ | OK | SD | WV | P.R. | | MT | |
| CO | GA | KS | MO | NM | OR | TN | WY | | | | |

- * Includes new HN7000S installs and HN7000S Upgrade orders that require professional install.
- ** Alaska will have a larger antenna requirement depending on exact location.

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

SM5-11K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 117° West |
| Transponder | 11K |
| Frequency | 1170 MHz |
| Symbol Rate | 33 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

G16-15K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 99° West |
| Transponder | 15K |
| Frequency | 1250 MHz |
| Symbol Rate | 33 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

HZN1-23K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 127° West |
| Transponder | 23K |
| Frequency | 1410 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

| |
|--|
| Earthlink Customers |
| United States, Canada, Puerto Rico, Virgin Islands |

B. HN7XXX Home and Professional Service Plans (.74m w/1w radio) *

| SM5-5K | | | | | | | | G16-21K | | HZN1-23K | |
|--------|----|----|----|----|----|----|----|---------|------|----------|----|
| AL | CT | IA | KY | MS | NV | PA | TX | HI | V.I. | AK** | ND |
| AR | DC | ID | LA | NC | NY | RI | UT | ME | VT | MI | WA |
| AZ | DE | IL | MA | NE | OH | SC | VA | NH | Can | MN | WI |
| CA | FL | IN | MD | NJ | OK | SD | WV | P.R. | | MT | |
| CO | GA | KS | MO | NM | OR | TN | WY | | | | |

* Includes new HN7000S installs and HN7000S Upgrade orders that require professional install.

** Alaska will have a larger antenna requirement depending on exact location.

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

SM5-5K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 117° West |
| Transponder | 5K |
| Frequency | 1050 MHz |
| Symbol Rate | 33 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

G16-21K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 99° West |
| Transponder | 21K |
| Frequency | 1370MHz |
| Symbol Rate | 33 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

HZN1-23 (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 127° West |
| Transponder | 23K |
| Frequency | 141MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

| |
|--|
| HNS Customers |
| United States, Canada, Puerto Rico, Virgin Islands |

C. HN7XXX Small Office and Business Internet Service Plans (.98m w/2w radio)

| HZN2-5K | | | | | | | G16-21K | | SM6-15K | HZN1-6K |
|---------|----|----|----|----|----|----|---------|------|---------|---------|
| AL | GA | LA | MO | NJ | RI | VT | CO | UT | AZ | AK** |
| AR | IA | MA | MS | NM | SC | WI | HI | V.I. | CA | |
| CT | IL | MD | NC | NY | SD | WV | ID | WA | NV | |
| DC | IN | ME | ND | OH | TN | | MT | WY | | |
| DE | KS | MI | NE | OK | TX | | OR | Can | | |
| FL | KY | MN | NH | PA | VA | | P.R. | | | |

**** Alaska may have a larger antenna requirement depending on exact location.**

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

HZN2-5K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 74° West |
| Transponder | 5K |
| Frequency | 1130 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

G16-21K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 99° West |
| Transponder | 21K |
| Frequency | 1370 MHz |
| Symbol Rate | 33 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

SM6-15K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 113° West |
| Transponder | 15K |
| Frequency | 1250 MHz |
| Symbol Rate | 33 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

HZN1-6K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 127° West |
| Transponder | 6K |
| Frequency | 1070 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

| HNS Customers | |
|--|--|
| United States (except Hawaii, Puerto Rico, Virgin Islands), Canada | |

D. DW7XXX Home and Professional Service Plans (.74m w/1w radio)*

| G11-2K | | | | | | G16-8K | HZN1-22K |
|--------|----|----|----|----|----|--------|----------|
| AL | FL | MA | ND | OK | VA | ID | AK** |
| AR | GA | MD | NE | PA | VT | MT | |
| AZ | IA | ME | NH | RI | WI | OR | |
| CA | IL | MI | NJ | SC | WV | WA | |
| CO | IN | MN | NM | SD | WY | Can | |
| CT | KS | MO | NV | TN | | | |
| DC | KY | MS | NY | TX | | | |
| DE | LA | NC | OH | UT | | | |

* Includes new DW7000 installs and DW7000 Upgrade orders that require professional install.

