INSTALLASJONSVEILEDNING

MOBILTELEFON SIGNALFORSTERKER

Nikrans NS-GDW-Drive

Frek.: 900, 1800, 2100 MHz
Dekning: 30 m²

PREFACE

This user’s manual describes the installation and maintenance of wide band consumer boosters. Please do read user manual carefully before installing and maintaining repeaters. The information in this manual is subject to change without prior notice.

1. SAFETY WARNINGS

Users must follow the principles below

Repeater should follow system requirements; assure good grounding and lightning protection.

The power supply voltage of repeater should meet security requirements; any operation shall be carried out only after turning off power in advance. Only the professional is authorized for the operation.

Do not dismantle machine, maintain or replace its components by yourself, because this way the equipment may be damaged and you may even get an electric shock.

Do not open the repeater, touch the module of the repeater, or open the cover of the module to touch electronic component. The components will be damaged due to electrostatic.

Please keep away from heating equipment, because the repeater dissipates heat during working. And do not cover a booster with anything that influences heat dissipation.

2. INTRODUCTION AND REASONS FOR WEAK CELLULAR SIGNALS

Mobile Signal Booster is a perfect solution for providing improvement of cellular signal reception inside a house, office, restaurant, VIP Room, apartment, building or shopping mall.

Generally cell phones cannot pick up or maintain a strong cellular signal due to one of the two following reasons:

1. **Location of the Nearest Base Station** – Base stations are used to provide broad coverage. However there are many areas in which signal strength gets reduced due to topographic peculiarities or local Governmental restrictions regarding the height or location of base stations. Rural areas generally have fewer base stations than urban regions.

2. **Natural and Man-Made Obstructions** – Signal strength can also be negatively affected by trees, hills, buildings, weather and other obstructions. You may be relatively close to a base station but still unable to make a call. This often occurs inside houses, offices and other buildings with stucco, concrete or metal walls that may block the signal.

The Signal Booster works with two antennas. An Indoor antenna communicates with your cell phone and an Outdoor antenna communicates with the base station (BS). The Outdoor antenna receives a signal from the BS and sends it through the cable to the Signal Booster, where it gets amplified and re-transmitted by the Indoor antenna throughout a building. When the Indoor antenna picks up a signal from your cellular device, the Signal Booster amplifies that signal and transmits it through the cable to the Outdoor antenna and back to the BS.

(Note: The Signal Booster will only operate if there is an adequate signal to amplify.)

3. MODEL DESCRIPTION

Bestill Nikrans NS-GDW-Drive signalforsterker for å forsterke dårlige GSM-, 3G- og 4G-signaler i kjøretøyet når du er på vei hjem, på jobb eller på reise!

Nikrans NS-GDW-Drive er et profesjonelt mobil signalforsterkningssystem utviklet **for å forbedre svakt telefonsignal i biler og andre transportmidler**, for eksempel **varebiler, busser, lastebiler, osv**. Denne bilrepeateren vil sikre stabil mobilforbindelse uansett hvor du befinner deg.

Denne **GSM 3G 4G-bilforsterkeren** vil gjøre turene dine mer behagelige og morsomme. Det er **enkelt å installere og trygt i bruk**. Komplett sett inneholder alt som trengs for montering, slik at du ikke trenger å kjøpe noe ekstra utstyr. Det er bade **antenner for innvendi- og utvendigbruk**. Den første er plassert inne i bilen med sugekopp, mens den andre er montert på taket på bilen med en magnet. Utvendig antenna er **en rundstrålende antenna**, noe som betyr at den er i stand til å fange signal i alle retninger rundt kjøretøyet. Tri bandets bilforsterker fungerer selv fra en sigarntenner. Så snart du kobler den til enheten begynner å forbedre dårlig mobilsignal i transporten, uansett hvor du vil være.

Nikrans NS-GDW-Drive er kompatibel med mange leverandører, da den har tre arbeidsfrekvenser - **900 MHz, 2100MHz og 1800MHz**. Modellen støtter **alle GSM-standarder for samtaler** (900 og 1800 MHz), samt hovedstandarder for **3G og 4G mobil internettforbindelse** (3G ved 900 og 2100 MHz og 4G ved 1800 MHz). Så du kan fritt reise hvor du måtte ønske deg (selv i nabolandene!) Du kan reise hvor du vill uten å være red for å miste signal eller oppleve dårlig internettforbindelse.

