

24

>
> Representative Number : TSR17



12-05-2003, 12:30 PM

Nomen Nescio
Guest

Posts: n/a | CPF \$: 0.00
(Donate)

Re: Cellular Repeaters (in the USA)

In article <3fcff0d5.97198072@news.knology.net>
nospam@home.com (Larry W4CSC) wrote:

You should have seen the look on the gum-chewing blonde that I was asking questions to concerning a new upgraded phone. I had a full set of bars inside the store and walked outside where I only had 3. I asked the twerp where they had their in-store repeater. She had no idea. Moral....Verizon hires gum chewing blondes so they can actually say, and honestly I might add, "I have no idea."



12-05-2003, 02:49 PM

John Navas
Guest

Posts: n/a | CPF \$: 0.00
(Donate)

Re: Cellular Repeaters (in the USA)

[POSTED TO alt.cellular.cingular - REPLY ON USENET PLEASE]

In <35b1619d.0312051106.29441b32@posting.google.com> on 5 Dec 2003
11:06:41
-0800, KS4VT@yahoo.com (MarkF) wrote:

>John Navas <spamfilter0@navasgroup.com> wrote in message news:<EBPzb.786
\$XF6.20096@typhoon.sonic.net>...

>> If you can get a usable cellular signal outside your building, but not inside
>> your building, a "cellular repeater" (sometimes called a "cellular booster")
>> may be able to solve the indoor coverage problem.

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>> Approved/Type Accepted. I called the FCC, and was assured by a spokesperson
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>original query and their response back to me that clearly states that
>the "licensee", hence the person holding the valid FCC license, is the
>only one that can legally operate such a device.
>[SNIP]

In surrebuttal, I repeat what I've posted previously:

1. Andrew Corporation (a near billion dollar S&P500 communications company), CellAntenna Corporation, and Wilson Electronics have all assured me that their bidirectional amps are FCC Approved/Type Accepted, and that no FCC license is needed to install and operate them here in the USA. They openly sell them for consumer use.

2. I called the FCC regarding this, and was assured by a spokesperson at the Commercial Wireless Division that the FCC does not regulate the use of these FCC Type Accepted low-power cellular repeaters/boosters, and thus no license is required to install and operate them. We specifically discussed them being operated by consumers, not carriers.

I sent the name and phone number of my contact at Commercial Wireless Division of the FCC by private email to another challenger ("Jack Daniel") who asked to check with my contact. He also said:

I will be following FCC procedure soon and formally requesting an interpretation to get a clarification in writing and will include copies of your comments and those of any manufacturer comments directly (not via a third party).

Over three months have passed since then, and I've heard nothing further.

--

Best regards, HELP FOR CINGULAR GSM & SONY ERICSSON PHONES:
John Navas <<http://navasgrp.home.att.net/#Cingular>>



12-05-2003, 04:13 PM

RDT
Guest

Posts: n/a | CPF \$: 0.00
(Donate)

Re: Cellular Repeaters (in the USA)

In article <35b1619d.0312051106.29441b32@posting.google.com>, MarkF <KS4VT@yahoo.com> wrote:
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>licensee is legally permitted to amplify or boost cellular signals and
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I know that Navas has a tendency to spout off without having all the facts, but Mark, as I said to you about this months ago, this is one of those "no harm, no foul" kinda deals. The only ones likely to care about the repeater would be those harmed by it. Unless the repeater is poorly designed and causes interference or somehow inconveniences other subscribers, why would the FCC ever get involved?

RDT

--

"The inherent vice of capitalism is the unequal sharing of blessings; the inherent virtue of socialism is the equal sharing of miseries."

--- Sir Winston Churchill



12-05-2003, 07:43 PM

Larry W4CSC

Guest

Posts: n/a | CPF \$: 0.00
(Donate)

Re: Cellular Repeaters (in the USA)

On Fri, 5 Dec 2003 20:30:03 +0100 (CET), Nomen Nescio
<nobody@dizum.com> wrote:

>In article <3fcff0d5.97198072@news.knology.net>
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>where they had their in-store repeater. She had no idea.
>Moral...Verizon hires gum chewing blondes so they can actually say, and
>honestly I might add, "I have no idea."

>

All part of the company-wide training and braining. Effective, isn't
it?...(c;

Larry W4CSC

NNNN



12-05-2003, 07:45 PM

Larry W4CSC

Guest

Posts: n/a | CPF \$: 0.00
(Donate)

Re: Cellular Repeaters (in the USA)

I'm sure glad I'm FCC licensed.....(c;

Guess I can operate them, here....

On Fri, 05 Dec 2003 21:49:49 GMT, John Navas
<spamfilter0@navasgroup.com> wrote:

>[POSTED TO alt.cellular.cingular - REPLY ON USENET PLEASE]

>

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>John Navas <<http://navasgrp.home.att.net/#Cingular>>

Larry W4CSC

NNNN



12-05-2003, 09:53 PM

Al Klein
Guest

Posts: n/a | CPF \$: 0.00
(Donate)

 **Re: Cellular Repeaters (in the USA)**

On Thu, 04 Dec 2003 23:40:20 GMT, John Navas
<spamfilter0@navasgroup.com> posted in alt.cellular.verizon:

>So-called "passive repeaters" do not work.

