

Matthew Lein & Hajime
Muramatsu

CPA Procedures & Checklists



Checklist Example

CPA Production Checklists

[CPA Unit Frame Dimensional Checklist](#)

[CPA Panel Frame Dimensional Checklist](#)

[CPA Unit Connections Checklist](#)

[CPA Shipping Crate Inventory Checklist](#)

CPA Production Checklists

[CPA Unit Frame Dimensional Checklist](#)

[CPA Panel Frame Dimensional Checklist](#)

[CPA Unit Connections Checklist](#)

[CPA Shipping Crate Inventory Checklist](#)

CPA Panel Frame Dimensional Checklist

CPA Panel Type (A, B, C) _____

Name _____

Date _____

Drawing #	Visual	Length (477.74 – 477.94 in)	Width (45.38 – 45.58 in)	Diagonal (164.76 – 164.96 in)	Side Straight ness	Flatness (<1 cm)	RP – RP Cont.
DFD-20-							

Drawing # - add Panel type to drawing # (DFD-20-A000, DFD-20-B000, DFD-20-C000).

Visual – inspect both sides of panels for absence of cracks, scratches on coatings, damaged edges.

Length, Width – check dimensions frame-to-frame – all must lie within range.

Diagonal – both diagonal measurements must lie within range.

Side Straightness – check for absence of crooked connections using metal straight edge.

Flatness – check that frames contact table around full perimeter – no gap >1 cm).

RP – RP Continuity – check resistance between Resistive Panels to check wire feedthrough

Cancel

CPA Panel Frame Dimensional Ch...

CPA Panel Type (A, B, C):

Name:

	April	29	2016
	May	30	2017
	June	31	2018
Date:	July	1	2019
	August	2	2020
	September	3	2021
	October	4	2022

Enter

11:51 AM Mon Jul 1 93%

Cancel

Drawing #	Visual	Length (477.74-477.94 in)	Width (45.38 - 45.58 in)	Diagonal (164.76 - 164.96 in)	Side Straightness	Flatness(<1cm)	RP - RP Cont.
DFD-20-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

DFD-20-

Drawing # - add Panel type to drawing # (DFD-20-A000, DFD-20-B000, DFD-20-C000).

Visual - inspect both sides of panels for absence of cracks, scratches on coatings, damaged edges.

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Flatness - check that frames ocontact table around full perimeter - no gap >1 cm).

RP - RP Continuity - check resistance between Resistive Panels to ceheck wire feedthrough connections.

Submit

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Cancel

Drawing #	Visual	Length (477.74-477.94 in)	Width (45.38 - 45.58 in)	Diagonal (164.76 - 164.96 in)	Side Straightness	Flatness(<1cm)	RP - RP Cont.
DFD-20-A...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Comments:

DFD-20-A...

This is a comment

Drawing # - add Panel type to drawing # (DFD-20-A000, DFD-20-B000, DFD-20-C000).

Visual - inspect both sides of panels for absence of cracks, scratches on coatings, damaged edges.

Length, Width - check dimensions frame-to-frame - all must lie within range.

Diagonal - both diagonal measurements must lie within range.

Side Straightness - check for absence of crooked connections using metal straight edge.

Flatness - check that frames ocontact table around full perimeter - no gap >1 cm).

RP - RP Continuity - check resistance between Resistive Panels to ceheck wire feedthrough connections.

Submit

11:53 AM Mon Jul 1 dbweb5.fnal.gov

DUNE protoDune Hardware Database
DEEP UNDERGROUND NEUTRINO EXPERIMENT

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Username:

Password:

Login

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[Forgot password](#)
[Request access](#)

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Username:

Password:

Login

[Forgot username](#)
[Forgot password](#)
[Request access](#)

This is DEVELOPMENT version of Single Phase PDUNE Hardware Database.

