



100G DP-QPSK Test Fixture / TF100-CR (1st Gen / SFF / Micro (HB))

1. Out Line

TF100-CR is a test fixture for 100Gb/s coherent DP-QPSK receiver module. (1st gen, SFF, Micro, HB)

It contains RF Contactor, connected to 2.92mm connector (for 1st gen, SFF) OR 1.85mm connector (for micro, HB).

DC Contactor, connected to DC Pin Header with ribbon cables.

User can perform RF test easily by only putting the module (DUT) into the DUT insert area (Test Fixture)

Insertion Loss and Return Loss can be De-Embed (De-Embed file, generated by Keysight PLTS software)

2. Features

DC-32GHz Model: Insertion Loss: 1.3dB / Return Loss: 12dB (GSGSG.....1000um pitch Typical)

DC-45GHz Model: Insertion Loss: 1.7dB / Return Loss: 12dB (GSSG.....800um pitch Typical)

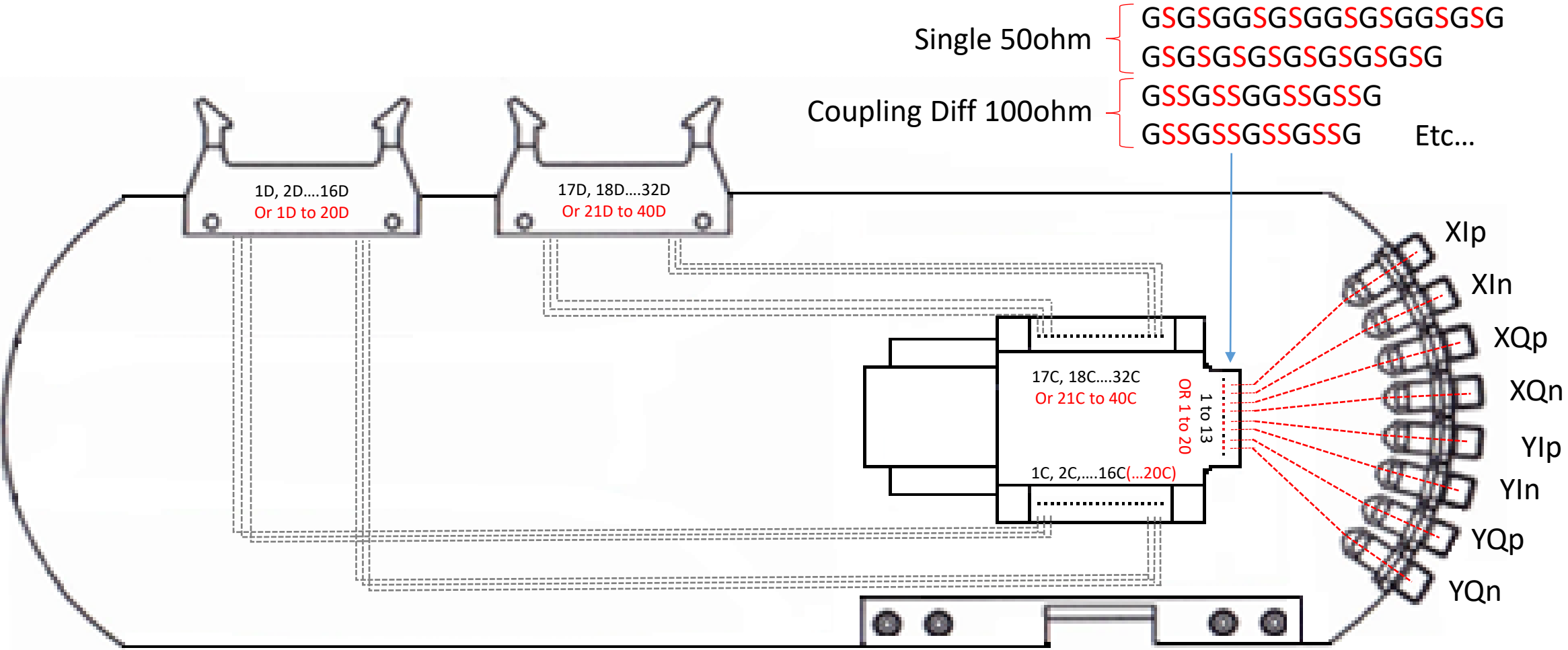
DC-50GHz Model: Insertion Loss: 2.5dB / Return Loss: 10dB (GSSG.....800um pitch Typical)