Denne signalforsterkeren for bil er sikker og samsvarer med de internasjonale tekniske standardene, som er i tråd med **CE- og RoHS-sertifikater.**

Nikrans NS-GDW-Drive vil sikre god signalstyrke under din reise! Bestill Nikrans NS-GDW-Drive akkurat nå og nyt den perfekte kvaliteten av mobilforbindelse i kjøretøyet ditt uansett hvor du befinner deg!

4. SPECIFICATION

Dekningsområde:	30 m²
Opplinkfrekvens:	885-915 & 1710-1785 & 1920-1980 MHz
Inngangsfrekvens:	930-960 & 1805-1880 & 2110-2170 MHz
Opplinkvinning:	45 dB
Nedlinkvinning:	50 dB
Strømforsyning:	Input AC90~264V, output DC12V/3A
Energiforbruk:	0.006 kW/h
Fungerer i temperaturer på °C:	-25/+55
Fuktighet:	5 - 95%
Størrelse (mm):	175×131×33
Forsterkerens vekt:	0.7 kg
dBm:	10 dBm

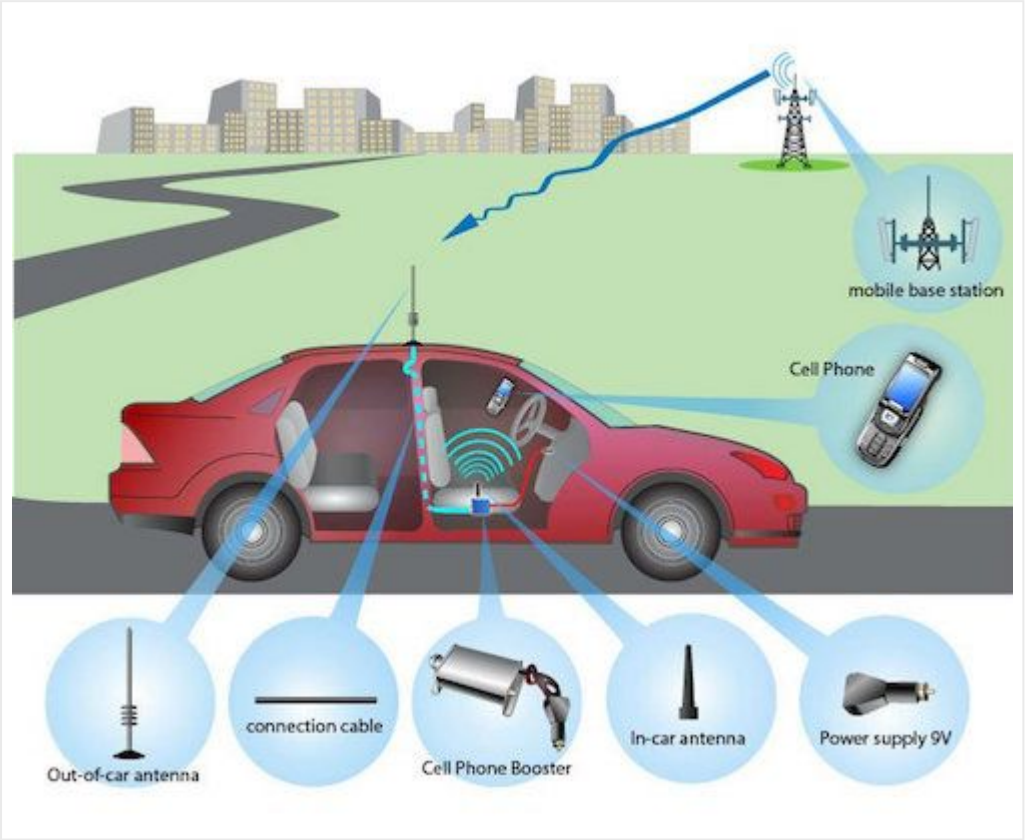
5. REPEATER SYSTEM OVERVIEW

The picture below shows how simple and fast booster installation is and how effectively it works.

Out-of-car antenna should be fixed in a proper place (for example, on a car trunk) and connected with the booster by cable. Then fasten the in-car antenna to the booster and plug the power supply into the cigar lighter. Just in a few seconds the signal will become boosted in your car.

