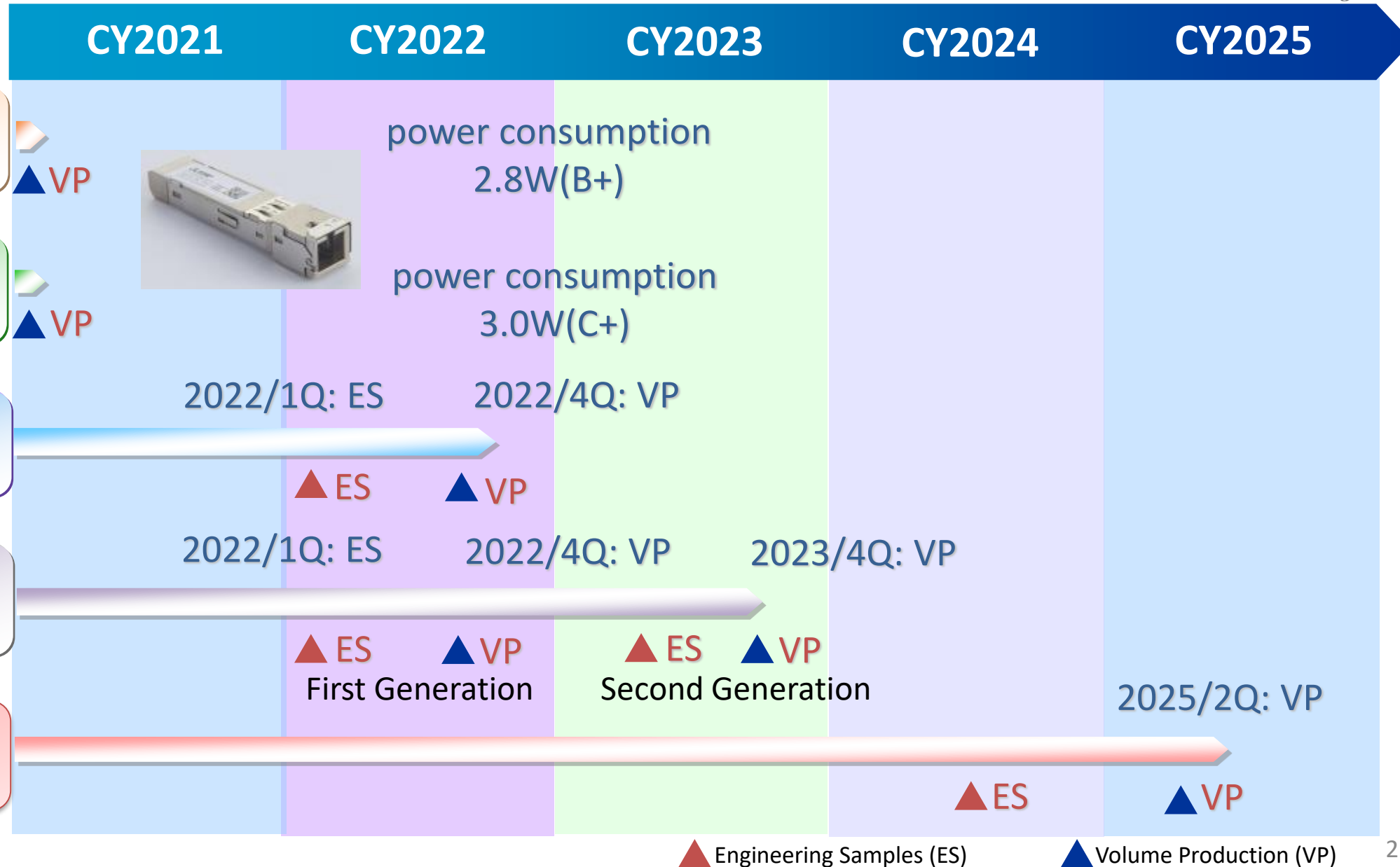


Access Transceivers

OFC 2021
Virtual Conference

Product Roadmap for PON transceivers



MPM-PON transceiver for B+/C+

1. MPM-PON transceiver

Target specifications

Features : Dual rate receiver / High output / Low Power Consumption / SFP+ package