3. Application

100G ICR / 1st gen, SFF, or Micro (HB)

4. Configuration

Preliminary



5. Typical Assignment

Preliminary

Typical Assignment for 1st Gen

| Pin No | Pin Name | Function /description | Note |
|----------------------------------|----------|---|--------------------|
| 1d, 2d, , , 19d, 20d | | DC pins (power supply, signal control, dc ground) of ribbon cable connector 1 | HIF3DA-20PA-2.54DS |
| 21d, 22d, , , 39d, 40d | | DC pins (power supply, signal control, dc ground) of ribbon cable connector 2 | HIF3DA-20PA-2.54DS |
| 1c, 2c, , , 39c, 40c | | DC contactor (power supply, signal control, DC ground) | |
| 1,3,5,6,8,10,11,13,15, 16,18, 20 | GND | RF ground | |
| 2 | | RF contactor connected to XIp connector internally | |
| 4 | | RF contactor connected to XIn connector internally | |
| 7 | | RF contactor connected to XQp connector internally | |
| 9 | | RF contactor connected to XQn connector internally | |
| 12 | | RF contactor connected to YIp connector internally | |
| 14 | | RF contactor connected to YIn connector internally | |
| 17 | | RF contactor connected to YQp connector internally | |
| 19 | | RF contactor connected to YQn connector internally | |
| | XIp | XI channel signal output (positive.) | 2.92mm (f) |
| | XIn | XI channel signal output (negative) | 2.92mm (f) |
| | XQp | XQ channel signal output (positive) | 2.92mm (f) |
| | XQn | XQ channel signal output (negative) | 2.92mm (f) |
| | YIp | YI channel signal output (positive.) | 2.92mm (f) |
| | YIn | YI channel signal output (negative) | 2.92mm (f) |
| | YQp | YQ channel signal output (positive) | 2.92mm (f) |
| | YQn | YQ channel signal output (negative) , | 2.92mm (f) |

Typical Assignment for SFF, Micro, HB

| Pin No | Pin Name | Function /description | Note |
|--------------------|----------|---|-------------------------|
| 1d, 2d...15d, 16d | | DC pins (power supply, signal control, dc ground) of ribbon cable connector 1 | HIF3DA-20PA-2.54DS |
| 17d,18d...31d, 32d | | DC pins (power supply, signal control, dc ground) of ribbon cable connector 2 | HIF3DA-20PA-2.54DS |
| 1c, 2c... 31c, 32c | | DC contactor (power supply, signal control, DC ground) | |
| 1,4,7,10,13 | GND | RF ground | |
| 2 | | RF contactor connected to XIp connector internally | |
| 3 | | RF contactor connected to XIn connector internally | |
| 5 | | RF contactor connected to XQp connector internally | |
| 6 | | RF contactor connected to XQn connector internally | |
| 8 | | RF contactor connected to YIp connector internally | |
| 9 | | RF contactor connected to YIn connector internally | |
| 11 | | RF contactor connected to YQp connector internally | |
| 12 | | RF contactor connected to YQn connector internally | |
| | XIp | XI channel signal output (positive.) | 2.92mm (f) or 1.85mm(f) |
| | XIn | XI channel signal output (negative) | 2.92mm (f) or 1.85mm(f) |
| | XQp | XQ channel signal output (positive) | 2.92mm (f) or 1.85mm(f) |
| | XQn | XQ channel signal output (negative) | 2.92mm (f) or 1.85mm(f) |
| | YIp | YI channel signal output (positive.) | 2.92mm (f) or 1.85mm(f) |
| | YIn | YI channel signal output (negative) | 2.92mm (f) or 1.85mm(f) |
| | YQp | YQ channel signal output (positive) | 2.92mm (f) or 1.85mm(f) |
| | YQn | YQ channel signal output (negative) , | 2.92mm (f) or 1.85mm(f) |