How many have you personally field tested?



 12-05-2003, 09:59 PM

Al Klein
Guest

Posts: n/a | CPF \$: 0.00
(Donate)

 **Re: Cellular Repeaters (in the USA)**

On Fri, 05 Dec 2003 21:49:49 GMT, John Navas
<spamfilter0@navasgroup.com> posted in alt.cellular.verizon:

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>the Commercial Wireless Division that the FCC does not regulate the use of
>these FCC Type Accepted low-power cellular repeaters/boosters, and thus no
>license is required to install and operate them. We specifically discussed
>them being operated by consumers, not carriers.

Section 90.219 says that your informant is misinformed. FCC employees
don't have the authorization to change the meanings of laws.



 12-05-2003, 10:44 PM

Jim Dawson
Guest

Posts: n/a | CPF \$: 0.00
(Donate)

 **Re: Cellular Repeaters (in the USA)**

Hmm, where in the 1.9GHz band are you licensed?

Jim - K9DD

"Larry W4CSC" <nospam@home.com> wrote in message
news:3fd142be.183716474@news.knology.net...

> I'm sure glad I'm FCC licensed.....(c;

>

> Guess I can operate them, here....

>

>

>



 12-06-2003, 03:55 AM

Harry Krause
Guest

 **Re: Cellular Repeaters (in the USA)**

Larry W4CSC wrote:

Posts: n/a | CPF \$: 0.00
([Donate](#))

> We all know about them, John. Verizon uses them in their mall stores,
> here, so customers think they have a great signal in the mall when
> they're looking at the demo phones in the store.....(c; I call 'em
> the "Cheater Repeaters"....
>
>
> Larry W4CSC
>
> NNNN
>

Uh...what's wrong with having a strong cell signal in a shopping mall?
You think it is done to sandbag potential cell buyers? B.S. It's just a
convenience. Malls are places where customers demand strong cell signals.

--

Email sent to piedtypecase@yahoo.com is never read.



12-06-2003, 04:32 AM

MarkF
Guest

Posts: n/a | CPF \$: 0.00
([Donate](#))

Re: Cellular Repeaters (in the USA)

John Navas <spamfilter0@navasgroup.com> wrote in message news:<147Ab.1006\$XF6.23352@typhoon.sonic.net>...

> [POSTED TO alt.cellular.cingular - REPLY ON USENET PLEASE]

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- > bidirectional amps are FCC Approved/Type Accepted, and that no FCC license is
- > needed to install and operate them here in the USA. They openly sell them for
- > consumer use.

Andrew Corporation is in business to make \$. They will sell you whatever they want in order to make the stockholders happy. You don't need to provide them a license to purchase a 6' parabolic dish and wave guide and if you ask them if it's legal to put it up of course their answer will be yes. They don't interperate or enforce the rules and honestly...they really don't care who buys or installs a BDA.

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- > of your comments and those of any manufacturer comments directly (not
- > via a third party).

Lets see something in writing. The government doesn't do an "official intpretation of the rules" over the phone. I work for a gov't agency and we do everything on paper or electronic medium. Call this guy back and tell him that you want his position in writing. If he provides something and its the opposite than mine then we can send both back to the FCC for an official position. But until you can provide otherwise, the FCC rule stands as on the "licensee" can operate such a device.

- >
- > Over three months have passed since then, and I've heard nothing further.

I haven't hear from Jack either, he is probably out making money.



12-06-2003, 04:47 AM

MarkF
Guest

Posts: n/a | CPF \$: 0.00
([Donate](#))

Re: Cellular Repeaters (In the USA)

taite@panix.com ("RDT") wrote in message news:<bqr3fk\$mss\$1@panix2.panix.com>...
> In article <35b1619d.0312051106.29441b32@posting.google.com>,
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>
> RDT

Lets see, if you paid billions of dollars for wireless licenses, would you want every subscriber to have the ability to change the contours of your sites by improperly installing such a device? I know I wouldn't want to as the general public as a whole do not own test equipment to ensure that the device operates correctly.

In addition, when one is operating improperly it is a royal pain in the ass to try to find it (based on personal experience). It could take months to try to find one if it's causing interference to a carrier that didn't install the device or have a record of its installation.

Its far from being "no harm, no foul" situation.

Mark



 Post Reply

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Cellular Repeaters (in the USA)	John Navas	alt.cellular.cingular	16	09-13-2003 02:28
Cellular Repeaters (in the USA)	John Navas	alt.cellular.nextel	32	09-13-2003 02:28
Re: Cellular Repeaters & the FCC Rules (in the USA)	Mark Filla	alt.cellular.nextel	21	09-08-2003 04:53
Cellular Repeaters (in the USA)	John Navas	alt.cellular.nextel	22	08-23-2003 05:00

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******* Frequently Asked Questions**

Answers to Common Questions About Our Products

Select an FAQ Category:

Amplifiers & Amplifier/Repeaters

- Selecting the Right Amplifier for Your Application
- DA4000 Series Amplifiers
- DA4000MR Series Amplifier/Repeaters (38 dB Gain)
- DA4000SBR Series Amplifier/Repeaters (60 dB Gain)
- Inside and Outside Antenna Separation
- LED Indicator Light
- Inside Antenna
- Outside Antenna
- Poor Signal Quality
- Cable and Connectors
- FCC and Cellular Carriers
- General Questions

Other Products

- Antennas and Other Products

The key to optimal amplifier system performance is proper installation. Read the installation manual and FAQs prior to beginning installation!

