

# Instruction of NARF Module

## 1. General Information

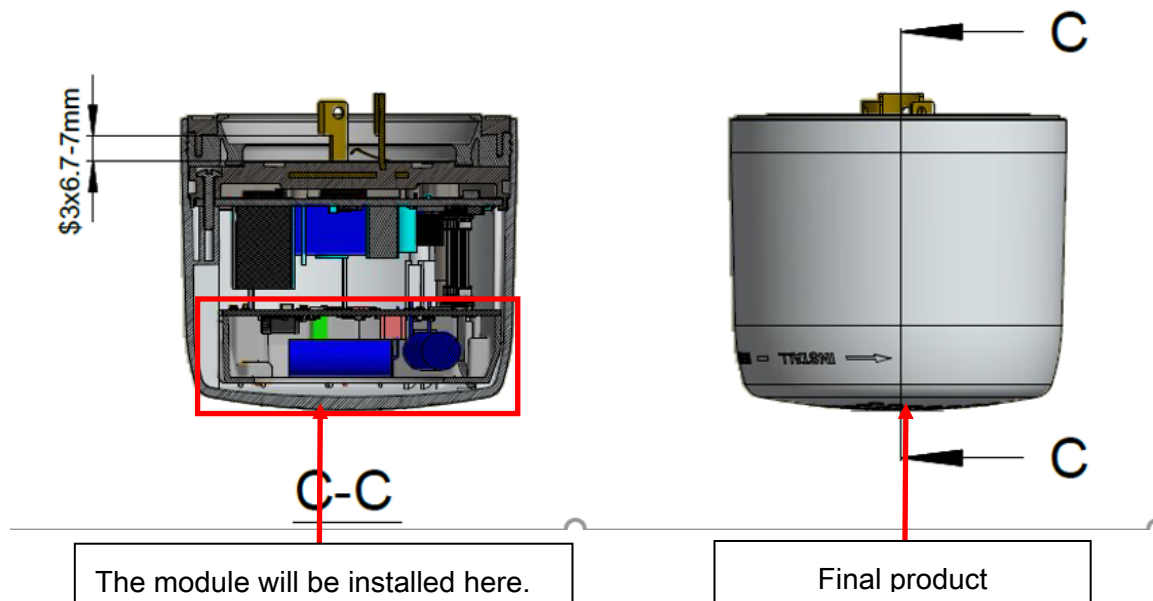
The individual RF module named as NARF, FCC ID: 2AGBW-NARF and IC: 20812-NARF, is supplied by 15-24V DC. The transmitter has its own RF shielding. The operation temperature range is -40°C -85°C. This module using only one kind of antennas with maximum gain is -2 dBi. Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The picture of module is showed below as Picture 1. The assembly in the end-product is showed below as Picture 2.

**Note: This RF module is assembled in Signify products only.**



Picture 1 – Up and Bottom sight of NARF



Picture 2 - Module assembled in end-product

## 2. Information on Test Modes and Additional Testing Requirements

- a. The modular transmitter has been fully tested by the module grantee on the required number of channels, modulation types, and modes, and it's complied with FCC part 15.247. It should not be necessary for the host installer to re-test all the available transmitter modes or settings. It is recommended that the host product manufacturer, installing the modular transmitter, perform some investigative measurements to confirm that the resulting composite system does not exceed the spurious emissions limits or banded edge limits (e.g., where a different antenna may be causing additional emissions).
- b. The testing should check for emissions that may occur due to the intermixing of emissions with the other transmitters, digital circuitry, or due to physical properties of the host product (enclosure). This investigation is especially important when integrating multiple modular transmitters where the certification is based on testing each of them in a stand-alone configuration. It is important to note that host product manufacturers should not assume that because the modular transmitter is certified that they do not have any responsibility for final product compliance.
- c. If the investigation indicates a compliance concern the host product manufacturer is obligated to mitigate the issue. Host products using a modular transmitter are subject to all the applicable individual technical rules as well as to the general conditions of operation in Sections 15.5, 15.15, and 15.29 to not cause interference. The operator of the host product will be obligated to stop operating the device until the interference has been corrected.

Below are steps for TX verification: rx 0 //Rx: Disabled

Setchannel //set channel to 1, 2, 3, 4~10etc.

setpower110 //set Tx power to 11dBm

setTxStream 1 //start continuous modulated Tx

setTxStream 0 //stop continuous Tx

Note: This module only has one kind of modulation type, OQPSK. The physical rate is 250Kbps.