6. Absolute Maximum Ratings

| Related terminal | Parameter | Symbol | Unit | Minimum | Maximum |
|------------------|---------------------------------|--------|----------|---------|---------|
| | Storage temperature | Tst | Degree C | 0 | 85 |
| | Operating temperature (ambient) | Topamb | Degree C | 0 | 85 |
| | Current of DC contactor | | A | | 0.5 |
| | Applied voltage of DC contactor | | V | | 8 |

7. Recommended Operation Condition

| Related terminal | Parameter | Symbol | Unit | Specification | | |
|------------------|---------------------------------|--------|----------|---------------|---------|---------|
| | | | | Minimum | Typical | Maximum |
| | Operating temperature (ambient) | Topc | Degree C | 0 | | 40 |

8. Typical Characteristics (1/3)

Configuration: GSGSG-GSGSG-GSGSG-GSGSG

Pitch: 1,000um

Frequency: DC-32GHz

| Related terminal | Parameter | Symbol | Unit | Specification | | | |
|--|---|-------------------------|----------|---------------|-----|------|---|
| | | | | Min | Typ | Max | |
| Xlp, Xln XQp, XQn, Ylp, Yln YQp, YQn, | Operating bit rate | | Gb/s | | | 32 | |
| | S parameter at 10 MHz to 32 GHz (RF output port --- port 1, RF contact probe pin--- Port 2) | Maximum S11 (LogMag) | RL | dB | | -12 | |
| | | Minimum S21 | IL | dB | | -1.3 | |
| | Skew between positive and negative | | SPN | ps | | | 1 |
| | Channel skew | | CS | ps | | | 5 |
| Characteristic Impedance | | Ω | Ω | | 50 | | |