** Alaska may have a larger antenna requirement depending on exact location.

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

G11-2K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 91° West |
| Transponder | 2K |
| Frequency | 990 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

G16-8K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 99° West |
| Transponder | 8K |
| Frequency | 1110 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

HZN1-22K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 127° West |
| Transponder | 22K |
| Frequency | 1390 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

| |
|---|
| Earthlink Customers |
| United States (except Hawaii, Puerto Rico, Virgin Islands) , Canada |

E. DW7XXX Home and Professional Service Plans (.74m w/1w radio)*

| G11-21K | | | | | | G16-20K | HZN1-22K |
|---------|----|----|----|----|----|---------|----------|
| AL | FL | MA | ND | OK | VA | ID | AK** |
| AR | GA | MD | NE | PA | VT | MT | |
| AZ | IA | ME | NH | RI | WI | OR | |
| CA | IL | MI | NJ | SC | WV | WA | |
| CO | IN | MN | NM | SD | WY | Can | |
| CT | KS | MO | NV | TN | | | |
| DC | KY | MS | NY | TX | | | |
| DE | LA | NC | OH | UT | | | |

*** Includes new DW7000 installs and DW7000 Upgrade orders that require professional install.**

**** Alaska may have a larger antenna requirement depending on exact location.**

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

G11-21K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 91° West |
| Transponder | 21K |
| Frequency | 1370 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

G16-20K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 99° West |
| Transponder | 20K |
| Frequency | 1350 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

HZN1-22K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 127° West |
| Transponder | 22K |
| Frequency | 1390 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

| |
|----------------------|
| HNS Customers |
|----------------------|

| |
|---|
| United States (except Hawaii, Puerto Rico and Virgin Islands) |
|---|

F. DW7XXX Small Office and Business Internet Service Plans (.98m w/2w radio)

| |
|---------------|
| G11-5K |
|---------------|

| |
|-------------|
| All States* |
|-------------|

***Does not include Hawaii, Puerto Rico, Central America, and Caribbean**

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

G11-5K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 91° West |
| Transponder | 5K |
| Frequency | 1050 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Vertical* |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

Note: Requires Vertical Transmit Polarization Shim Kit (p/n 1033809) for OSIRIS 2-watt radios and 0° offset for OSIRIS-TG 2-watt radios. Refer to FSB_050429_01C for details.

| HNS Customers (Outside Continental U.S.) | | | | |
|---|--------|-------------|-----------------|-----------|
| Hawaii | Canada | Puerto Rico | Central America | Caribbean |

A. HN7XXX Home and Professional Service Plans

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

G16-15K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 99° West |
| Transponder | 15K |
| Frequency | 1250 MHz |
| Symbol Rate | 33 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

B. DW7XXX Home and Professional Service Plans

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

G16-14K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 99° West |
| Transponder | 8K |
| Frequency | 1110 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

| | | | | |
|---|--------|-------------|-----------------|-----------|
| HNS Customers (Outside Continental U.S.) | | | | |
| Hawaii | Canada | Puerto Rico | Central America | Caribbean |

| | | | | |
|--------|--------|-------------|-----------------|-----------|
| Hawaii | Canada | Puerto Rico | Central America | Caribbean |
|--------|--------|-------------|-----------------|-----------|

C. HN7XXX Small Office and Business Internet Service Plans

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

G16-21K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 99° West |
| Transponder | 21K |
| Frequency | 1370 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2 ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

D. DW7XXX Small Office and Business Internet Service Plans

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

G28-20K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 89° West |
| Transponder | 20K |
| Frequency | 1410 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

| Earthlink Customers (Outside Continental U.S.) | | | | |
|--|-------------|--------|-----------------|-----------|
| Hawaii | Puerto Rico | Canada | Central America | Caribbean |

E. HN7XXX Home and Professional Service Plans

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

G16-21K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 99° West |
| Transponder | 21K |
| Frequency | 1370MHz |
| Symbol Rate | 33 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