➤ **FAQ: Selecting the Right Amplifier for Your Application**

What is the difference between a direct connect amplifier and an amplifier/repeater?

All Digital Antenna amplifiers are dual band 3 watt variable gain RF amplifiers. They are all FCC approved to be used with all carriers in the USA and Canada. The DA4000 is a direct connect amplifier and is used with a cell phone adapter cable. The DA4000SBR and DA4000MR are wireless amplifier/repeaters that are used with an inside antenna to re-broadcast the signal to your cell phone and an outside antenna to communicate with the cell tower.

The DA4000SBR (60dB gain) system requires the outside and inside antennas to be separated a minimum of 40', with an exterior wall and roof structure between the antennas. This system provides up to 5,000 square feet of interior coverage based upon outside cell signal strength. The weaker the cell signal is outside, the less coverage area you will have inside.

The DA4000MR (38dB gain) system requires outside and inside antennas to be separated a minimum of 2' (DA4KMR-10A) when installed with a metal car roof between antennas, or a minimum of 15' and up to 20' (DA4KMR-30U) with an exterior wall and roof structure between the antennas. The DA4000MR systems provide up to 1,000 square feet, one room interior coverage or a standard car interior (depending upon outside cell signal). With the DA4000MR system, the inside antenna must be visible and cannot be placed behind an object.

Is an amplifier/repeaters' performance the same as that of a direct connect amplifier?

In very remote areas, the DA4000 direct connect amplifier is the best choice. The performance difference is approximately 10% to 15%. This difference is more prominent in remote areas.

Which amplifier should I use?

Choose the product that fits your application. Determine your application by deciding if your primary need is voice communication (cell phone) or data communication (computer). If your primary need is data communication, a direct connect amplifier will provide the best, most reliable connection possible.

Very poor signal area (voice or data) – DA4000
Poor signal area (building use) – DA4KSBR-50U with yagi antenna
Poor signal area (auto) – DA4000, DA4KMR-10A
Poor signal area (RV) – DA4000, DA4KMR-30U, DA4KSBR-50U
Poor signal area (boat) – DA4000, DA4KMR-30U, DA4KSBR-50U

Recommendations based upon achieving proper antenna separation when using an amplifier/repeater and outside signal strength of -70 to -90 dB.

Wireless amplifier/repeaters (all cell carriers except Nextel and iDEN):
DA4KMR-10A (38dB gain) – required separation (2') and metal automobile roof
DA4KMR-30U (38 dB gain) – required separation (20') and roof/wall structure
DA4KSBR-50U (60 dB gain) – required separation (40') and roof/wall structure

All amplifier/repeaters require the outside antenna be installed outside of the structure (house, car, office, building, boat) and the inside antenna be installed inside the structure. Wireless amplifier/repeaters can not be used with both antennas in open air (i.e., convertible car or open console boat).

Direct connect amplifiers:

DA4000 – direct connect, no antenna separation (all cell carriers except Nextel, iDEN)
DA4000N – direct connect, no antenna separation (Nextel, iDEN)

Car with metal roof – DA4000 or DA4KMR-10A
Truck with metal roof – DA4000 or DA4KMR-10A
Convertible car – DA4000 only
Open console boat – DA4000 only
RV 20' to 39' – DA4000 or DA4KMR-30U
RV 40' and over – DA4000, DA4KMR-30U, DA4KSBR-50U
Powerboats 36' to 50' – DA4000 or DA4KMR-30U
Powerboats 50' and over – DA4000, DA4KSBR-50U
Sailboats 20' to 29' (outside antenna at top of mast) – DA4000 or DA4KMR-30U
Sailboats 30' and over (outside antenna at top of mast) – DA4000 or DA4KSBR-50U

What is the cost of the amplifiers and amplifier/repeaters?

DA4000 list price: \$299.95

DA4000N list price: \$299.95

DA4KMR-10A list price: \$499.95

DA4KMR-30U list price: \$559.95

DA4KSBR-50U list price: \$699.95

To purchase Digital Antenna products, visit our **Dealer Locator** page. Digital Antenna products are only available through authorized dealers and distributors. Digital Antenna does not sell directly to consumers.

Why should I choose your amplifier?

PowerMax amplifiers designed and manufactured by Digital Antenna are the only amplifiers to be honored for outstanding design and innovation. Digital Antenna amplifiers have been honored by the Consumer Electronic Association (CES), National Marine Electronics Association (NMEA), National Marine Manufacturing Association (NMMA) and Sail's Pittman Award.

➤ **FAQ: DA4000 Series Amplifiers**

Can I make the DA4000 Dual Band Amplifier a repeater by adding an inside antenna?

No, the DA4000 is a direct connect unit only and must be physically connected to your cell phone or cellular device with the appropriate cable. Click [here](#) for a list of available cell adapter cables.

How do I connect my cell phone to the DA4000?

Most phones with an external antenna port can be connected directly into the amplifier. We carry a full line of adapters for \$19.95; see the complete list [here](#). The amplifier can also be connected to a hands-free car kit, PBX, Tellular or any cellular system that has an external antenna port.