A repeater kit includes:

- **Out-of-car Antenna**
  Function: To pick up outside signals from the base station and send them by cable to the repeater; out-of-car antenna also transmits the uplink signals from the repeater back to the base station.
- **In-car Antenna**:
  It is mounted inside the vehicle with the purpose to transmit the improved signals throughout the coverage area.
- **Cables**: cables for connecting indoor and outdoor antennas.
- **Mountings**: Special mountings for antennas and the booster (depends on a booster model)
- Power Supply (12V for a cigar lighter)



6. ANTENNAS AND CABLES SETTING UP

6.1. Outdoor antenna installation

Mount out-of-car antenna onto the car trunk fixing it on a magnetic antenna's surface.

Cable layout and connector assembly

1. Keep the type, specifications, routing direction, location and curvature radius of cables in compliance with the model requirements. Place cables in correct order, bend them smoothly, and protect the surface from any damage.
2. Place RF cables separately from power cables. Take proper isolation measures if they have to be placed on the same cable racks owing to the site condition restrictions.
3. Fasten all connection parts of the whole system in correct order, from the antenna to repeater interfaces, and make sure that the electrical interfaces are well contacted. Give waterproof treatment to outdoor connection parts.
4. Take lightning protection measures for the antenna and feeder system in accordance with the system requirements. Avoid deforming the antenna feeder where grounding clips are placed, and give waterproof treatment to the feeder.

Indoor antenna installation

1. Find a suitable position for an in-car antenna (e.g. under the seat of a driver).
2. Clear and dry the place where you’re going to fix the in-car antenna. Put up the nylon strap tightly on the chosen position and stick the antenna firmly.
3. Plug in the in-car antenna into the booster interface and fasten it tightly.

7. REPEATER INSTALLATION

7.1 Installation requirements

7.1.1 Installation Location Requirements

No specific installation requirements shall be followed.

7.1.2 Power requirement

DC 12V. Connect the Power adapter to the cigar lighter.

7.2. Installation Steps

INSTALLATION STEPS

1. Find a suitable position for an in-car antenna (e.g. under the seat of a driver).
2. Clear and dry the place where you’re going to fix the in-car antenna. Put up the nylon strap tightly on the chosen position and stick the antenna firmly.
3. Plug in the in-car antenna into the indoor booster interface and fasten it tightly.
4. Mount out-of-car antenna onto the car trunk fixing it on the antenna's magnetic surface.
5. Plug in the out-of-car antenna into the outdoor booster interface and fasten it tightly.
6. Connect the Power adaptor to the cigar lighter. If the indicator on the booster lights up the installation has been made correctrly.

   NOTE: Switch on the signal booster only after installing out-of-car and in-car antennas correctly!

7. Test the signal of your mobile telephone. After installation, mobile signal should get maximally strong within all the car area. In case the mobile connection is still instable try to change the position of the antennas for a better result.

7.2.2 Repeater’s ports description

1. Outdoor port: connected with the outdoor antenna by cable
2. Indoor port: connected with indoor antenna directly or by cable (depending on a booster model)
3. Connect the Power supply into the cigar lighter.