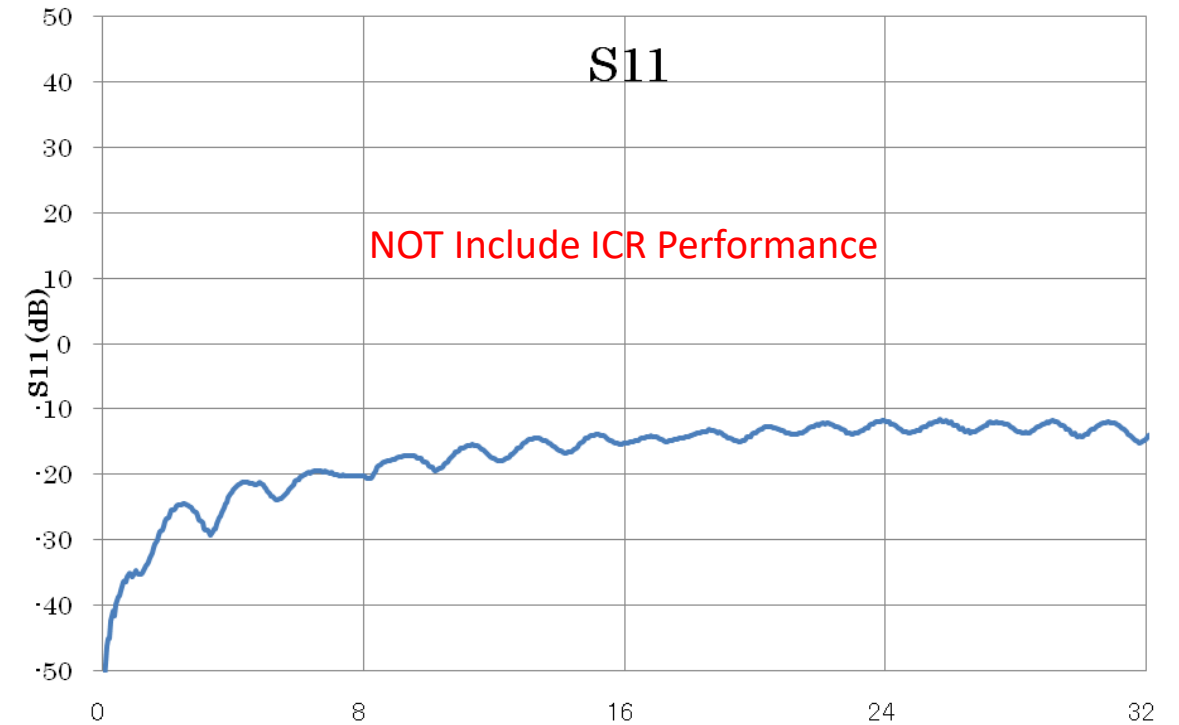
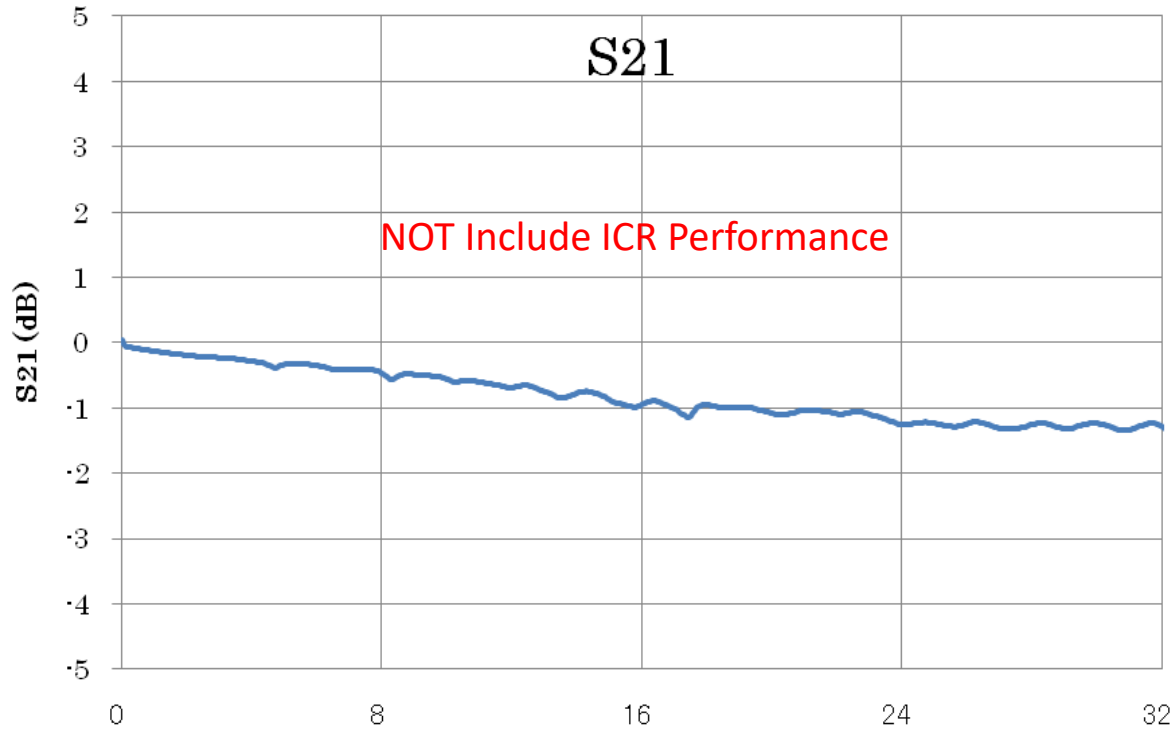
9. Typical S Parameter DC-32GHz (Single 50ohm)

Preliminary

Configuration: GSGSG-GSGSG-GSGSG-GSGSG

Pitch: 1,000um

Frequency: DC-32GHz



10. Typical Characteristics (2/2)

Configuration: GSSGSSGGSSGSSG

Pitch: 800um

Frequency: DC-45G / DC-50G

| Related terminal | Parameter | Symbol | Unit | Specification | | | |
|--|--|-------------------------|----------|---------------|-----|--------------|---|
| | | | | Min | Typ | Max | |
| Xlp, Xln XQp, XQn, Ylp, Yln YQp, YQn, | Operating bit rate | | Gb/s | | | (45) 50 | |
| | S parameter at 10 MHz to (45) 50 GHz (RF output port --- port 1, RF contact probe pin--- Port 2) | Maximum S11 (LogMag) | RL | dB | | (12) 10 | |
| | | Minimum S21 | IL | dB | | (1.7) 2.5 | |
| | Skew between positive and negative | | SPN | ps | | | 1 |
| | Channel skew | | CS | ps | | | 5 |
| Characteristic Impedance | | Ω | Ω | | 100 | | |