There is no adapter cable for my phone and I have a DA4000. What do I do?

The cell phone manufacturers determine which phones have antenna ports. If the phone is not designed with a port, you must change to a cell phone that has an antenna port or use a wireless amplifier/repeater.

Can I use the DA4000SBR in a car?

No, you cannot use the DA4000SBR in a car due to the minimum separation of 40' or greater between the outside and inside antenna. Use Model # DA4KMR-10A in a car when a metal roof is separating the inside and outside antennas, or use the DA4000 in a car with a convertible top or any application where you cannot meet separation requirements.

Why can I only use your antennas and cables with the DA4000, DA4000MR or DA4000SBR?

The DA4000, DA4000MR and DA4000SBR are high performance, technologically advanced RF amplifiers. They are tested as a system and provide performance specified by the FCC approval. An improperly matched antenna (one with a high SWR) or cable can damage the amplifier unit or cause it to operate in violation of FCC specifications, as well as voiding the warranty. **USING UNAUTHORIZED EQUIPMENT WITH THE DA4000, DA4000MR OR DA4000SBR VOIDS THE WARRANTY.**

Can I use the amplifier with my existing external cellular antenna?

The FCC requires that the amplifier only be used with Digital Antenna brand cellular antennas or an antenna authorized by Digital Antenna, Inc.

Can I hard wire the 12 VDC power connection?

Yes, simply cut off the lighter plug and be certain that the center contact of the amplifier is plus (+).

Does the amplifier boost in both transmit and receive?

Yes, it is a fully duplexed linear RF amplifier.

► **FAQ: DA4000MR Series Amplifier/Repeaters (38 dB Gain)**

What is the difference between the DA4KMR-30U and DA4KMR-10A?

The MR-30U and MR-10A have the same 38 dB amplifier/repeater unit but different antennas and cable.

The DA4KMR-10A includes an outside magnetic mount antenna that MUST be mounted on the center metal roof of the car. This blocks the cell signal from reaching the included inside antenna. The DA4KMR-10A system can only be used with the included antennas and power supply or a cellular antenna manufactured by Digital Antenna.

The DA4KMR-30U includes a 9dB gain 18" fiberglass antenna that is used on a boat, house or RV. This antenna must be 15' to 20' away from the inside antenna and separated by a roof/wall structure. The DA4KMR-30U system can only be used with the included antennas and power supply, or with a cellular antenna manufactured by Digital Antenna.

I am using the DA4KMR-30U. Why don't I have reception in the next room?

The DA4000MR amplifier does not transmit through walls. 38 dB is not enough gain to penetrate a wall. Based upon outside signal strength, the MR-30U will amplify one room or in free air up to 1,000 square feet. The inside antenna for all applications should be placed in an open area not in a cabinet or under a seat.

Where is the best location to install the inside antenna on the DA4000MR?

Try to locate the inside antenna as central to the desired operation area as possible. The inside antenna should be located away from metal objects and electronics. The inside antenna must be located in a visible location and not behind an object.

I am using the DA4KMR-10A in my car. Why doesn't it amplify my house when the car is in the garage?

The signal from the inside antenna should never reach the outside antenna. The signal from the inside antenna amplifies inside the vehicle only and is not made to amplify beyond the vehicle.

When travelling, why do I have to be very close to the inside antenna to receive a signal increase in some areas ?

In a car, as you travel through poor signal areas, you will find the cell phone works only closer to the inside antenna. The coverage area decreases as the signal outside weakens. If the cell phone antenna is touching the MR inside antenna, the performance will be closer to that of the DA4000 direct connect amplifier.

► **FAQ: DA4000SBR Series Amplifier/Repeaters (60 dB Gain)**

Should the DA4000SBR be professionally installed?

We highly recommend installation by an individual experienced with high frequency RF equipment. The instruction manual provides an individual with all information necessary for installation; however, the instruction manual must be read and thoroughly understood prior to beginning the installation.

Why do I have to install the outside and inside antenna so far apart?

To achieve the greatest coverage area, the DA4000SBR has a gain of 60dB re-transmitting from the inside antennas. The outside antenna can radiate up to 3 watts. The inside and outside antennas must be isolated from each other so they do not have harmful feedback into each other. The inside and outside antennas MUST be separated by 40', with an exterior wall and roof structure between the antennas.

I installed the inside and outside antenna 40' apart. Why is the system not performing?

In some applications, the inside and outside antenna may require a separation greater than 40'. If you do not have the proper attenuation between the two antennas, more distance is required between the antennas. A fiberglass wall, boat deck, non-insulated exterior wall or glass doors do not equal a concrete or framed wall with foil insulation. Therefore, the separation between antennas must be greater. Poor signal or no signal outside and improper connectors or cable will also result in poor or no performance.

➤ **FAQ: Inside and Outside Antenna Separation**

Do I have to install the outside antenna, outside?

Yes, the outside antenna must be installed outside of the yacht, RV, home or office. The outside antenna must be installed outside (with the proper antenna separation based upon model selected), with an exterior wall between the outside and inside antennas and away from windows. It must be installed 6 meters horizontally away from a person.

What happens if I do not install the outside and inside antenna far enough apart?