Shared Gateway VAR and Agristar Customers and SME

A. HN7XXX Home and Professional Service Plans (IA100, IA150)

| HZN2-5K | | | | | | |
|---------|----|----|----|----|----|----|
| AL | GA | LA | MO | NJ | RI | VT |
| AR | IA | MA | MS | NM | SC | WI |
| CT | IL | MD | NC | NY | SD | WV |
| DC | IN | ME | ND | OH | TN | |
| DE | KS | MI | NE | OK | TX | |
| FL | KY | MN | NH | PA | VA | |

| G16-14K | |
|---------|------|
| CO | UT |
| HI | V.I. |
| ID | WA |
| MT | WY |
| OR | Can |
| P.R. | |

| SM6-15K |
|---------|
| AZ |
| CA |
| NV |

| HZN1-22K |
|----------|
| AK** |

- Includes new HN7000S installs and HN7000S Upgrade orders that require professional install.
**** Alaska will have a larger antenna requirement depending on exact location.**

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

HZN2-5K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 74° West |
| Transponder | 5K |
| Frequency | 1130 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

G16-14K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 99° West |
| Transponder | 14K |
| Frequency | 1230 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

SM6-15K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 113° West |
| Transponder | 15K |
| Frequency | 1250 MHz |
| Symbol Rate | 33 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

HZN1-22K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 127° West |
| Transponder | 22K |
| Frequency | 1390 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

Shared Gateway VAR and Agristar Customers and SME

B. HN7XXX IA200 and IA300 Service Plans

| HZN2-5K | | | | | | |
|---------|----|----|----|----|----|----|
| AL | GA | LA | MO | NJ | RI | VT |
| AR | IA | MA | MS | NM | SC | WI |
| CT | IL | MD | NC | NY | SD | WV |
| DC | IN | ME | ND | OH | TN | |
| DE | KS | MI | NE | OK | TX | |
| FL | KY | MN | NH | PA | VA | |

| G16-21K | |
|---------|------|
| CO | UT |
| HI | V.I. |
| ID | WA |
| MT | WY |
| OR | Can |
| P.R. | |

| SM6-15K |
|---------|
| AZ |
| CA |
| NV |

| HZN1-6K |
|---------|
| AK** |

**** Alaska may have a larger antenna requirement depending on exact location.**

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

HZN2-5K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 74° West |
| Transponder | 5K |
| Frequency | 1130 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

G16-21K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 99° West |
| Transponder | 21K |
| Frequency | 1370 MHz |
| Symbol Rate | 33 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

SM6-15K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 113° West |
| Transponder | 15K |
| Frequency | 1250 MHz |
| Symbol Rate | 33 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

HZN1-6K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 127° West |
| Transponder | 6K |
| Frequency | 1070 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

Shared Gateway VAR and Agristar Customers and SME

C. HN7XXX IA400 Service Plans

For these service offerings:

| | | |
|---------|---------|---------|
| CON 708 | CON 709 | CON 710 |
| INT 609 | INT 610 | INT 611 |
| SP2 321 | SP2 322 | SP2 323 |

| G16-13K |
|-----------------------------|
| Continental U.S. and Canada |
| Hawaii |
| Virgin Islands |
| Puerto Rico |

| HZN1-6K |
|----------------|
| AK** |

**** Alaska may have a larger antenna requirement depending on exact location.**

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

G16-13K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 99° West |
| Transponder | 13K |
| Frequency | 1210 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Vertical* |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

HZN1-6K (HN7XXX) Satellite Parameters

| | |
|-----------------------------|-----------------|
| Orbital location | 127° West |
| Transponder | 6K |
| Frequency | 1070 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – 8 PSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S2-ACM |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

Note: G16-13K Requires Vertical Transmit Polarization Shim Kit (p/n 1033809) for OSIRIS 2-watt radios and 0° offset for OSIRIS-TG2-watt radios. Refer to FSB_050429_01C for details.