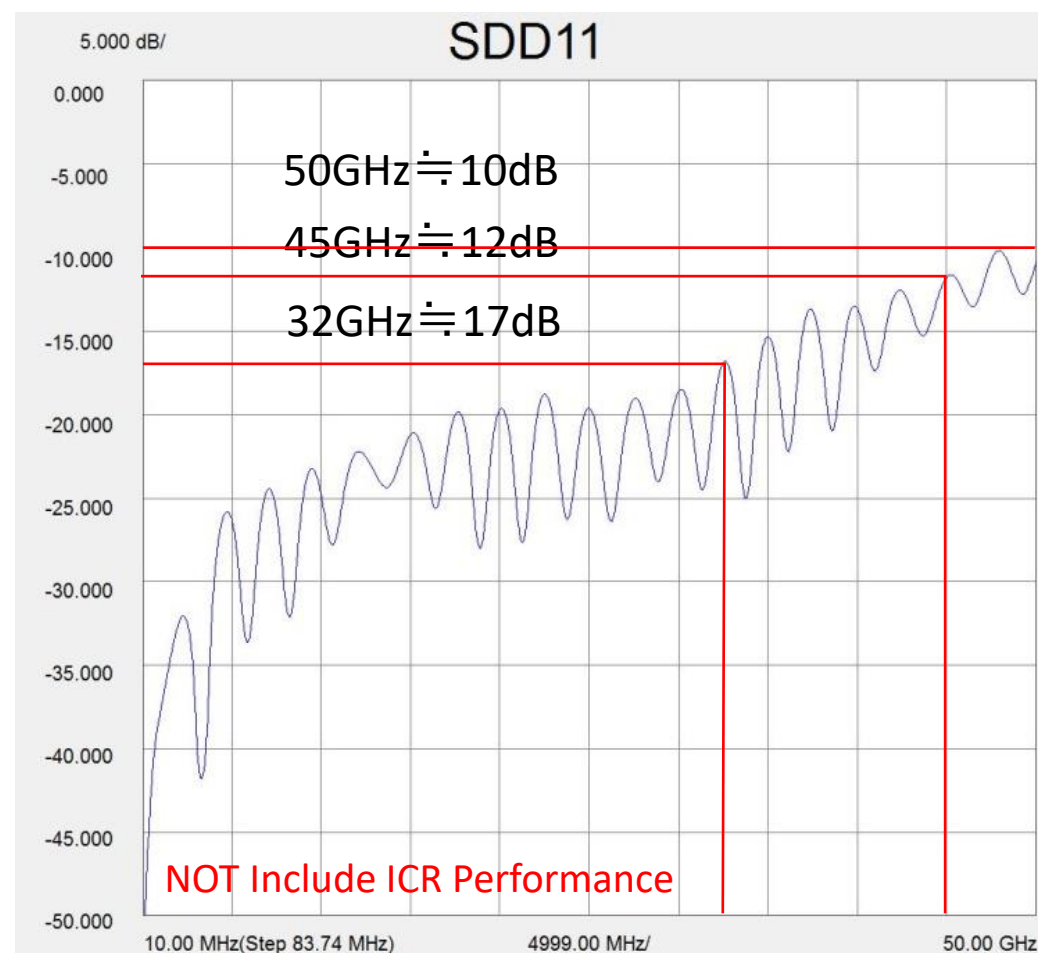
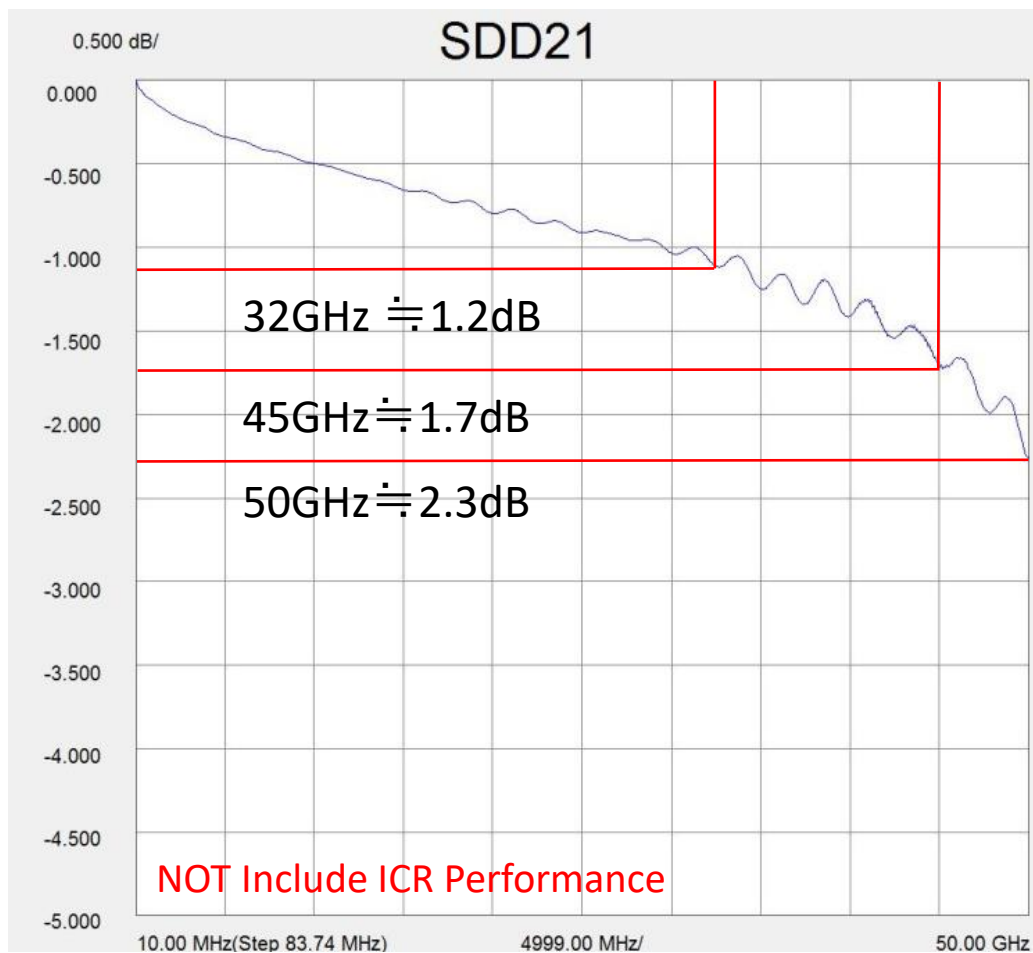
11. Typical S Parameter **DC-50GHz** (Diff 100ohm)