No.	Item		Class B+	Class C+
1	Bit Rates		XGS-PON : Down 10Gbps, Up 10Gbps/2.5Gbps (Dual rate) G-PON : Down 2.5Gbps, Up 1.25Gbps	
2	Control signals		XGS-PON : Reset, Rate select G-PON : Reset	
3	Output power	10Gbps	+1~+4dBm	+5~+8dBm
		2.5Gbps	+1.5~+5dBm	+3~+7dBm
4	Sensitivity	10Gbps	-25.0dBm@10 ⁻³	-29.0dBm@10 ⁻³
		2.5Gbps	-26.5dBm@10 ⁻⁴	-30.5dBm@10 ⁻⁴
		1.25Gbps	-28.0dBm@10 ⁻¹⁰	-32.0dBm@10 ⁻¹⁰
5	Power consumption		2.8W	3.0W
6	Package		SFP+	SFP+

2. MPM-PON Advantage and Target

- (1) Using Mitsubishi's "In-house Laser" and "Own designed receiver ICs", the MPM-PON can be made available soon.
- (2) There are two types of MPM-PON, XG & G-PON (a) and XGS (Dual) & G-PON (b) in follow Fig 1. Mitsubishi's target is the XGS (Dual) & G-PON (b) because it can cover all types of ONU.