Passwords

q w e r t y u i o p

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11:58 AM Mon Jul 1 94%

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Home Permission Mgr Admin Mgr Log out

General Tables

- Cables
- Workers

PDS Tables

- Bars
- Bar Dimension Tests
- Bar Dimension Test Positions
- Channels
- Hoverboards
- Paddles
- Radiator Plates
- Sipms

TPC Tables

- Apas
- Ce Boxes
- Cr Boards
- Electron Diverters
- Ptcs
- Signal Feedthroughs
- Tpc Flanges
- Tpc Flange Cables
- Wibs

CPA/FC Tables

- Cpa Panels
- Fc Cpa Boards
- Fc Divider Boards
- Fc Frames

Rack Assembly Tables

- Racks
- Crates
- Modules
- Module Channels

Electronic Tables

- Single Phase Asic Benchtests
- Sp Asic Test Results

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Table apas

dump to CSV plot... add data upload data search data config data <prev next>

Sorting by: apa_id desc

	Apa Id	Arrival Date	Install Date	Position	Larsoft Label	Production Site	Tests Prod Uri	Tests Cern Uri	Pictures Uri	Shv1	Shv2	Shv3	Comments	
view/edit	swhte-test-4													06/2
view/edit	spw-1													07/1

dump to CSV plot... add data upload data search data config data <prev next>

Sorting by: apa_id desc

Column name	Data type	Label
apa_id	text	Apa Id
arrival_date	date	Arrival Date
install_date	date	Install Date
position	text	Position
larsoft_label	text	Larsoft Label
production_site	text	Production Site
tests_prod_url	text	Tests Prod Url
tests_cern_url	text	Tests Cern Url
pictures_url	text	Pictures Url
shv1	text	Shv1
shv2	text	Shv2
shv3	text	Shv3
comments	text	Comments

required columns

Your CSV file

File: test.csv

This is DEVELOPMENT version of Single Phase PDUNE Hardware Database.

Data uploaded
1 rows uploaded, 0 duplicates found:

Save	Apa Id
<input checked="" type="checkbox"/>	1000

Toggle: [all](#) | duplicates

Save: or...

protoDune Hardware Database

DEEP UNDERGROUND
NEUTRINO EXPERIMENT

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Table apas

[dump to CSV](#) [plot...](#) [add data](#) [upload data](#) [search data](#) [config data](#) <prev next>

Sorting by: apa_id desc

		Apa Id	Arrival Date	Install Date	Position	Larsoft Label	Production Site	Tests Prod Url	Tests Cern Url	Pictures Url	Shv1	Shv2	Shv3	Comments	
	view/edit	swhite-test-4													06/2
	view/edit	spw-1													07/1
	view/edit	1000													07/0

[dump to CSV](#) [plot...](#) [add data](#) [upload data](#) [search data](#) [config data](#) <prev next>

Sorting by: apa_id desc

Barcode Example

Standard EAN Barcode



```
2019-07-01 11:18:45.771509-0500 CPAProductionChecklists[2324:3144602] [MC] System group container for
systemgroup.com.apple.configurationprofiles path is
/private/var/containers/Shared/SystemGroup/systemgroup.com.apple.configurationprofiles
2019-07-01 11:18:45.772309-0500 CPAProductionChecklists[2324:3144602] [MC] Reading from public effective user settings.
0705632441947
```

