

Ultra Short Range Radar User's Manual ver.1.2

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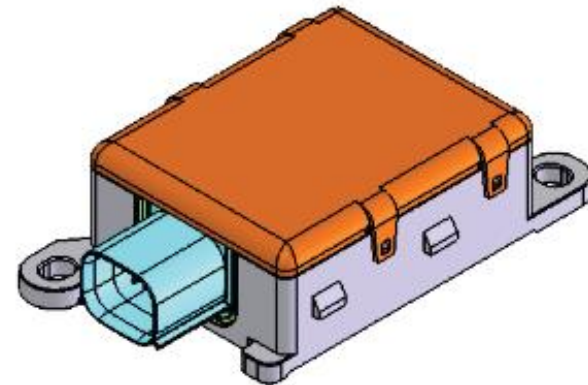
Feb. 13th 2019

Perfecting the Art of Electronics

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1. Product/Model

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



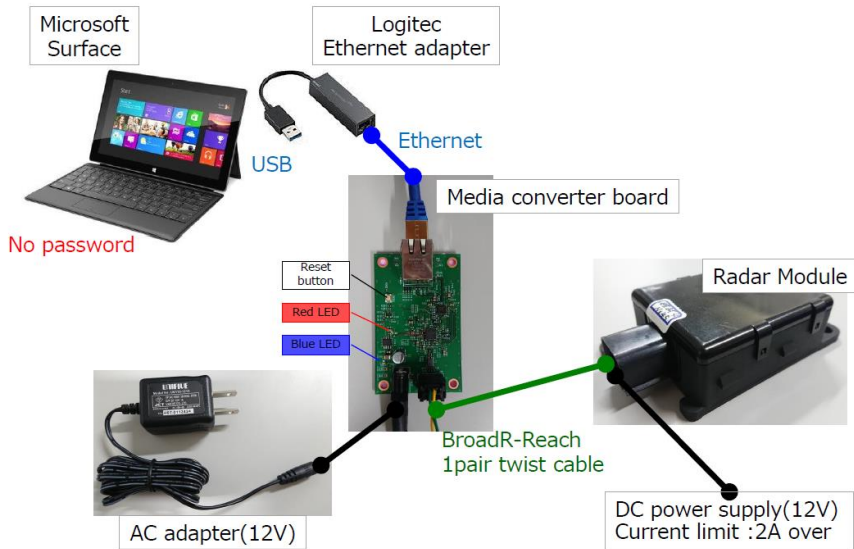
2. Spec/Power/Frequency

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.