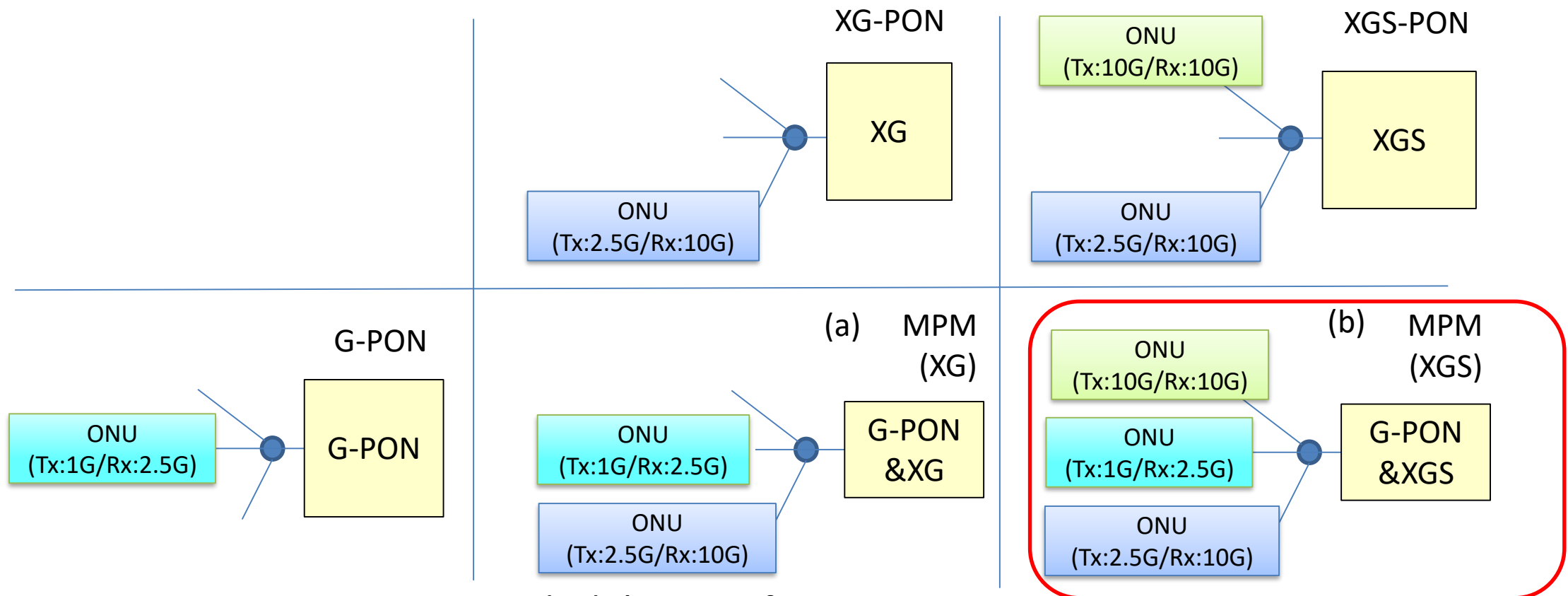


Fig.1 Mitsubishi's target for MPM-PON transceiver

3. High Sensitivity Performance (Class C+)

10G Receiver Performance

(a) Test conditions

Tc = 0 degC to 70 degC, Vcc= +3.13 ~ 3.47V

(b) Results

(i) Minimum Sensitivity: -30.6 dBm to -30.1 dBm

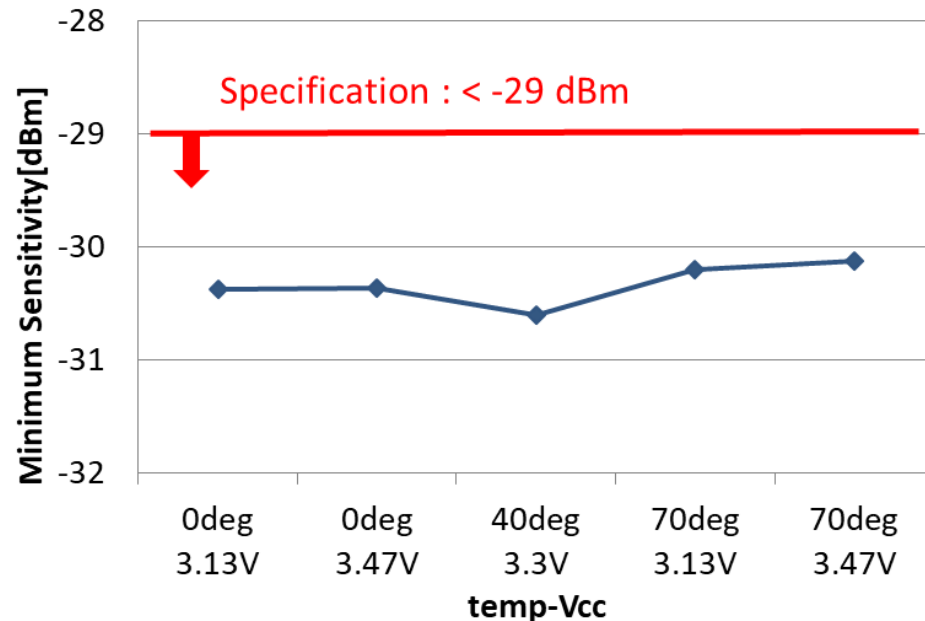


Fig.2 Minimum Sensitivity

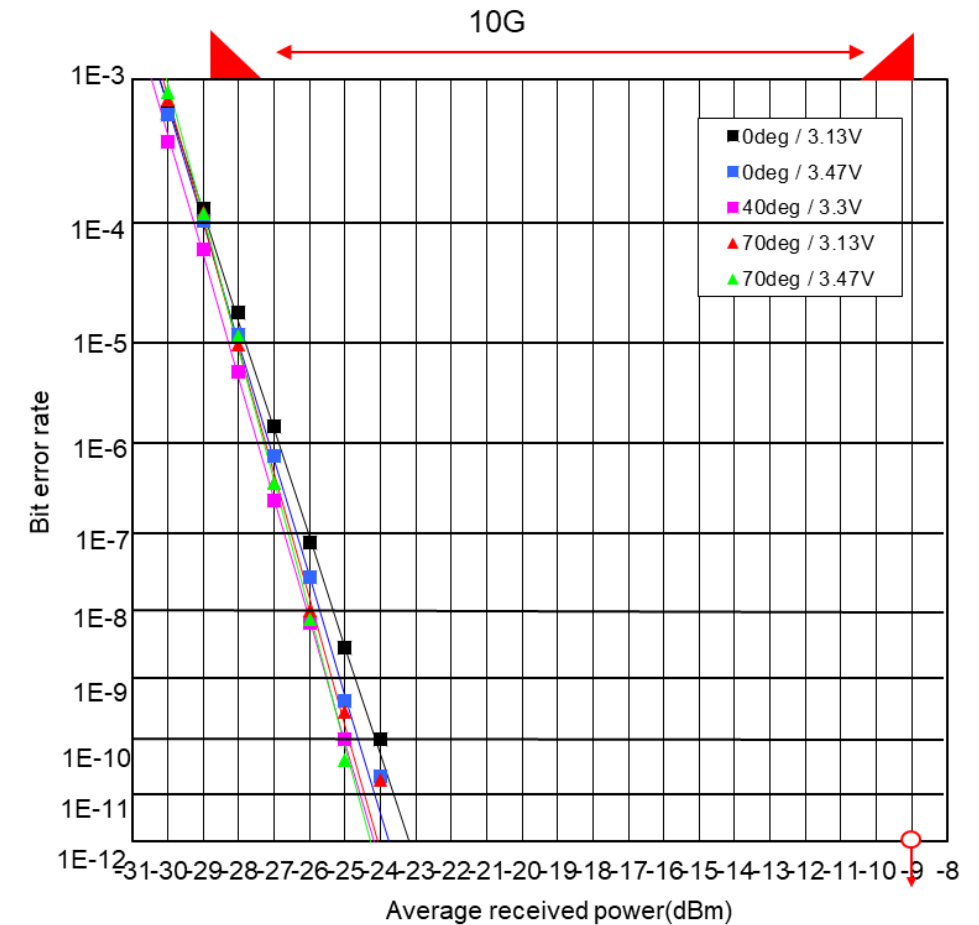


Fig.3 BER measurement