Shared Gateway VAR and Agristar Customers

D. DW7XXX Home and Professional Service Plans

| G11-6K | | | | | | G16-14K | HZN1-22K |
|--------|----|----|----|----|------|---------|----------|
| AL | FL | MA | ND | OK | VA | HI | AK** |
| AR | GA | MD | NE | PA | VT | ID | |
| AZ | IA | ME | NH | RI | WI | MT | |
| CA | IL | MI | NJ | SC | WV | OR | |
| CO | IN | MN | NM | SD | WY | WA | |
| CT | KS | MO | NV | TN | Can | | |
| DC | KY | MS | NY | TX | V.I. | | |
| DE | LA | NC | OH | UT | P.R. | | |

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

G11-6K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 91° West |
| Transponder | 6K |
| Frequency | 1070 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

G16-14K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 99° West |
| Transponder | 20K |
| Frequency | 1230 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

HZN1-22K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 127° West |
| Transponder | 22K |
| Frequency | 1390 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

Shared Gateway VAR and Agristar Customers

E. DW7XXX IA200 and IA300 Service Plans

| G11-5K |
|-----------------------------|
| Continental U.S. and Canada |

| G28-20K |
|-----------------|
| Hawaii |
| Puerto Rico |
| Central America |
| Caribbean |

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

G11-5K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 91° West |
| Transponder | 5K |
| Frequency | 1050 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Vertical* |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

G28-20K (DW7XXX) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 89° West |
| Transponder | 20K |
| Frequency | 1410 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

Note: G11-5K Requires Vertical Transmit Polarization Shim Kit (p/n 1033809) for OSIRIS 2-watt radios and 0° offset for OSIRIS-TG2-watt radios. Refer to FSB_050429_01C for details.

HNS DW6000 Customers

A. DW6000 Home and Professional Service Plans

| SM5-14K | | | | | | G16- 20K | HZN1-22K |
|---------|----|----|----|----|----|----------|----------|
| AL | FL | MA | NH | PA | VT | ID | AK** |
| AR | GA | MD | NJ | RI | WI | MN | |
| AZ | IA | ME | NM | SC | WV | MT | |
| CA | IL | MI | NV | SD | WY | ND | |
| CO | IN | MO | NY | TN | | WA | |
| CT | KS | MS | OH | TX | | HI | |
| DC | KY | NC | OK | UT | | V.I. | |
| DE | LA | NE | OR | VA | | P.R. | |

** Alaska may have a larger antenna requirement depending on exact location.

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

SM5-14K (DW6000) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 117° West |
| Transponder | 14K |
| Frequency | 1230 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

G16-20K (DW6000) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 99° West |
| Transponder | 20K |
| Frequency | 1350 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

HZN1-22K (DW6000) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 127° West |
| Transponder | 22K |
| Frequency | 1390 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

HNS DW6000 Customers

B. DW6000 Small Office and Business Internet Service Plans

| SM5-14K | | | | | | G16- 13K | | HZN1-22K | |
|---------|----|----|----|----|----|----------|--|----------|--|
| AL | FL | MA | NH | PA | VT | ID | | AK** | |
| AR | GA | MD | NJ | RI | WI | MN | | | |
| AZ | IA | ME | NM | SC | WV | MT | | | |
| CA | IL | MI | NV | SD | WY | ND | | | |
| CO | IN | MO | NY | TN | | WA | | | |
| CT | KS | MS | OH | TX | | HI | | | |
| DC | KY | NC | OK | UT | | V.I. | | | |
| DE | LA | NE | OR | VA | | P.R. | | | |

**** Alaska may have a larger antenna requirement depending on exact location.**

These pointing parameters can be used to manually enter on the appropriate satellite-based commissioning screen.

SM5-14K (DW6000) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 117° West |
| Transponder | 14K |
| Frequency | 1230 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

G16-13K (DW6000) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 99° West |
| Transponder | 13K |
| Frequency | 1210 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Horizontal |
| Transmit (Up) | Vertical* |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |

Note: G16-13K Requires Vertical Transmit Polarization Shim Kit (p/n 1033809) for OSIRIS 2-watt radios and 0° offset for OSIRIS-TG2-watt radios. Refer to FSB_050429_01C for details.

HZN1-22K (DW6000) Satellite Parameters

| | |
|-----------------------------|----------------|
| Orbital location | 127° West |
| Transponder | 22K |
| Frequency | 1390 MHz |
| Symbol Rate | 30 Msps |
| Frequency Band/Modulation | Ku Band – QPSK |
| Receive (Down) | Vertical |
| Transmit (Up) | Horizontal |
| DVB Mode | DVB-S |
| DVB Program Num (User Data) | 0 |
| DVB Program Num (DNCC Data) | 0 |