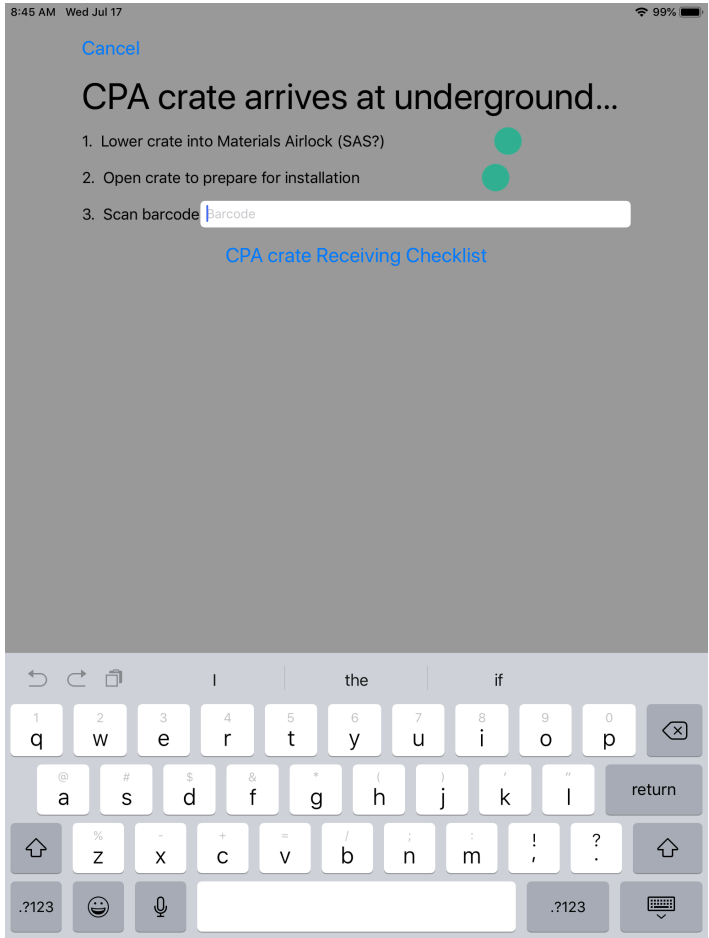
11:17 AM Mon Jul 1 93%

Installation Procedures for CPA/FC/EndWall at SURF

- CPAs arrive at LW
- CPA Crate arrives at underground Bridge
- Assemble CPA Upstream Panel
- Assemble CPA Downstream Panel
- Assemble CPA Plane (Panel Pair)
- Assemble FC Top/Bottom Modules on Clean Room Table
- Attach FC Top Modules to CPA Plane
- Move CPA/Top FC Assembly into cryostat
- Deploy Top FC Module
- Move Bottom FC Modules into cryostat
- CPA/FC/EndWall Connections in cryostat
- Final CPA/FC Assembly in cryostat



Procedure Example



8:45 AM Wed Jul 17 99%

Cancel

CPA crate Receiving Checklist

Name:

Date:

April	14	2016
May	15	2017
June	16	2018
July	17	2019
August	18	2020
September	19	2021
October	20	2022

Enter

8:46 AM Wed Jul 17 98%

Cancel

Name	Scan Tag	Bag #	Visual Inspection	Comments
1st Panel (Upstream)	<input type="text"/>	<input type="text"/>	<input checked="" type="radio"/>	<input type="text"/>
Lower Unit 1st Panel	<input type="text"/>	<input type="text"/>	<input checked="" type="radio"/>	<input type="text"/>
Middle Unit 1st Panel	<input type="text"/>	<input type="text"/>	<input checked="" type="radio"/>	<input type="text"/>
Upper Unit 1st Panel	<input type="text"/>	<input type="text"/>	<input checked="" type="radio"/>	<input type="text"/>
2nd Panel (Downstream)	<input type="text"/>	<input type="text"/>	<input checked="" type="radio"/>	<input type="text"/>
Lower Unit 2nd Panel	<input type="text"/>	<input type="text"/>	<input checked="" type="radio"/>	<input type="text"/>
Middle Unit 2nd Panel	<input type="text"/>	<input type="text"/>	<input checked="" type="radio"/>	<input type="text"/>
Upper Unit 2nd Panel	<input type="text"/>	<input type="text"/>	<input checked="" type="radio"/>	<input type="text"/>
Hardware	--	<input type="text"/>	<input checked="" type="radio"/>	<input type="text"/>