Dual rate XGS-PON SFP+ format transceiver for OLT N2/E1

1. Dual rate XGS-PON transceiver (SFP+ format)

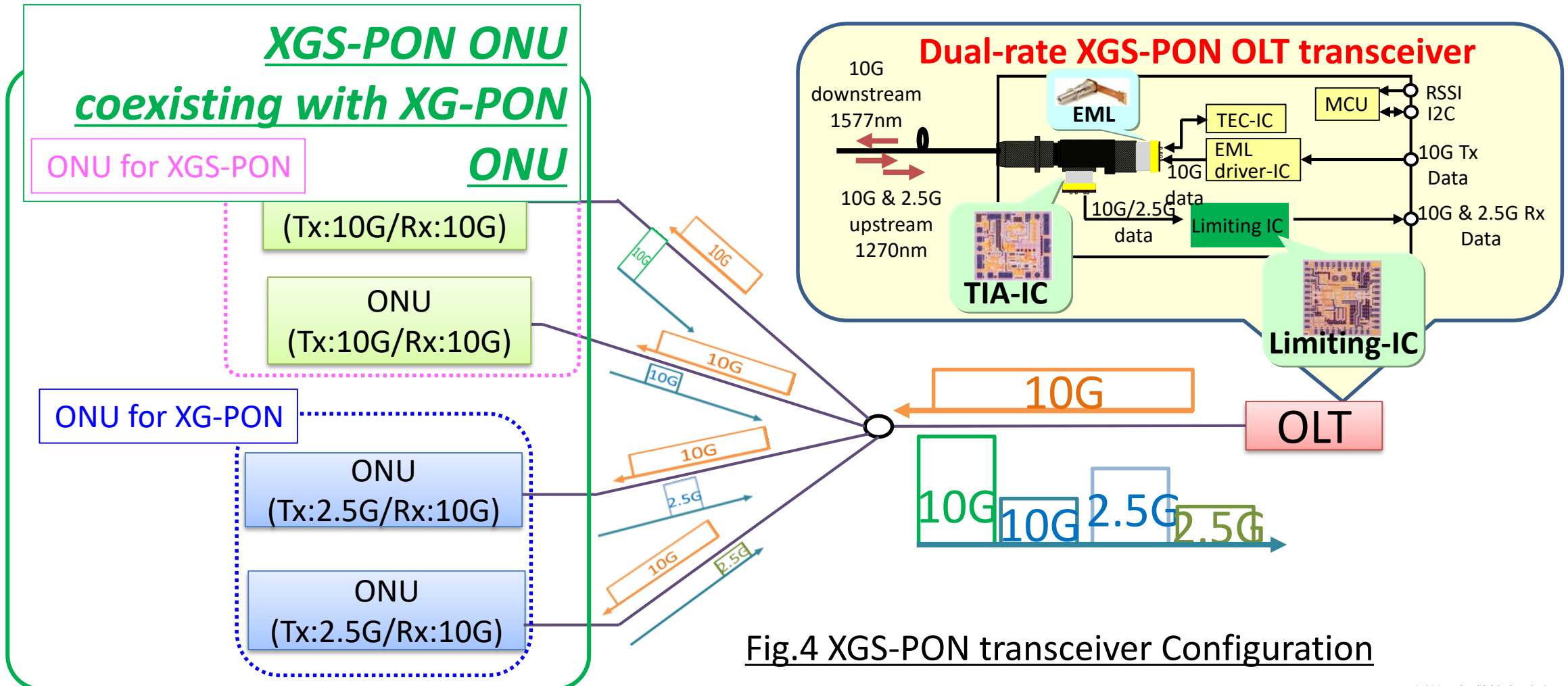
Target specifications

Features : Dual rate receiver / High output / Quick AGC response / Low Power Consumption

No.	Item		Class N1	Class N2	Class E1
1	Bit Rates		Upstream: 10Gbps/2.5Gbps (Dual rate) Downstream: 10Gbps		
2	Wavelengths		Upstream: 1260-1280nm , Downstream: 1575-1580nm		
3	Output power		+2~+6dBm	+4~+8dBm	+6~+9dBm
4	Sensitivity Both rate selection and reset are required	10Gbps	-26.0dBm@10 ⁻³	-28.0dBm@10 ⁻³	-30.0dBm@10 ⁻³
		2.5Gbps	-27.5dBm@10 ⁻⁴	-29.5dBm@10 ⁻⁴	-31.5dBm@10 ⁻⁴
5	Power consumption		2.2W	2.4W	<u>2.6W</u>
6	Package		SFP+	SFP+	SFP+

2. Advantage of XGS-PON

- (a) XGS-PON can be coexistent with deployed XG-PON on the same fiber infrastructure.
- (b) Mitsubishi's in-house dual rate receiver technology makes it possible.