Preliminary

Configuration: **GSSGSSGGSSGSSG**

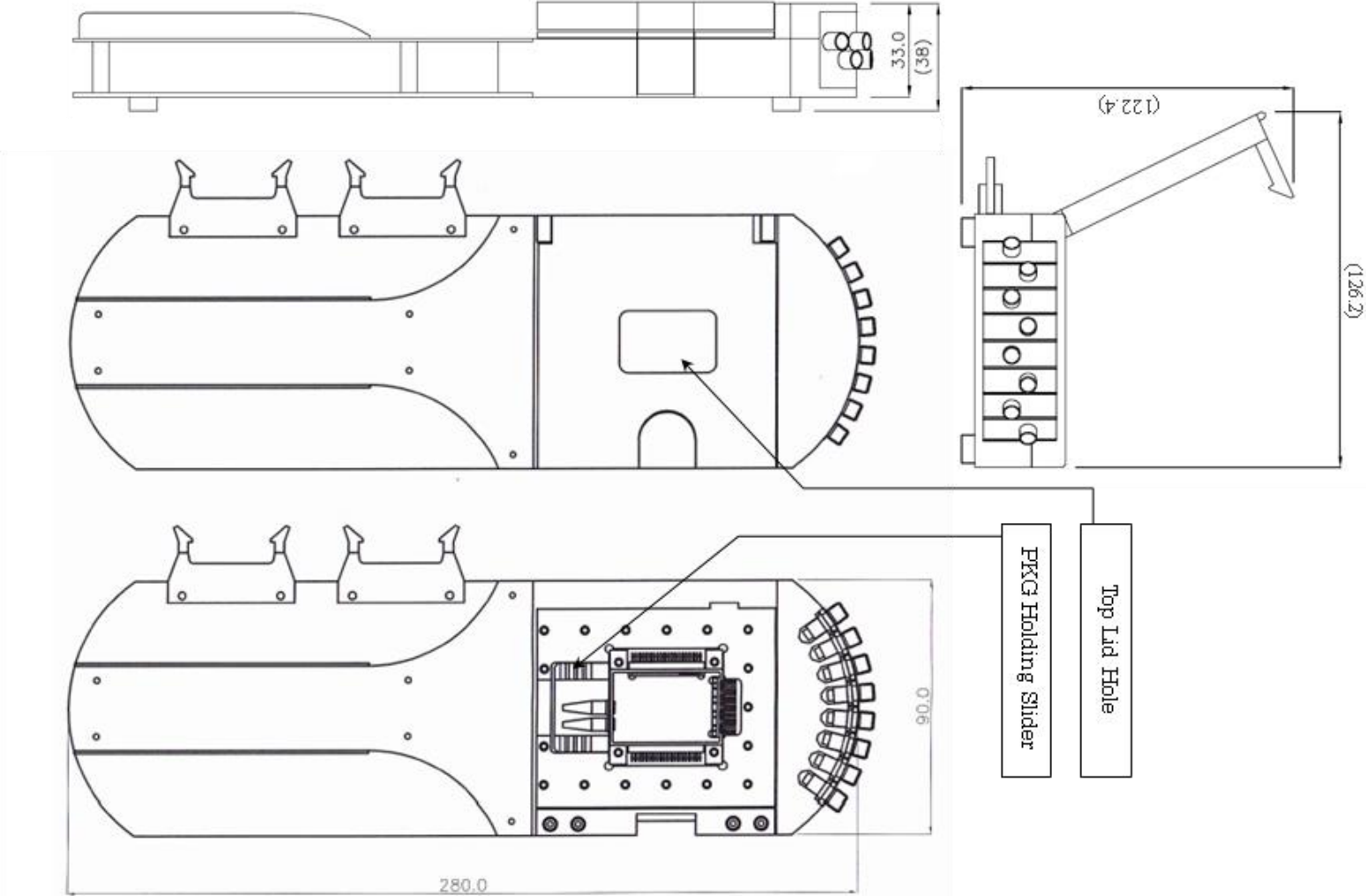
Pitch: 800um

Frequency: DC-45G / DC-50G



12. Typical Drawing (Custom design for each PKG)

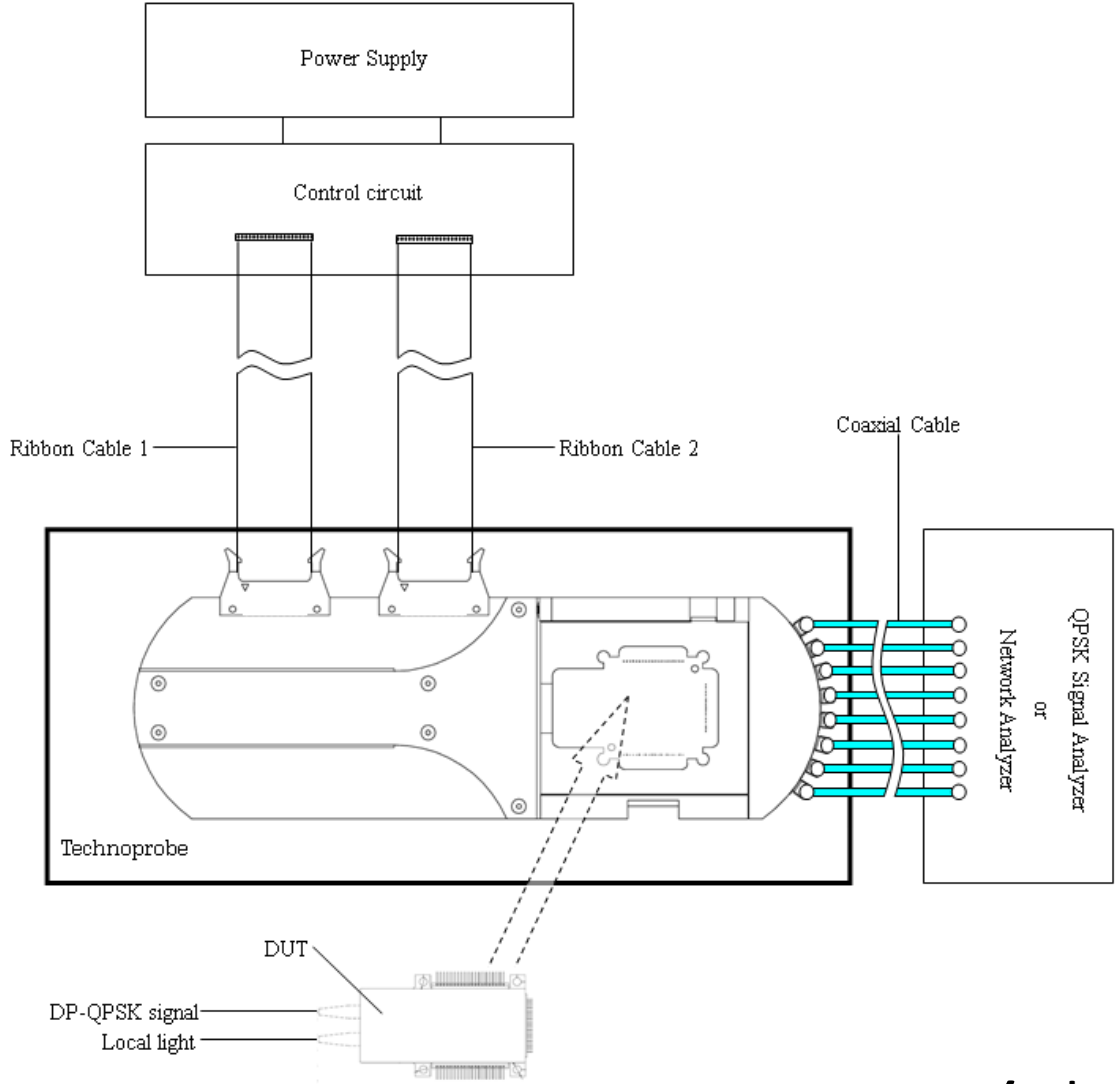
Preliminary



(1st gen design)

13. Implement Example