Verify contents of shipping crate during assembly

Scan Tag – as Units are removed, scan tag and choose CPA Crate Underground Receiving Checklist, when unpacking Upper Unit, scan Panel tag

Bag # - record Bag # of each Unit and Hardware

Visual Inspection - make sure all bags are sealed and contents has not been damaged during shipment

Comments - if Visual Inspection fails, note why

Submit

the if

q w e r t y u i o p

@ # \$ % & * () ' " return

↑ % - + = / : ; ! , . ↑

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Saving Progress Example

Side Middle Bar (RH)	DFD-20-A501			
Lower Side Bar (LH)	DFD-20-A602			
Lower Side Bar (RH)	DFD-20-A604			
Bottom Support Bar	DFD-20-A601			
Upper Side Bar (LH)	DFD-20-B404			
Side Middle Bar (LH)	DFD-20-B502			
Lower Side Bar (LH)	DFD-20-B602			

Submit

Tests Incomplete. A temporary file will be saved to continue progress later, but no data will be inserted into the database until all tests are completed.

OK

For each of the 12 types, check until 10 cm (reject outliers) 1/2 inch (reject outliers)

Visual – inspect for absence of crack or damaged faces or edges.

Length – length must lie within range according to drawing.

Cleaned and Bagged – check if cleaned in sonic bath, dried, ready for bagging and shipping

Documents



CPAFR4_TEMP



Matt,2019-10-17

1,0,1,0,0,1,0,0,0,0,0,0,0,0,0,0,2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

App Store TestFlight



BUILDS

iOS

FEEDBACK

Crashes

Screenshots

TESTERS & GROUPS ?

All Testers (4)

App Store Connect Users

DUNE Testers

NEW GROUP +

APP INFORMATION


Test Information

About TestFlight Data ?


iOS Builds

The following builds are available to test. [Learn more about build status and metrics.](#)

▾ Version 1.0.1

Build	App Store Connect Users ?	External Testers ?	Invitations	Installations	Last 7 Days ?	Crashes	Feedback
 1	● Testing Expires in 89 days	● Waiting for Review Expires in 89 days	1				

▾ Version 1.0

Build	App Store Connect Users ?	External Testers ?	Invitations	Installations	Last 7 Days ?	Crashes	Feedback
 1	● Testing Expires in 85 days	● Testing Expires in 85 days	2	2			

Barcode Example

Zebra LI4278



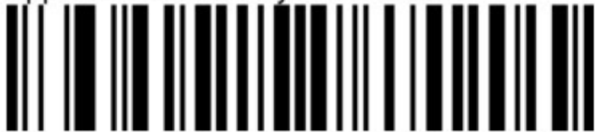
1. On the LI4278 scan Set Factory Defaults:

Set Factory Defaults



2. The following bar codes MUST be scanned before the LI4278 is paired to the iPad:

Apple iOS Virtual Keyboard Enable



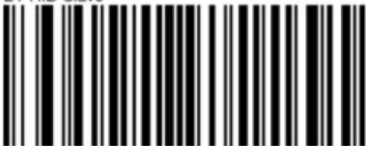
Remain in Slave Mode



Time Delay to Low Power 1 Second



BT HID Slave



Create free:

Code 128 (standard) ▼

[NEW]

Ebook : The definitive Guide to master QR Code Marketing

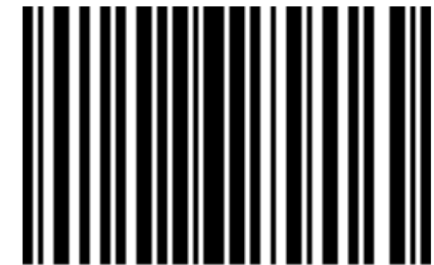
Code 128 (standard)

01234

Code 128 is a universal barcode with excellent data density. It is used, for example, in shipping and packaging.