The outside and inside antenna must be installed with the proper separation, with an exterior wall and roof structure between the antennas. A minimum of 40' of separation (DA4000SBR) or (2' and metal car roof) or 20' (fiberglass boat wall) separation (DA4000MR) between the antennas, plus an exterior wall/roof structure. If you do not have the proper attenuation, more distance is required between the antennas. A fiberglass wall, i.e., a boat deck, does not equal a home or office wall. Therefore, the separation between antennas must be greater. If the antennas are not properly separated, the DA4000SBR and DA4000MR amplifier will be damaged and the warranty voided.

Is a window enough of a separation between the outside and inside antenna?

No, a window does not provide the attenuation required. If you do not have the proper attenuation, more distance is required between the antennas. A window does not equal a home or office wall. Therefore, the separation between antennas must be greater.

Do I ever need more than 40' of separation between the two antennas?

Yes, if you do not have proper attenuation between the inside and outside antennas plus the wall/roof structure, you will need to place the antennas farther apart.

On my boat, I installed the two antennas 40' apart or more. Why is the light turning red and not green?

A fiberglass wall, i.e., boat deck or bulkhead, does not equal a home or office wall for RF attenuation. Therefore, the separation between antennas must be greater. Marine installations should always be verified with a network analyzer such as an Anritsu Sitemaster.

I have a 24' boat. Why can't I use the DA4000MR or DA4000SBR?

There is no possibility of achieving the proper attenuation between the outside and inside antennas on a 24' fiberglass boat. Use the DA4000 direct connect amplifier on this size boat.

➤ **FAQ: LED Indicator Light**

What should I do if the light is red on the DA4000SBR?

Immediately turn the DA4000SBR amplifier unit to the off position. A constant red light will damage the unit and may void the warranty. Relocate the two antennas for proper RF attenuation.

Can I bring the two antennas close together and try to make the light red?

DO NOT ATTEMPT TO MAKE THE LIGHT TURN RED! This will damage the amplifier and void the warranty.

The light does not change on the DA4000MR or DA4000SBR. Is it working?

Yes, it is possible that the light will not visibly change with PCS, GSM 1900 and other phones operating on 1900 MHz. This is due to the nature of the phones' transmissions being so fast that your eye cannot see the light change.

What color should the light be after installation?

The light must be green after installation, and when no cell phone is in use. If the light is not green after installation and no cell phone is being used, the two antennas must be relocated farther apart from each other.

➤ **FAQ: Inside Antenna**

Where is the best location to install the inside antenna on the DA4000SBR?

Try to locate the inside antenna as central to the desired operation area as possible. The inside antenna should be located away from metal objects and electronics. The inside antenna must be located a minimum of 12" from the DA4000SBR amplifier unit. The antenna can be located farther away and extended with the proper coaxial cable.

Where is the best location to install the inside antenna on the DA4000MR?

Try to locate the inside antenna as central to the desired operation area as possible. The inside antenna should be located away from metal objects and electronics. The inside antenna must be located in a visible location and not behind an object. The antenna can be located farther away and extended with the proper coaxial cable.

Can I extend the inside antenna cable?

Yes, the inside antenna cable can be extended up to 10' with Digital Antenna's exclusive DA340 or RG-8X cable. Contact your local dealer.

How far should the inside white antenna be from the DA4000SBR or DA4000MR amplifier box?

The inside antenna must be located a minimum of 12" from the DA4000SBR or DA4000MR amplifier unit. The antenna can be located farther away and extended with the proper coaxial cable.

Can I use a different inside antenna?

Only Digital Antenna authorized products may be used with the DA4000SBR or DA4000MR system. Using unauthorized equipment with the DA4000SBR system will harm the system, void the warranty and can be detected in the event of a failure.

I am next to the white inside antenna, but when I move 1' away, it does not work.

Why?

The most likely possibility is the system is improperly installed and has a low level oscillation that desensitizes the receiver electronics of the cell phone. To correct this, relocate the positions of the outside and inside antennas, making them farther apart from each other.

Another possibility is that the outside antenna is mounted in an area that has a very marginal signal. To correct this, relocate the outside antenna to an area that has more

signal as indicated by your cell phone. Also, check all connectors and cable. Connectors should be securely connected to the amplifier and antenna. NEVER USE A TOOL TO TIGHTEN THE CONNECTORS!

► **FAQ: Outside Antenna**

What other cellular antenna can I use with your amplifier and amplifier/repeaters?

Any of Digital Antenna's dual band cellular antennas may be used with the DA4000, DA4000MR and DA4000SBR system. They are available in many mounting styles and in a white or black high gloss finish.

Can I use an existing antenna and cable with the DA4000MR or DA4000SBR?

Yes, if it is a dual band cellular antenna manufactured by Digital Antenna Inc. Only Digital Antenna authorized products may be used with the DA4000SBR system. Using unauthorized equipment with the DA4000SBR or DA4000MR will harm the system, void the warranty and can be detected in the event of a failure.

Can I install the outside or inside antenna upside down?

Antenna patterns vary between the top and bottom lobes. For maximum coverage of the DA4000MR or DA4000SBR system, the antennas must be installed with the connectors on the bottom in a vertical position.

Where is the best place to install the outside antenna?

The fiberglass antenna rod must be 3' away from metal and 6 meters horizontally away from persons, in a location high enough to be free from any obstructions, and in the strongest signal area as indicated by your cell phone.

