

Ultra Short Range Radar User's Manual ver.1.2

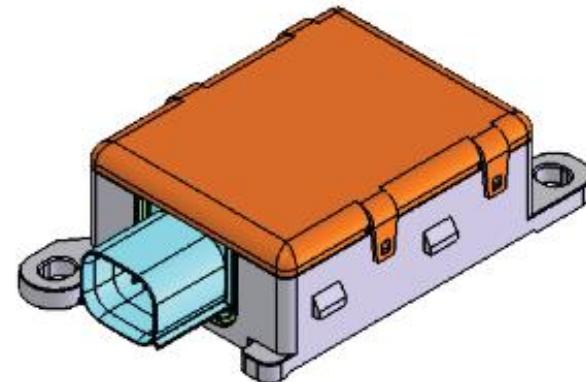
1. Product/Model
2. Spec/Power/Frequency
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Feb. 13th 2019

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1. Product/Model

Product Name	Ultra Short Range Radar
Model Number	UKAZA2A001
FCC ID	2ACH3UKAZA2A0



2. Spec/Power/Frequency

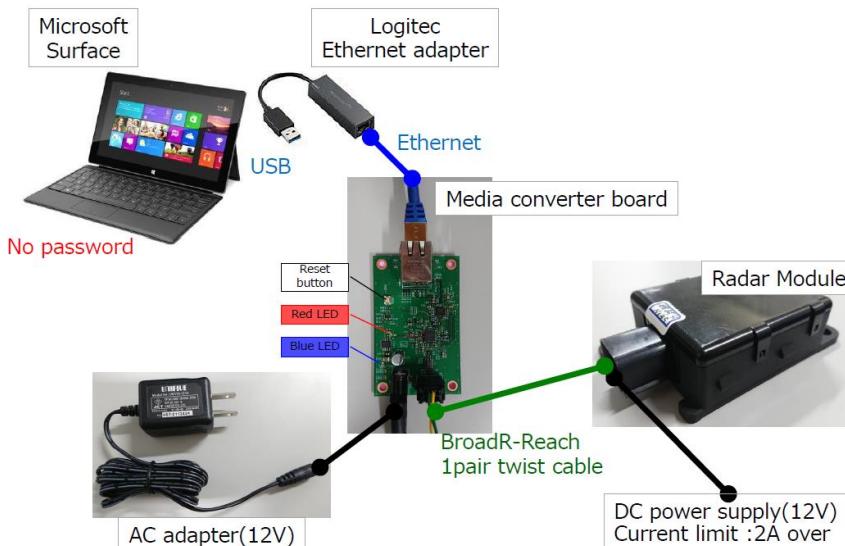
Item	Value	Unit
Output Power at RF IC *1	10 (typical)	dBm
EIRP	2.9 (peak)	dBm/MHz
Frequency	77 to 80.6	GHz
Modulation	FMCW	
Power Voltage	12 (typical)	V
Current Consumption	1100 (peak)	mA
Electrical Interface	BroadR-Reach 100Mbps	-
Operating Temperature	-40 to 85	degC

*1: This value doesn't include the antenna feed line and pattern.

3. Operation Manual

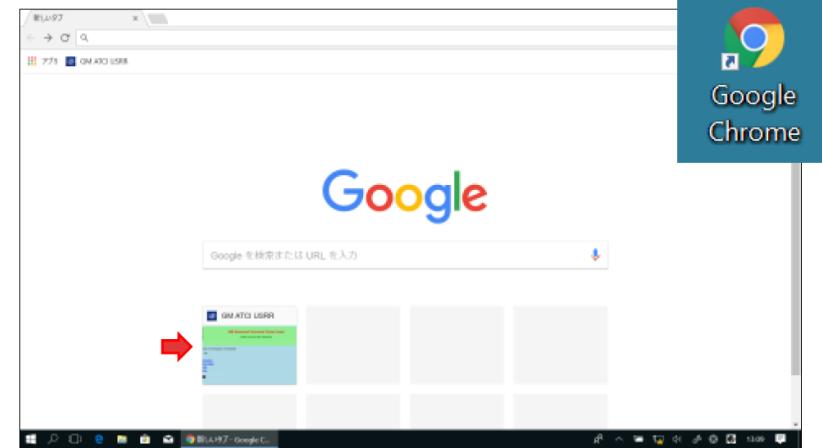
Connection of equipment

Common operation step1



Overview

Common operation step2



Launch Google Chrome on Surface and launch the USRR Control Web Interface.
(You can also access "10.1.1.19" directly in the URL.)