- Character Set: ASCII
- Length: Variable (unlimited)
- Category: Transport, Shipping, Tracking, Most popular

Preview Barcode

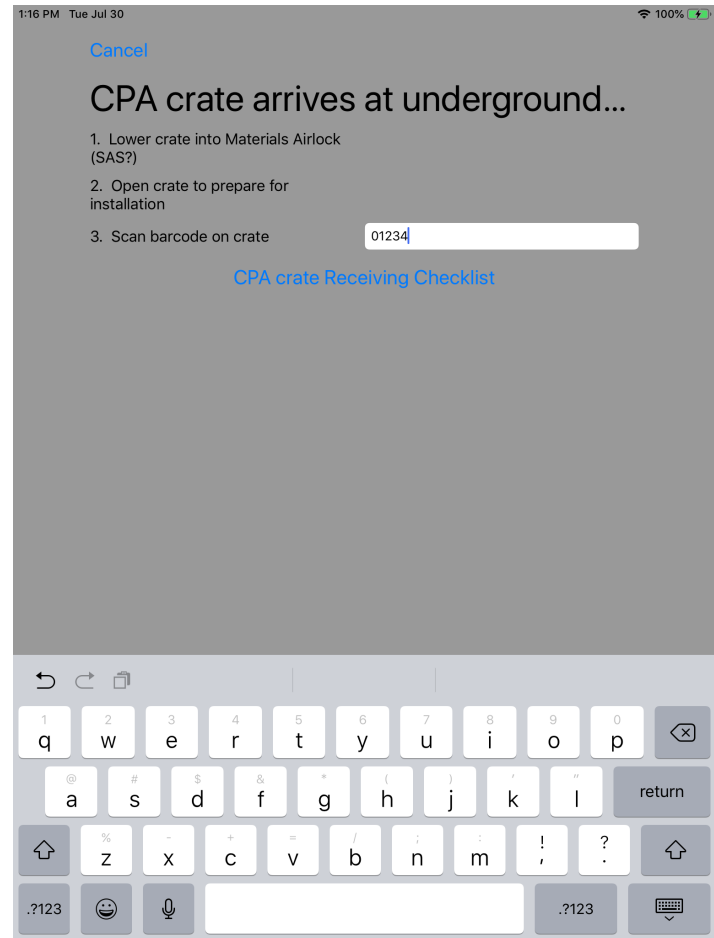
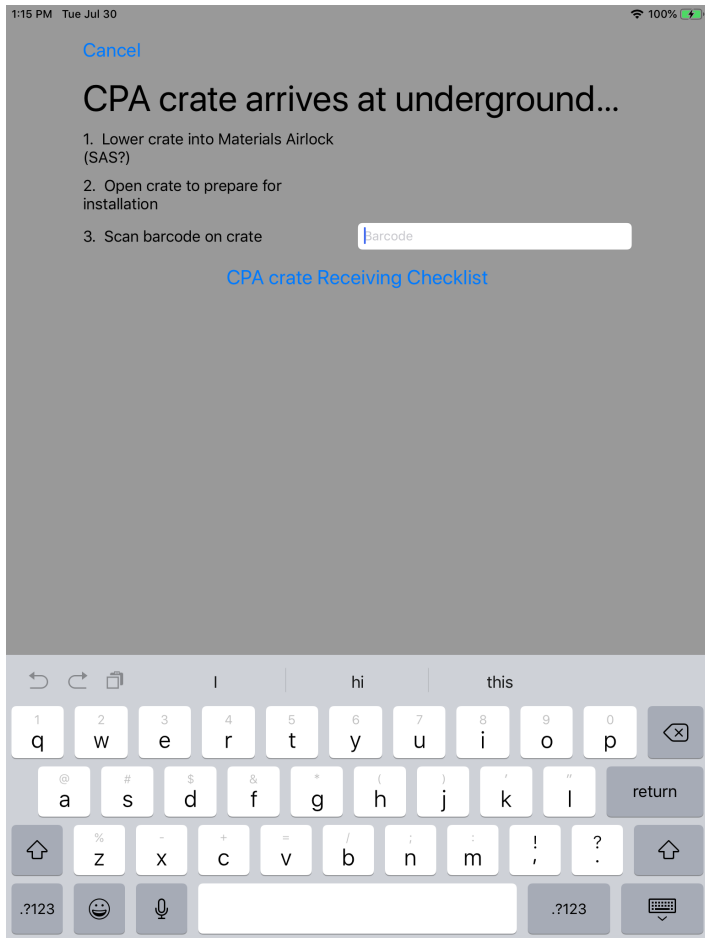