7.2.3 Accessories selection

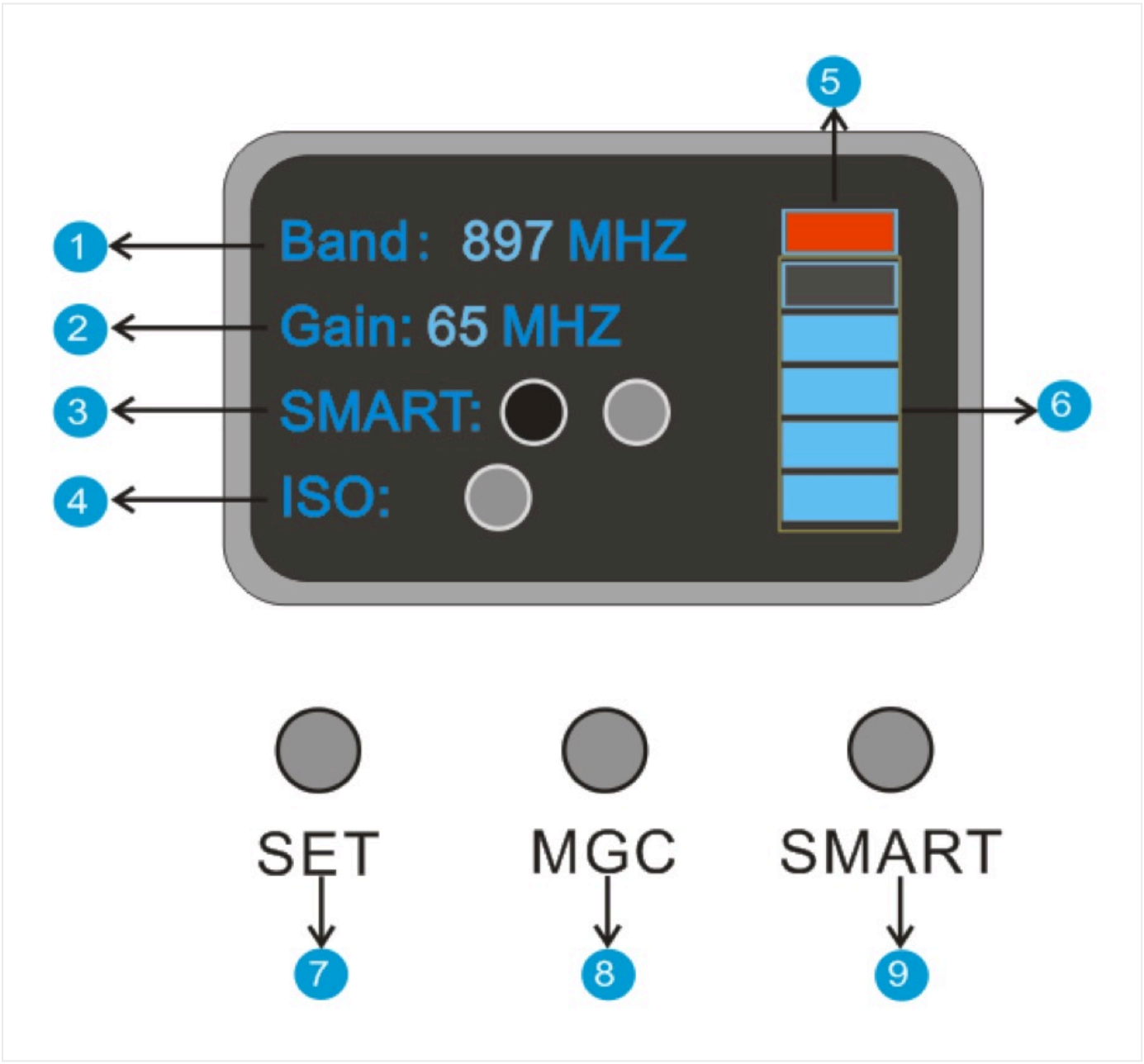
No need. Use standard accessories.

7.3. Repeater Settings

7.3.1. Indicator Light Instructions

Repeater Features & Settings

The repeater is controlled via LCD touch screen on the front panel. See the detailed introduction listed below:



1. Shows the UL&DL average frequency.
2. Shows the UL&DL maximum gain.
3. Smart function. The repeater could set the gain automatically to prevent the Alarm.
4. Antenna Isolation Detection. At first power on the repeater, it will detect the oscillation automatically between the outdoor and indoor antennas.
5. ALC Alarm indicator.
6. 5 bars of the output signal strength indication, which shows the maximum output power of the repeater. Each signal bar represents 5dB.
7. Press to select or confirm the settings.
8. Increase the gain or upward adjusting of the average frequency. Decrease the gain or downward adjusting of the average frequency.
9. Smart key. Press the key enter into Smart function.

The repeater has Manual Gain Control (MGC) feature that enables engineers to reduce the gain of the repeater manually via touch screen if oscillation is detected. Users could also use the “Smart” function as

well, which will help to set to the suitable gain automatically without any interference to the mobile network.