Preliminary



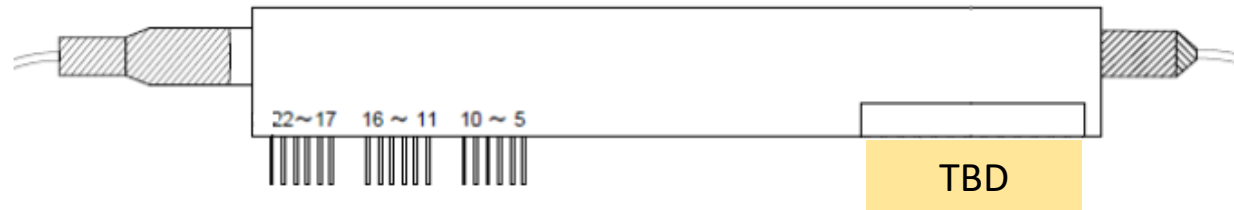
(1st gen design)

OTHERS

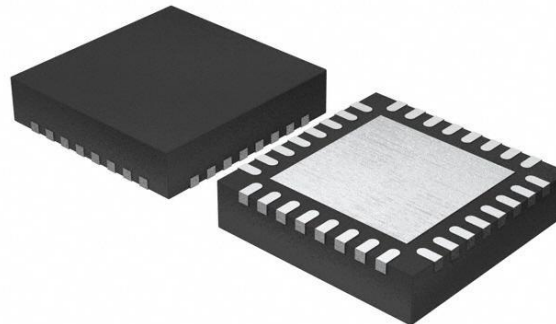
Preliminary

Available RF Test Fixtures

- Test Fixture for **100G Modulated Transmitter**



- Test Fixture for **Bare Chip / Packaged IC**



Technoprobe Co. Ltd.