01234

Download as

Size

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Ebook : The definitive Guide to master QR Code Marketing

Code 128 (standard)

Matthew Lein

Code 128 is a universal barcode with excellent data density. It is used, for example, in shipping and packaging.

- Character Set: ASCII
- Length: Variable (unlimited)
- Category: Transport, Shipping, Tracking, Most popular

 Create Barcode

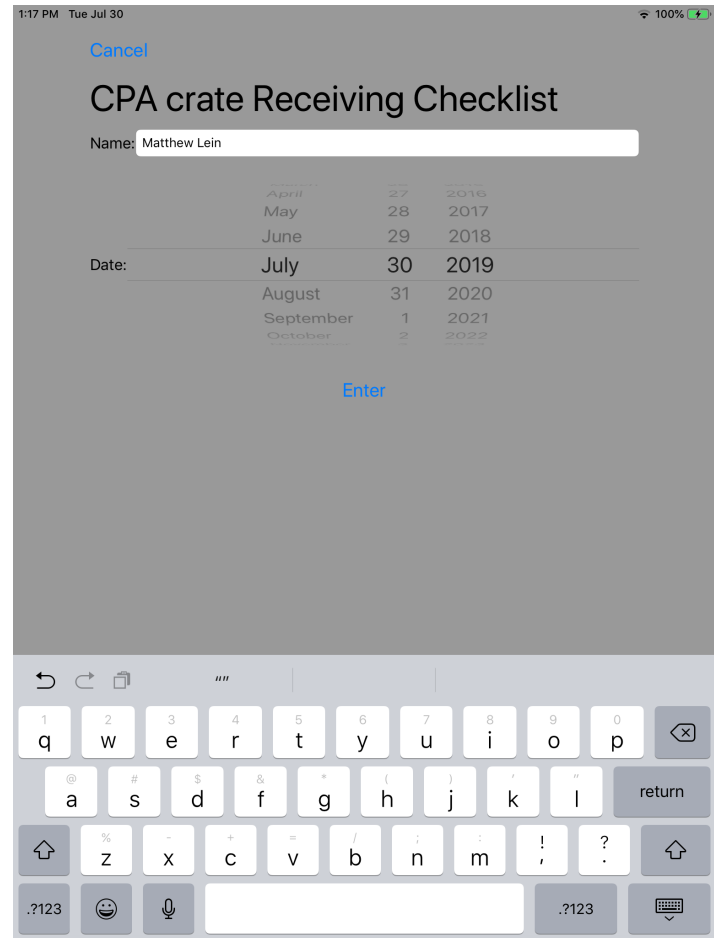
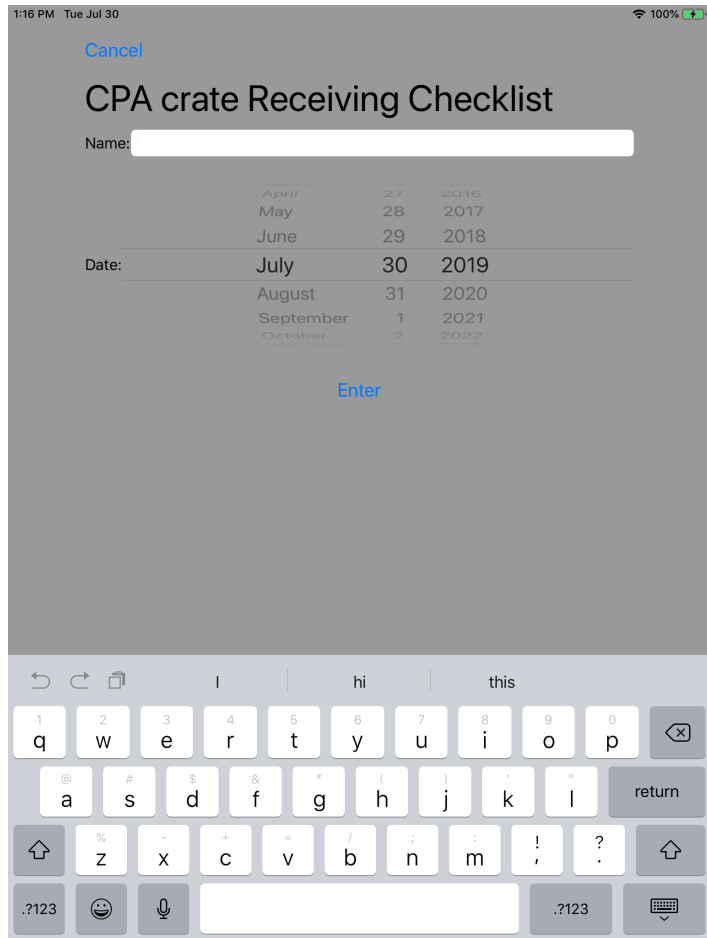
Preview Barcode