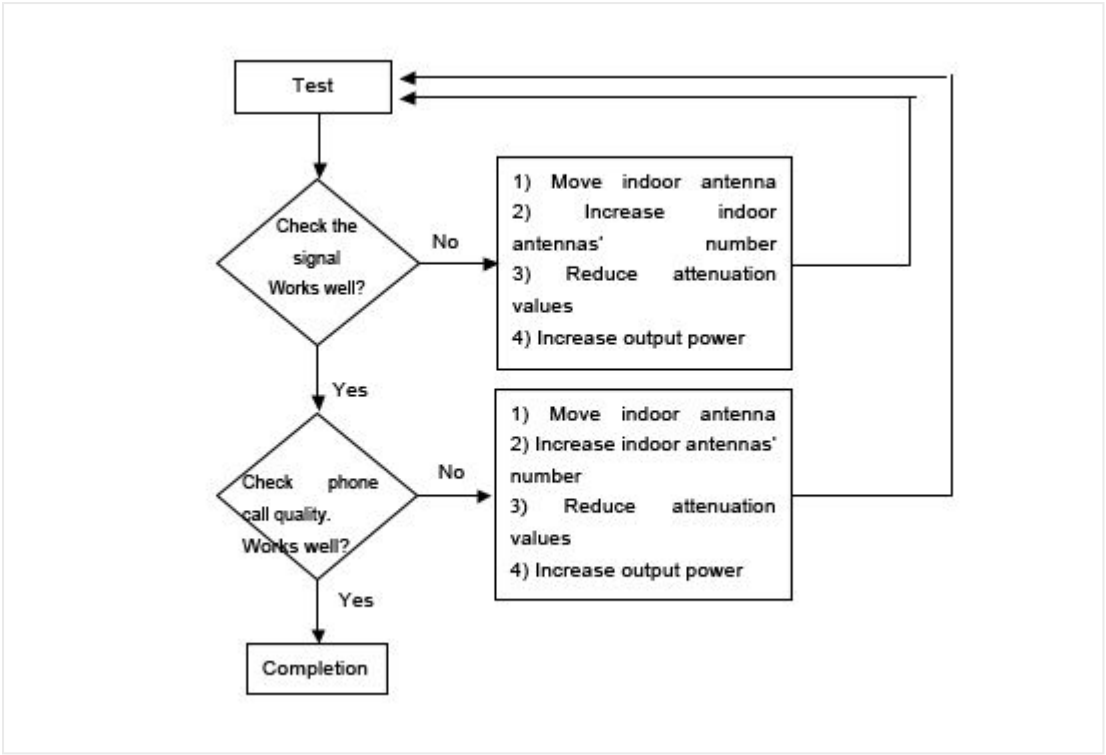
In order to maintain safe and specific output signal levels, this repeater has built-in signal oscillation detection circuit to adjust the gain automatically so as to avoid interference to the cellular network, also it gets color changing LED indicating its environmental status: the Alarm LED will change color from green to orange or red, (depending on the input power level) when the system detects signal oscillation in the working band or the input signal is beyond a safe limit.

The repeater also features a Network Safe / MUTE feature that automatically shuts off the repeater to protect the cellular network. Users shall make sure the LED remains green at all times for optimum system performance.

7.4. System Test

7.4.1. Check whether the coverage is good

1. If the signals in small parts of the area have not been improved, please check the following:
   - Check whether the indoor antenna is installed correctly or not; you may try to change the antenna location to improve coverage.
   - Check if it is necessary to adjust the direction of the indoor antenna.



For maximum precision in signal level testing, switch your cell phone into Field Test Mode and see dB parameter. The closer dB signal level to 0, the better cell phone reception you'll get.

- -105 to -100 = Bad/drop call
- -99 to -90 = Getting bad/signal may break up
- -89 to -80 = OK/shouldn't have problems, but maybe
- -79 to -65 = Good
- Over -65 = Excellent

Your task is to get at least -79dB signal to ensure reliable communication and strong signal inside the building.

Remark:

- **Reduce attenuation values** * — by ensuring the isolation level
- **Increase output power** * — recommended ways: to adjust outdoor antenna direction/location, or replace it to an antenna with higher gain to increase input signal strength.

7.4.2 Repeater can not communicate in Power-ON status

The repeater’s power is on but the phone cannot get connected to the network and still can not communicate.

Reason: There are loose or wrong connections in the repeater system.
Solution: Please try to fasten the connections between different parts of the system.

8. FAQ

1. Will booster increase the RF radiation?

No, it will decrease instead.

Every cell phone irradiates heavily being in zones with poor mobile signal as a cell phone is constantly in searching mode. The danger is your cell phone is about 2cm to your body, which makes its usage rather harmful. And when a booster is installed, it improves the mobile signals in the coverage, and your cell phone stops irradiating strongly, thus it will reduce the RF radiation of the mobile phone tremendously.

