

Re: FCC ID BCR-MRB-CELL
Applicant: Allen Telecom Systems
Correspondence Reference Number: 10321
731 Confirmation Number: EA95130
Date of Original E-Mail: 10/24/1999

FCC questions are shown in italics; Allen Telecom/KTL responses are shown in bold.

Your manual indicates that 8 channel operation is available with this unit but you did not submit 3 channel intermodulation measurement data.

KTL to respond here. Please reference F. Coperich Email.

We are unclear as to the number of channels per module for each of the different emissions used with this amplifier(s). The information is needed in order to complete the grant.

The RF Booster is a broadband system which is used to boost the downlink power for a BTS or repeater. The booster uses multiple power amplifiers in parallel to perform multi-carrier amplification of all of the RF channels in the downlink of the donor system. There are two power options for the booster – high power uses four amplifiers in parallel and low power uses only two. The booster’s downlink input signal is split either four (high power) or two (low power) ways with a broadband hybrid, amplified by either four or two identical broadband amplifiers, then power combined in a second hybrid prior to duplexer filtering and radiation. The booster itself contains no channelization or filtering. Identical amplifiers are paralleled simply to allow a modular design and to distribute the heat for improved thermal performance. In all cases, the number of channels is determined by the donor system. The booster will simply amplify the composite downlink signal and radiate it to the coverage area. We found that page 6 of the report contains a typographical error which may have contributed to your confusion. The data source of this equipment is always EXTERNAL not INTERNAL as shown in the General Equipment Specifications on page 6.

The power amplifiers are limited by the spurious output that they produce given the peak power of the composite input signal. The allowable power per carrier must, therefore, decrease as the number of RF carriers from the donor system increases. It is also dependent on the modulation format of the donor system since certain modulation types have a higher peak-to-average ratio than others. Table 1 shows the allowable output power per carrier for up to 8 carriers.

While the manual gives specifics for RF output power control when used in some configurations, we are unclear how the units will be monitored and controlled when used with other equipment manufacturers transmitters.

The booster is a fixed gain device whose power must be controlled by setting the input drive correctly. The donor system again must ensure that the output power is set according to the limits shown in the above table depending on the number of RF

carriers and the modulation format. This power will never exceed the limits established by the FCC. The power amplifiers in the booster do contain over-current shutdown which can be activated due to excessive peak output power.

We are also unclear as to the kinds of uses intended with the many configurations included in this application. The information is also needed to complete the grant and specifically involve uses as a booster, repeater, and extender.

The booster is designed to hardwire to the donor BTS or repeater and provide high-power amplification and radiation of the broadband downlink signal. Duplexers at the booster antenna port route the uplink signal to an LNA whose output, after filtering, is always hardwired to the donor equipment. The booster is not designed or specified to radiate any uplink energy.

The booster options include either high or low power capability, which is determined simply by the overall power amplifier capacity (either two or four power amplifiers operating in parallel).