Download as

Size

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Create free:

Code 128 (standard) ▼

[NEW]

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Code 128 (standard)

A1567923

Code 128 is a universal barcode with excellent data density. It is used, for example, in shipping and packaging.

- Character Set: ASCII
- Length: Variable (unlimited)
- Category: Transport, Shipping, Tracking, Most popular

Preview Barcode



A1567923

Download as

Size

 Download

1:18 PM Tue Jul 30 100%

Cancel

Name	Scan Tag	Bag #	Visual Inspection	Comments
1st Panel (Upstream)			●	
Lower Unit 1st Panel			●	
Middle Unit 1st Panel			●	
Upper Unit 1st Panel			●	
2nd Panel (Downstream)			●	
Lower Unit 2nd Panel			●	
Middle Unit 2nd Panel			●	
Upper Unit 2nd Panel			●	
Hardware	--		●	

Verify contents of shipping crate during assembly

Scan Tag – as Units are removed, scan tag and choose CPA Crate Underground Receiving Checklist, when unpacking Upper Unit, scan Panel tag

Bag # - record Bag # of each Unit and Hardware

Visual Inspection - make sure all bags are sealed and contents has not been damaged during shipment

Comments - if Visual Inspection fails, note why

Submit

QWERTY keyboard

1:18 PM Tue Jul 30 100%

Cancel

Name	Scan Tag	Bag #	Visual Inspection	Comments
1st Panel (Upstream)	A1567923		●	
Lower Unit 1st Panel			●	
Middle Unit 1st Panel			●	
Upper Unit 1st Panel			●	
2nd Panel (Downstream)			●	
Lower Unit 2nd Panel			●	
Middle Unit 2nd Panel			●	
Upper Unit 2nd Panel			●	
Hardware	--		●	

Verify contents of shipping crate during assembly

Scan Tag – as Units are removed, scan tag and choose CPA Crate Underground Receiving Checklist, when unpacking Upper Unit, scan Panel tag

Bag # - record Bag # of each Unit and Hardware

Visual Inspection - make sure all bags are sealed and contents has not been damaged during shipment

Comments - if Visual Inspection fails, note why

Submit

QWERTY keyboard



Flowchart