Can I install the outside antenna next to a metal pole? How far does the antenna have to be mounted from other metal objects?

The outside antenna can be mounted on a metal pole, but the fiberglass rod can not be next to metal. The outside antenna fiberglass rod must be at least 1 meter away from any metal object, including a tin roof. For maximum performance, the outside antenna should be clear of all obstructions by 6'.

Can I use a yagi antenna with the DA4000MR or DA4000SBR?

In poor signal areas, you may have to use a yagi antenna to receive a suitable signal from the tower. Using a yagi will limit the repeater unit to only operate on a single band; therefore, it will be necessary to determine whether you want to use the high or low band prior to choosing the yagi. Another option is to use two yagi antennas, one low band and one high band, in combination with our **DA-2100 Combiner**. Your dealer can help you choose a suitable yagi antenna.

► **FAQ: Poor Signal Quality**

Why do I only have a small coverage area?

The most likely possibility is that the system is improperly installed and has a low level oscillation that desensitizes the receiver electronics of the cell phone. To correct this, relocate the positions of the outside and inside antennas, making them farther apart from each other.

Another possibility is that the outside antenna is mounted in an area that has a very marginal signal. To correct this, relocate the outside antenna to an area that has more signal as indicated by your cell phone. Also, check all connectors and cable. Connectors should be securely connected to the amplifier and antenna. NEVER USE A TOOL TO TIGHTEN THE CONNECTORS!

I have no signal outside. Will the DA4000SBR help me?

You must receive at least a -90 dB signal from the tower to operate the DA4000SBR or DA4000MR system. In poor signal areas, you must use a yagi antenna to receive a suitable signal from the tower. Using a yagi will limit the repeater unit to only operate on a single band; therefore, it will be necessary to determine whether you want to use the high or low band prior to choosing the yagi. Another option is to use two yagi antennas, one low band and one high band, in combination with our **DA-2100 Combiner**. Your dealer can help you choose a suitable yagi antenna.

► **FAQ: Cable and Connectors**

Why does the DA4000SBR include 50' of cable?

For the average installation, this will be sufficient for the required 40' of separation. Longer cables in 75' and 100' lengths are available for purchase through your dealer.

I need more cable to install the outside antenna. What cable should I use?

Digital Antenna manufactures pre-assembled cables in 75' and 100' lengths. This low loss PowerMax cable is designed to be used with the PowerMax amplifier and repeater product line. The only suitable replacement is LMR series cables (LMR400 or LMR600).

When I was installing the cable the connector fell off. What do I do?

Only replace a connector with the proper type for the cable and with the proper crimping tool to assure a factory quality connection. NEVER replace a connector with a sub-standard quick connect style connector. NEVER try to push a connector back on the cable; a new connector is required.

Can I use the cable that is already installed on my boat or in my house?

It is best to use the cable included in the system. The DA4000MR and DA4000SBR includes premium low loss cable with a factory attached connector. The system will not work with improper cable. Only 50 Ohm Digital Antenna cellular cable or Times Microwave LMR equivalent cable can be used. Check cable specifications and choose the proper cable type based upon cable run length. If the cable run is too long with the improper cable type, all signal will be lost in the cable.

DO NOT USE RG58 cable for cellular! DO NOT USE TV or satellite cable (such as RG6) for cellular!

What type of connectors can I use?

ONLY USE CONNECTORS RATED FOR CELLULAR FREQUENCIES! Mini-UHF, N-type, TNC and SMA are rated for cellular frequencies. PL-259 or UHF connectors are not rated for cellular frequencies. F-type connectors are 75 ohm and should never be used for cellular. DO NOT USE UHF or F-TYPE CONNECTORS FOR CELLULAR!

What happens if I use a PL-259 or UHF connector with a cellular amplifier or amplifier/repeater?

A PL-259 or UHF connector is rated for a maximum of 300 MHz. Cellular frequencies are 800 and 1900 MHz. A PL-259 or UHF connector will leak 80% or more of the RF signal. No signal will get to the antenna, and RF frequency leaking out of the connector will cause an oscillation.

► **FAQ: FCC and Cellular Carriers**

Does the owner of this equipment (installed location) require an FCC license to operate the repeater?

No, neither the user nor the installer needs an FCC license. All of our products are FCC approved. In the instruction manual, you will find guidelines to follow to comply with all FCC requirements, such as proper separation between antennas, and persons must be

6 meters horizontally away from outside antenna.

Do the cellular providers accept the use of cellular repeaters?

Not all amplifiers are tower friendly. All of our amplifiers have dynamic variable gain control so that the tower is never overpowered. We are the only manufacturer with carrier approvals.

Although the carriers own the frequencies that they operate on, are they permitting others to do the same with the repeaters?

The cell phone, which is paid for by the customer, is transmitting on the specified frequency, not the repeater. The repeater is simply improving the signals. The repeater amplifies only the signal of the cell phone that is authorized to be used at the specific frequency.

If a cellular repeater is installed and causes interference that cannot be corrected, will the FCC or others require it to be removed?