FMCW/CW mode common operation

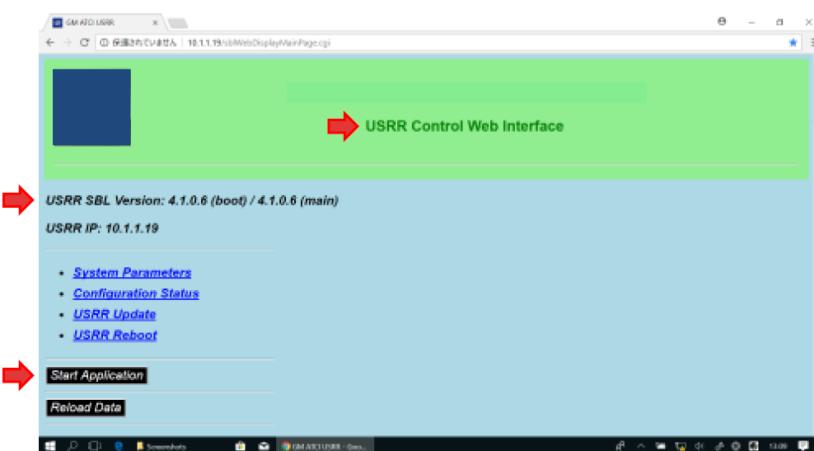
- Step0. Supply 12 V from AC adapter to Media converter board.
→The **blue LED** on the Media converter board lights up.
Supply 12V from the DC power supply to Radar module.
→The **red LED** on the Media converter board lights up.
If it does not light up, press the reset button or turn the power to the Media converter board again.
- Step1. Launch Google Chrome on Surface and launch the USRR Control Web Interface.
- Step2. Press the "Start Application"
- Step3. Press the "Return to USRR Main Page"
- Step4. USRR Version Number: 4.4.22.13 is activated.

FMCW mode operation

Operation mode:Operational
Start Sampling
USR Start
Press the "Submit" button

CW mode operation

Run Script on Desktop
Enter Operating frequency <GHz>
Enter Operating frequency <MHz>
Enter TX channel
Operation mode:Sampler
Start Sampling
USR Start
Press the "Submit" button



The USRR Control Web Interface is started.
(Confirm that it is "USR SBL Version:4.1.0.6(boot)/4.1.0.6(main)")
Press the "Start Application"

3. Operation Manual

Common operation step3



FMCW mode

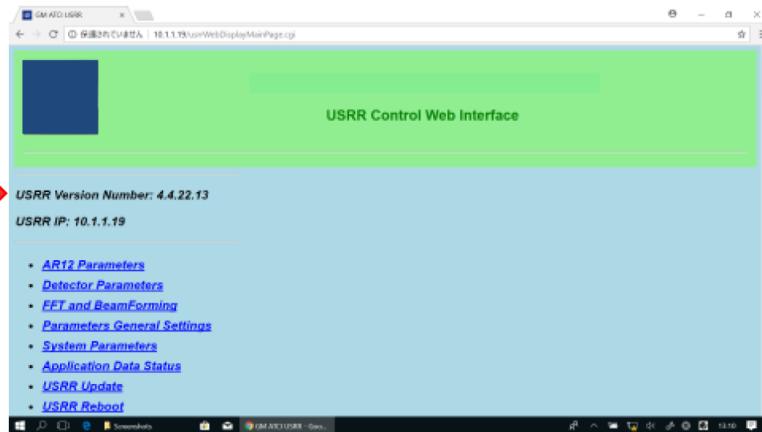


If this screen takes a long time,
Press the "Return to USRR Main Page"

Common operation step4



FMCW mode operation



USR Version Number: 4.4.22.13 is activated.



Operation mode:Operational
 Start Sampling
 USRR Start
 Press the "Submit" button

3. Operation Manual

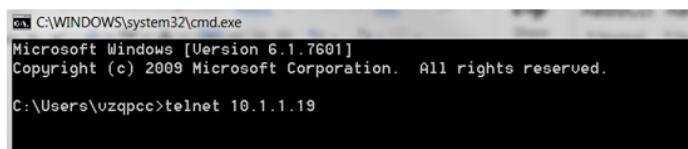
CW mode

Configuring the USRR

1. Prior to start make sure you have Telnet Installed\Enabled, if not, Download the use the following Link:
[https://technet.microsoft.com/en-us/library/cc771275\(v=ws.10\).aspx](https://technet.microsoft.com/en-us/library/cc771275(v=ws.10).aspx)
2. After Flashing the Version, Launch The Command Prompt From The Run Window, (By writing: 'cmd'):