The maximum power level of booster is 0.01W, and it decreases to be maximum 0.001W when reaching indoor antenna. And since the indoor antenna is installed over the ceiling or onto the wall, there is usually more than 3 meter away from the human body, 3meter away means at least 40dB propagation loss, or 10000 times less, 0.0000001W, and therefore it is too weak to influence human bodies though it is still a very good signal for mobile phones.

2. If the power indicator is off after installing the repeater, what should I do?

Check if the repeater’s power supply works normally or not.

3. If repeater’s power supply is normal, ALM light is on or flashing all the time, what should I do?

Firstly, check whether all connectors are connected well or not. If it is all right, please, adjust the direction of the outdoor and indoor antenna. Make sure the horizontal distance is 75 feet or more, the vertical distance is 20 feet or more.

4. If the repeater and power supply are installed correctly, why the signal is still bad?

1. According to the steps above, verify if all the cables and connectors are connected correctly or not and correct the connections if necessary.

2. If connections are correct, please, adjust the direction of the outdoor antenna, point it towards BTS antenna, and make sure it can accept the strongest signal.

5. After installing the repeater, the signal is good, but the connection is slow or intermittent, or I cannot hear clearly the other side?

1. Please, check the indoor antenna position, and whether the cables and connectors are connected correctly or not.

2. Adjust the indoor antenna direction and make sure it can easily receive a cell phone signal.

9. ABOUT NIKRANS BRAND

Nikrans boosters is the result of a 7-year experience in selling cell phone signal amplifiers throughout EMEA, APAC, NAR and other regions. For all these years we've been following the market carefully listening to customers and industry leading experts with the aim of working up our own vision and quality standards in signal amplification.

Nikrans product line includes about 40 models: from basic single-band devices with 100 m^2 coverage to high-end all-in-one solutions covering up to 5000 m^2. Depending on the model, boosters operate in GSM, DCS, CDMA, LTE or combination of these standards at 850-2100 MHz frequencies. The product line is extended with a series of antennas, splitters and other accessories for completing exclusive custom projects of any difficulty level.

Nikrans product development process is rigorously assessed to comply with ISO 9001:2008 standard and implicates internal tests, which greatly ensures the quality of our goods. High product quality is also confirmed by Phoenix Testlab, Germany and is proved with CE and RoHS certificates. That's why a 3-year warranty applies to any of Nikrans boosters.

Certificates


Expertise

Expert Opinion of the Notified Body on the Conformity Assessment according to Article 10.5 of R&TTE Directive 1999/5/EC

PHOENIX TESTLAB

EU Identification Number 0700

CE-marking

Marking Example (Class 2) CE 0700

Blomberg, 26 May 2014

Place, Date of issue

Signed by Alan Lane

Notified Body


Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2008

Holds Certificate No: FM 583302

and operates a Quality Management System which complies with the requirements of ISO 9001:2008 for the following scope:

The design and production of wireless telecommunications repeater for mobile communications and WLAN(Wireless Local Area Networks)

用于手机和无线局域网的无线通信中继放大设备的设计与制造

For and on behalf of BSI:

Gary Fenton, Global Assurance Director

Originally registered: 07/09/2012 Latest Issue: 07/09/2012 Expiry Date: 06/09/2015

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Attestation of Global Compliance (Shenzhen) Co., Ltd.
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Certification of Product Declarations

Application of the Council Directive 2011/65/EU on the restriction of the use of certain hazardous substances in the electrical and electronic equipment

RoHS

Solger Zhang / Quality Manager
Issue Date: July 26, 2012

Validation of the certificate are subject to:
- The compliance to the surveillance requirements
- Conditions of restriction as stipulated in the test report

Recognized by Attestation of Global Compliance (Shenzhen) Co., Ltd. in accordance with the RoHS Directive 2011/65/EU. The certificate doesn't imply assessment of the production. The Applicant of the certificate is authorized to use this certificate in connection with EC declaration of conformity to the Directive. The certificate is only applicable to the equipments described above. This certificate shall not be re-produced except in full without the written approval of Attestation of Global Compliance (Shenzhen) Co., Ltd.

Hereby, Nikrans declares that this signal booster is in compliance with the essential requirements and other relevant provisions of Radio Equipment Directive (RED) 2014/53/UE (CE marking).

In Norway, it is necessary to obtain the appropriate permissions from the respective service providers. The installation of Personal Repeaters must be conducted in accordance with regulations set by the Norwegian Communications Authority (Nkom).