

Home Booster



HB-20

Home Booster 800 MHz

Circuit Description

Proprietary Information

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Detailed Circuit Description

Down-Link Path

Duplexer (Down-Link)

The main function of duplexer is to isolate the uplink frequency from the downlink frequency, i.e. isolate transmit path from receive path. The bandwidth of the duplexer filter depends upon the frequency band. The duplexer used in the HB-1 isolate the uplink frequency from 824 Mhz to 849 Mhz and passes the Down link frequency 869 to 894 Mhz.

1st Stage Band Pass Filter (Down-Link)

The band pass filter (YF1) used in HB-1 is of high selectivity it provides the high rejection to out of band signals and passes the desired band of 869 to 894 Mhz.

Low Noise Amplifier : LNA

LNA receives the low signal from donor antenna and amplifies it .The main function of LNA is to amplify the low signal without adding noise. The LNA used in the HB-1 is U1.The gain of the amplifier is 30db with low noise figure of 2db.

2nd stage amplifier:-

The second stage amplifier is U2 it is also a high gain and low noise figure device. The main function of the device is to amplify the down link signal.

2nd Stage Band Pass Filter (Down-Link)

The band pass filter (YF2) used in HB-1 is of high selectivity it provides the high rejection to out off band signals and passes the desired band of 869 to 894 Mhz.

1st Attenuator:-

The digital attenuator used in HB-1 (U3) is for attenuating the highly signal. The attenuator used in HB-1 is of 31 db . The attenuation is controlled by the controller automatically the controller can increase or decrease the attenuation in the step of one db.

2nd Attenuator:-

The second attenuator (CR1) is analog attenuator and controlled by the output DC voltage of the final stage power amplifier. It also provides the automatic level control apart from the digital attenuator.

3rd Stage amplifier:-

The 3rd stage amplifier (U4) is also a high gain and low noise figure device. The main function of the device is to amplify the down link signal.

3rd Stage Band Pass Filter (Down-Link)

The 3rd band pass filter (YF3) used in HB-1 is of high selectivity it provides the high rejection to out off band signals and passes the desired band of 869 to 894 Mhz. The 2nd band pass filter used for high rejection and to provide high selectivity to the desired band.

Pre Amplifier Stage:-

The filtered signal is feed to the preamplifier stage (U5). The amplifier amplify the signal to the sufficient level so that it can be feed to the input of the power amplifier.

Power Amplifier Stage:-

The final stage of the HB-1 is the power amplifier (U6). The amplifier is an liner amplifier. Due to high linearity the intermodulation products are very low.

UP - Link Path

Duplexer (Up-Link)

The main function of duplexer is to isolate the uplink frequency from the downlink frequency, i.e. isolate transmit path from receive path. The bandwidth of the duplexer filter depends upon the frequency band. The duplexer used in the HB-1 passes the uplink frequency from 824 Mhz to 849 Mhz and isolate the Down link frequency 869 to 894 Mhz.

1st Stage Band Pass Filter (Up-Link)

The band pass filter (YF201) used in HB-1 is of high selectivity it provides the high rejection to out of band signals and passes the desired band of 824 to 849 Mhz.

Low Noise Amplifier : LNA

LNA receives the low signal from server antenna and amplifies it .The main function of LNA is to amplify the low signal without adding noise. The LNA used in the HB-1 is U201.The gain of the amplifier is 30db low noise figure of 2db.

2nd stage amplifier:-

The second stage amplifier is U202 it is also a high gain and low noise figure device. The main function of the device is to amplify the up link signal.

2nd Stage Band Pass Filter (Down-Link)

The band pass filter (YF202) used in HB-1 is of high selectivity it provides the high rejection to out off band signals and passes the desired band of 824 to 849 Mhz.

1st Attenuator:-

The digital attenuator used in HB-1 (U203) is for attenuating the highly signal. The attenuator used in HB-1 is of 31 db . The attenuator is controlled by the controller automatically the controller can increase or decrease the attenuation in the step of one db.

2nd Attenuator:-

The second attenuator (CR1) is analog attenuator and controlled by the output DC voltage of the final stage power amplifier. It also provides the automatic level control apart from the digital attenuator.

3rd Stage amplifier:-

The 3rd stage amplifier (U4) is also a high gain and low noise figure device. The main function of the device is to amplify the down link signal.

3rd Stage Band Pass Filter (Down-Link)

The 3rd band pass filter (YF3) used in HB-1 is of high selectivity it provides the high rejection to out off band signals and passes the desired band of 869 to 894 Mhz. The 3rd band pass filter used for high rejection and to provide high selectivity to the desired band.

Pre Amplifier Stage:-

The filtered signal is feed to the preamplifier stage (U5). The amplifier amplify the signal to the sufficient level so that it can be feed to the input of the power amplifier.

Power Amplifier Stage:-

The final stage of the HB-1 is the power amplifier (U6). The amplifier is an linear amplifier. Due to high linearity the intermodulation products are very low.

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