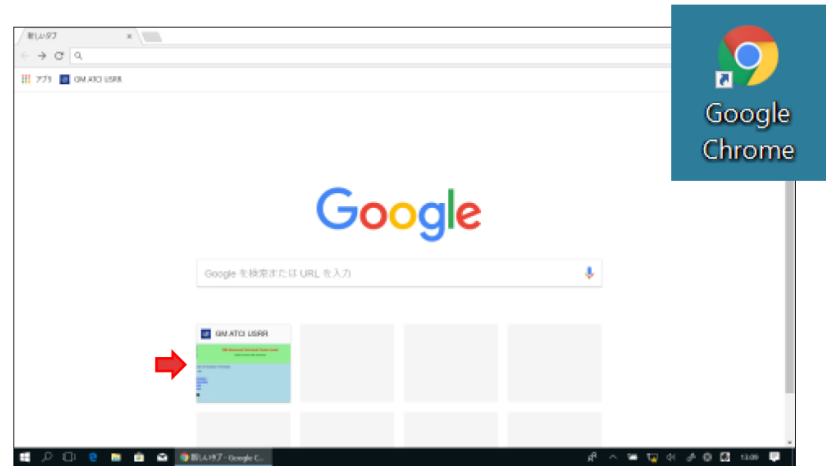
3. Operation Manual

Connection of equipment



No password

Common operation step1



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

Overview

Common operation step2

FMCW/CW mode common operation

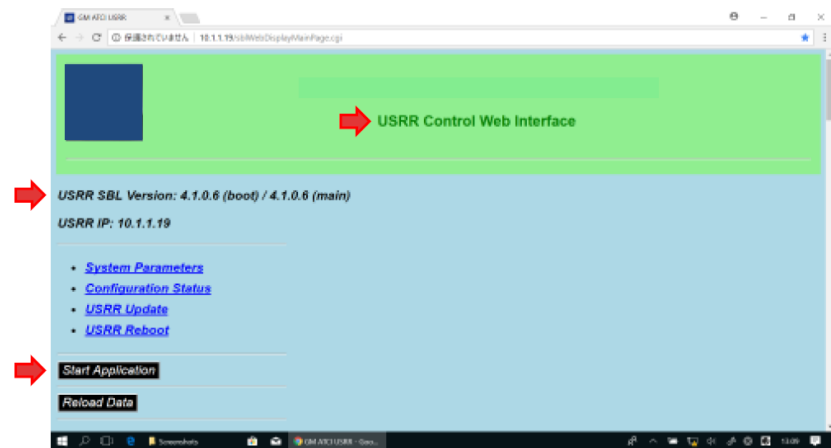
- Step0. Supply 12 V from AC adapter to Media converter board.
→The blue LED on the Media converter board lights up.
Supply 12V from the DC power supply to Radar module.
→The red LED on the Media converter board lights up.
If it does not light up, press the reset button or turn the power to the Media 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
- USRR 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
- USRR Start
- Press the "Submit" button



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

3. Operation Manual

Common operation step3

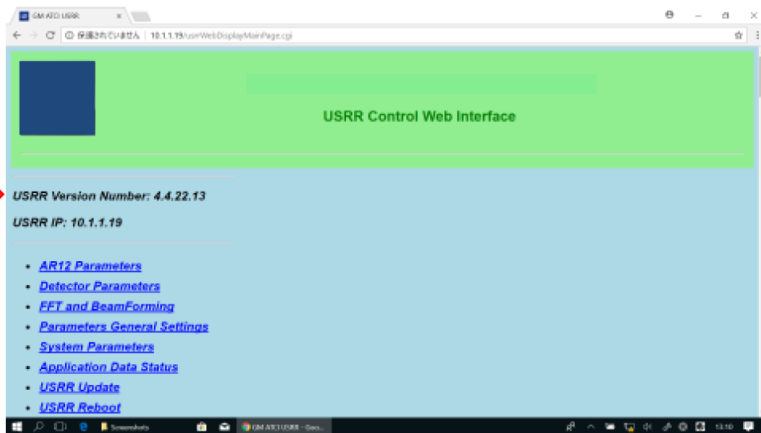


FMCW mode

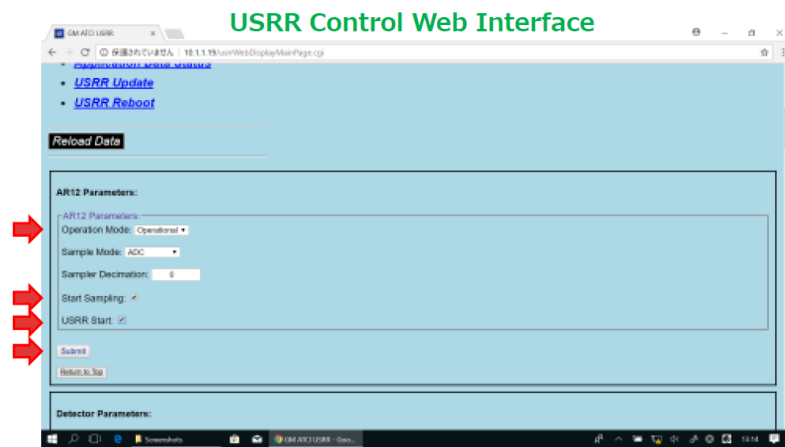
If this screen takes a long time,
Press the "Return to USRR Main Page"

Common operation step4

FMCW mode operation



USRR Version Number: 4.4.22.13 is activated.

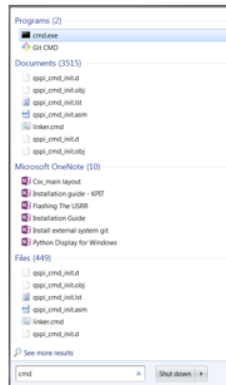


Operation mode:Operational
Start Sampling
USRR Start
Press the "Submit" button

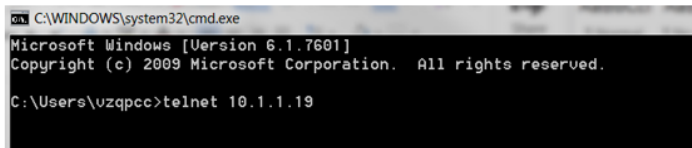
CW mode

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

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

```

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
AMR12x FM Revision is: ES1.0
AMR12x FM Master Version is: 1.6.0.12
AMR12x FM RF Version is: 1.6.0.5

Welcome connection : 10.1.1.11:61794

Welcome to the GM-CLI (C) .

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 <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
*****
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

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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
*****
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:

AR12 Parameters:

AR12 Parameters:

Operation Mode:

Sample Mode:

Sampler Decimation:

Start Sampling:

USRR Start:

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