If a repeater is not installed properly, it can create an oscillation that can cause interference on that frequency. The FCC can find this oscillation and require it to be corrected. Digital Antenna repeaters have a power down circuit that will lower the gain of the amplifier when an oscillation is detected. If the oscillation is very strong, it can burn out the amplifier chip. PROPER INSTALLATION IS VERY IMPORTANT. Standard high frequency installation guidelines should be used for the proper cabling, separation and connectors. Improper connectors like PL259s can cause many problems.

Why can I only use your antennas and cables with the DA4000, DA4000MR or DA4000SBR?

The DA4000, DA4000MR and DA4000SBR are high performance, technologically advanced RF amplifiers. They are tested as a system and provide performance specified by the FCC approval. An improperly matched antenna (one with a high SWR) or cable can damage the amplifier unit, cause it to operate in violation of FCC specifications and void the warranty.

Can I use the amplifier with my existing external cellular antenna?

The FCC requires that the amplifier only be used with Digital Antenna brand cellular antennas or an antenna authorized by Digital Antenna, Inc.

➤ FAQ: General Questions

Can I leave your amplifier or amplifier/repeater on all the time?

All Digital Antenna amplifiers can remain on all the time; however, do not leave the automobile amplifier on if the vehicle is not going to be used for more than 1 week.

There is no adapter cable for my phone. What do I do?

The cell phone manufacturers determine which phones have antenna ports. If the phone is not designed with a port, you must change to a cell phone that has an antenna port or use a wireless amplifier/repeater.

Can I buy just the amplifier/repeater unit?

No, the DA4000SBR and DA4000MR amplifiers are sold and tested as a system. The antennas and cable are a tuned system. Poorly tuned antennas may cause system failure. Only Digital Antenna authorized products may be used with the DA4000SBR and DA4000MR systems. Using unauthorized equipment with the DA4000SBR and DA4000MR systems will harm the system, void the warranty and can be detected in the event of a failure.

There are no local dealers in my area. Where do I buy your amplifiers?

Digital Antenna only sells its products through a nationwide dealer network. Digital

Antenna products may be purchased through many authorized dealers nationwide, including online dealers. Visit our **Dealer Locator** page for more information.

I have tech questions. Who do I contact?

Your first level of technical support is your dealer. If your dealer cannot answer your questions, send your inquiry via e-mail to **support@digitalantenna.com**.

I need installation help. Who do I contact?

Contact your dealer. Your dealer has the expertise to assist you with installation questions and can provide you with any accessories needed for your custom installation. The dealer may also be able to direct you to a technician to verify your installation.

Can I send my amplifier or antenna to Digital Antenna to test?

Digital Antenna will test your amplifier or antenna for a fee. Amplifier and amplifier/repeaters have a \$75 bench test fee. An antenna bench test fee is \$25.

I've read all FAQs and followed all instructions and my amplifier doesn't work.

How do I send it to Digital Antenna to test?

Have your serial number ready, and call Digital Antenna at 954-747-7022 to receive an RMA (return materials authorization) number.

Every product is 100% tested and working when it leaves the Digital Antenna factory. Digital Antenna warrants all material defects and workmanship (read our **complete warranty**). Any customer alterations or damage voids the warranty. Using unauthorized products with amplifiers can be detected and voids the warranty.

Products repaired under warranty will be returned with the same packaging and accessories as received by Digital Antenna. Refurbishment is available for a fee. If no problem is found, a \$75 bench test fee plus shipping costs will be charged to the customer.

Can I use the DA4000SBR or DA4000MR for Nextel?

No, the DA4000SBR or DA4000MR amplifiers are designed for use with all cellular systems in the USA and Canada, except Nextel's iDEN network. For Nextel, use our **DA4000N 3 Watt Dual Band Direct Connect Amplifier**.

Can I use a Digital Antenna amplifier in Europe?

Digital Antenna amplifier models DA4000, DA4KMR-10A, DA4KMR-30U and DA4KSBR-50U operate on the 800 and 1900 MHz cellular bands. These models do not operate on iDEN, Nextel or European GSM networks. Our DA4000N amplifier operates on the iDEN network. We currently do not manufacture an amplifier for the European GSM network.

► **FAQ: Antennas and Other Products**

Since the name of the company is Digital Antenna, can I still use the antenna for my analog applications?

Digital Antenna is the company name. All of our antennas perform equally well for both digital and analog communications.

Is a ground plane required for our antennas?

No. As a result of our design and the tuning that we perform at our factory, no ground plane is required.

What makes your antenna different from your competitors?

- All of our antennas are hand assembled and tuned for maximum gain.
- All of our connections are soldered, whereas our competitors use mechanical joints (crimping), which is less reliable and often fails under saltwater conditions.
- Digital Antenna uses its exclusive marine grade low loss UV stable RG-8X cable to reduce transmission line loss in all Digital Antenna marine antennas.
- All of our antenna bases are epoxy glued and filled with silicone base caulking to ensure a complete watertight seal. Our competitors use rubber gaskets and do not fill the ends. Often, the rubber gaskets fail with time.
- Bottom Line: Our antennas are superiorly made, more reliable and outperform all other antennas on a category by category basis.

What should be the main reason to buy your antenna?

The antenna is part of your life support system during an emergency. Reliability should be the main decision factor in purchasing our antenna. The radio and antenna act as one system that must perform in all weather conditions and at maximum range. Simply put, having a good radio with a poor antenna does not give you the best odds when you are in a distress situation. It is our belief that Digital Antenna has the best and most reliable product on the market -- one that beats the competition in both gain and distance, resulting in an increased safety margin.