3. After that, connect to the USRR by writing: 'telnet <USRR_IP>' in the command line, then press 'Enter':



3. Operation Manual

Configuring the USRR



4. The GM-CLI Menu shall appear, Choose AR12 Operation Modes Menu, by clicking: '7', then 'Enter':

```

cmd Telnet 10.1.1.19
USRR Version: 4.4.22.8
Version Date: Dec 21 2017
Version Time: 15:18:41
Version Info: broadr reach phy with trace
AWR12x FW Revision is: E51.0
AWR12x FW Master Version is: 1.6.0.12
AWR12x FW RF Version is: 1.6.0.5

Welcome connection : 10.1.1.11:61794

Welcome to the GM-CLI (C) .

Main Menu
xxxxxxxxxxxxxxxxxxxxxx
1) Acquisition Menu
2) Algorithm Parameters Menu
3) Flash Menu
4) Go
5) ObjDump
6) Print Trace
7) AR12 Operation Modes Menu
=>7

AR12 Operation Modes Menu
xxxxxxxxxxxxxxxxxxxxxx
1) Configure AR12 in Modulated Mode With Minimal Chirp Cycle Time
2) Configure AR12 in continuous Mode <Tx Elements[decimal]> <freq[decimal]> <freq.dot[decimal]>
=>

```

5. Modulated Mode - Minimal Chirp

- 5.1. In Order to work with the: " AR12 in Modulated Mode With Minimal Chirp Cycle Time", click: '1', then 'Enter', you should see the printout: 'Done' afterwards:

```

AR12 Operation Modes Menu
xxxxxxxxxxxxxxxxxxxxxx
1) Configure AR12 in Modulated Mode With Minimal Chirp Cycle Time
2) Configure AR12 in continuous Mode <Tx Elements[decimal]> <freq[decimal]> <freq.dot[decimal]>
=>1
Done.

```

- 5.2. That action shall configure the AR12 Chirp Parameters, as explained in details in Paragraph 33.1.

3. Operation Manual

Configuring the USRR



6. Unmodulated Mode – Continues

6.1 In Order to work with the: "AR12 in continuous Mode", click:

'2 <freq[Ghz]> <freq.dot[100Mhz]> <No. of Tx Elements (0,1,2)> <Tx Channel (0,1,2)>'

Then 'Enter', you should see the printout: 'Done' afterwards.

For Example, In order to transmit with 1 Tx Antenna, Index 0 (Tx0), in 78.5[Ghz], you should click: '2 78 5 1 0', then 'Enter':

```
AR12 Operation Modes Menu
xxxxxxxxxxxxxxxxxxxxxx
1) Configure AR12 in Modulated Mode With Minimal Chirp Cycle Time
2) Configure AR12 in continuous Mode <freq[Ghz]> <freq.dot[100Mhz]> <No. of Tx Elements (0,1,2)> <
Tx Channel (0,1,2)>
=>2 78 5 1 0
Done.
```

6.2. That action shall configure the AR12 CW Parameters, as explained in details in Paragraph 3.2.

6.3. Open The USRR Web Application, Scroll Down to AR12 Parameters.

6.4. Start the USRR Operation in: 'Sampler' Mode:

A screenshot of a web-based configuration interface for the AR12 Parameters. The form is titled 'AR12 Parameters' and contains the following fields:

- Operation Mode: Sampler (dropdown menu)
- Sample Mode: ADC (dropdown menu)
- Sampler Decimation: 0 (input field)
- Start Sampling:
- USRR Start:

At the bottom of the form are two buttons: 'Submit' and 'Return to Top'.

3. Operation Manual

Configuring the USRR

6.5. You are now working with the proper configuration.

7. Disable Tx Antennas

7.1. To work with the: " Configure AR12 in Regular Mode RX Only, with selected frequency", click: '3 <freq[Ghz]> <freq.dot[100Mhz]>', Then 'Enter', you should see the printout: 'Done' afterwards.

For Example: in order to receive in 78.5[Ghz], you should click: '3 78 5', then 'Enter':

```
Main Menu
*****
1) Acquisition Menu
2) Algorithm Parameters Menu
3) Flash Menu
4) Go
5) ObjDump
6) Print Trace
7) AR12 Operation Modes Menu
=>7

AR12 Operation Modes Menu
*****
1) Configure AR12 in Modulated Mode With Minimal Chirp Cycle Time
2) Configure AR12 in continuous Mode <freq[Ghz]> <freq.dot[100Mhz]> <No. of Tx Elements (0,1,2)> <
Tx Channel (0,1,2)>
3) Configure AR12 in Regular Mode RX Only, with selected frequency <freq[Ghz]> <freq.dot[100Mhz]>

=>3 78 5
Done.
```

4. Warning Statement

1. Need to have more than 2A capability for a power source.
2. Do not touch I/F metal pins in connector by your hand directly.
3. Do not drop the product.
4. Do not remove a plastic cover which is top of the product.
5. Need to turn 12V power off before disconnecting the I/F cables.

End of Slides