- d. The Class A or Class B compliance check in the end-product which uses NARF module according to FCC part 15B should be checked with the end-product.

### 3. Warning

a. FCC/IC compliance statement

This device complies with part 15 of the FCC rules for the United States and Industry Canada (IC) license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Any changes or modifications not expressly approved by Philips could void the user's authority to operate this equipment. This product is intended for commercial use only.

#### DÉCLARATION DE CONFORMITÉ À LA FCC/IC

Ce dispositif est conforme à la partie 15 des règles de la Federal Communications Commission (FCC) des États-Unis et d'Industrie Canada (IC) exempts de licence RSS norme(s). Son fonctionnement est assujéti aux deux conditions suivantes : (1) Ce dispositif ne doit pas provoquer de brouillage préjudiciable, et (2) il doit accepter tout brouillage reçu, y compris le brouillage pouvant entraîner un mauvais fonctionnement. Tous les changements ou modifications non expressément approuvés par Philips, sont susceptibles d'annuler le droit de l'utilisateur à se servir de cet équipement. Ce produit est exclusivement destiné à un usage commercial.

b. NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

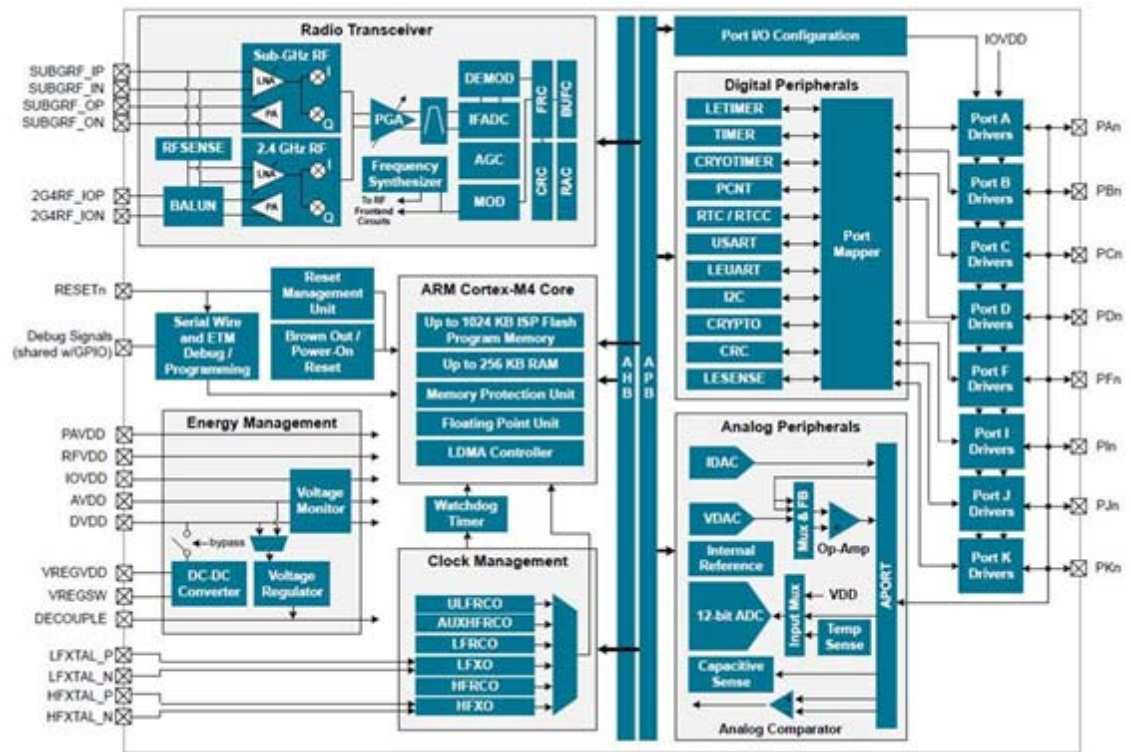
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

c. Note: This equipment complies with FCC/ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Le rayonnement de la classe b respecte FCC/ISED fixaient un environnement non contrôlés. Installation et mise en œuvre de ce matériel devrait avec échangeur distance minimale entre 20 cm ton corps. Lanceurs ou ne peuvent pas coexister cette antenne ou capteurs avec d'autres.

#### 4. RF module

The RF module is EFR32MG12, operation frequency range is 902-928MHz, modulation type is OQPSK-SIN-250, 250 kbit/s. Block diagram of RF Module is showed below as Picture3.



Picture 3 – Block Diagram of EFR32MG12