Is it true that the higher the antenna, the further the transmission and the better the reception?

Yes, in general, that can be one of the factors influencing performance. However, for most uses, mounting the antenna in the usual locations is acceptable.

Does the gain of the antenna really matter?

Yes, it does. The gain of an antenna translates to greater distance for transmission and reception. A gain of 6db usually results in a performance increase of four times the radio's power output and eight times with a 9dB gain. However, other factors can be equally important, including the tuned frequency of the antenna and its SWR. Digital Antenna tunes all of its products in accordance with the median frequency of usage, (i.e., VHF will be tuned for 156.8 MHz). Our SWR ratio approaches 1:1, reducing most of the losses associated with our competitors' antennas. All of these factors are important when it comes to choosing an antenna.

I seem to have a high SWR reading on my Digital antenna. What should I do?

The Bandwidth VSWR on every Digital Antenna brand antenna is <1.5:1. Every antenna is tested before leaving our facility. It does not ship if it does not meet our specifications. Make sure the cable is not coiled or kinked. Check the adapter and verify that it is securely attached to the mini-UHF female connector on the cable. Also, the antenna must be clear of any metal objects including other antennas.

I have a competitor's antenna and I am unhappy with its performance. Can I use your antenna as a replacement without having to buy a new mount?

Most of our antennas fit into the standard 1"-14 threaded mounts of our competitors. For best results, prior to ordering, please go to the **Contact Us** page and e-mail us with any questions.

Why should I purchase your cellular antenna? Isn't the one on the phone good enough?

Our cellular antennas are designed and tuned for maximum gain of 9dB. The little antenna on your cell phone simply does not have any gain or range.

How do I know if the cellular antenna on my boat is dual band?

Competitors' cellular antennas manufactured before the year 2000 are most likely not dual band. All Digital Antenna cellular antennas will work with analog, digital, dual band

EXHIBIT 4



March 17, 2004

Mr. David H. Solomon
Chief, Enforcement Bureau
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Subject: Unauthorized use of signal boosters and in-building radiation systems.

Dear Mr. Sullivan:

It has come to my attention that signal booster amplifiers and in-building cellular amplifier packages are being marketed and sold directly to commercial mobile radio subscribers (see attachment 1, Cell Antenna Corp. web page.) This would seem to be in conflict with 47CFR22.383 and 47CFR90.219, both sections which authorize only *Licensees* to install and operate signal boosters and in-building radiation systems. 47CFR22.927 clearly places subscribers under the operational control of the Licensee(s). I have been unable to find a section of the rules where *subscribers* are given authorization to construct and operate signal booster or in-building radiation systems.

TX RX Systems, Inc. designs and manufactures FCC-certificated signal booster products used primarily by Public Safety licensees. We are concerned that the proliferation of subscriber-installed and operated devices of this type, under no licensee supervision, will cause broadband noise pollution and desensitization of or direct interference to critical public safety systems. Noise and interference from these devices is already causing significant interference in New York City and other large metropolitan areas, at times requiring scarce resources to be diverted from other projects to track down these devices, which in some cases have been abandoned. We suggest that an enforcement campaign similar to the one Riley Hollingsworth is conducting on illegal CB amplifiers and transmitters be considered. Left unchecked, this could blossom into an interference problem larger than the current 800 MHz interference issue.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ronald J. Jakubowski', is written over a horizontal line.

Ronald J. Jakubowski
Chief Engineer, RF Systems

1 encl/ as

DUPLEXERS • CAVITY FILTERS • MULTICOUPLER SYSTEMS • SIGNAL BOOSTER SYSTEMS • RF SYSTEM PRODUCTS
TX RX SYSTEMS INC. 8625 INDUSTRIAL PARKWAY, ANGOLA, NY 14006-9696
TELEPHONE 716-549-4700 FAX 716-549-4772 (24 HRS.)
A MEMBER OF THE BIRD TECHNOLOGIES GROUP

EXHIBIT 5



FEDERAL COMMUNICATIONS COMMISSION
Enforcement Bureau
Spectrum Enforcement Division
445 12th Street, S.W.,
Washington D.C. 20554

June 28, 2004

Via Facsimile and Certified Mail

Mr. Ronald Jakubowski
Chief Engineer, RF Systems
TX RX Systems, Inc.
8625 Industrial Parkway
Angola, NY 14006

Dear Mr. Jakubowski:

This letter is in response to your fax transmission of May 25, 2004 and attached letter dated March 17, 2004. The Spectrum Enforcement Division of the Enforcement Bureau has reviewed your complaint concerning the direct marketing of signal boosters and in-building radiation systems to commercial mobile radio subscribers and found no evidence of a violation. While it is correct that these devices may only be installed and operated by licensees, the Commission's Rules do not explicitly prohibit the sale of such devices to non-licensees. Accordingly, we find that further investigation is not warranted at this time.

Please direct any questions regarding this matter to Kathy Berthot, 202-418-7454.

Sincerely,

A handwritten signature in cursive script that reads "Joseph P. Casey".

Joseph P. Casey
Division Chief
Spectrum Enforcement Division
Enforcement Bureau