3. High Output Power Performance (Class E1)

10G Transmitter Performance

(a) Test conditions

$T_c = 0 \text{ degC to } 70 \text{ degC}$, $V_{cc} = +3.13 \sim 3.47\text{V}$

(b) Results

(i) Mask Margin: more than 18%

(ii) Optical output power: +6.3 dBm to 6.8 dBm

(iii) Extinction Ratio: 8.9 dB to 10.1 dB

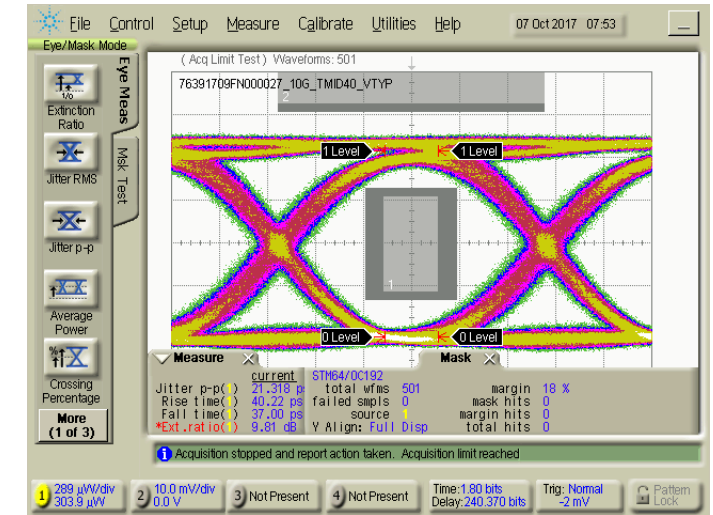


Fig.5 Waveform

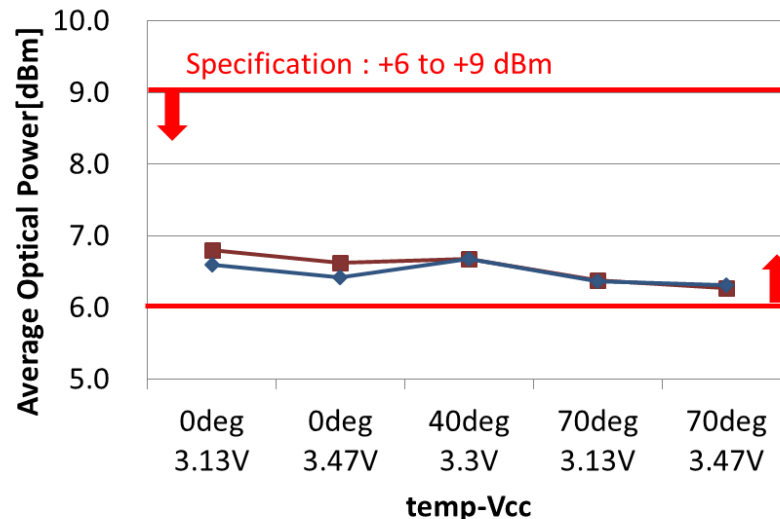


Fig.6 Optical Output Power

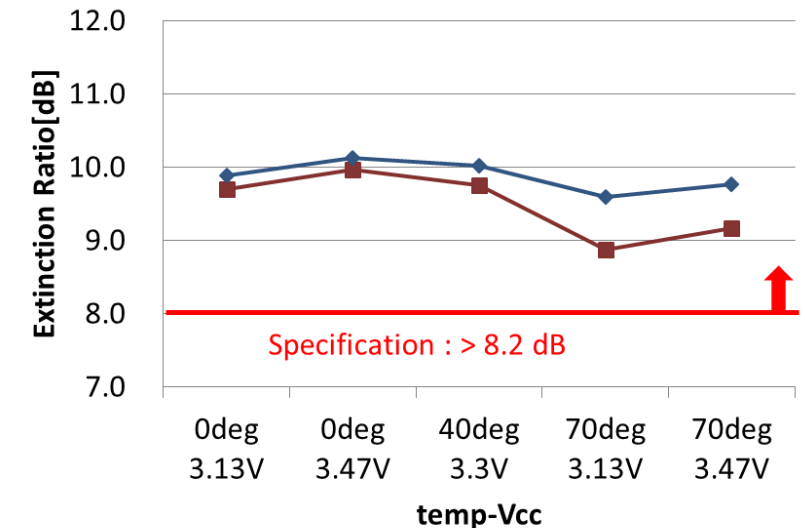
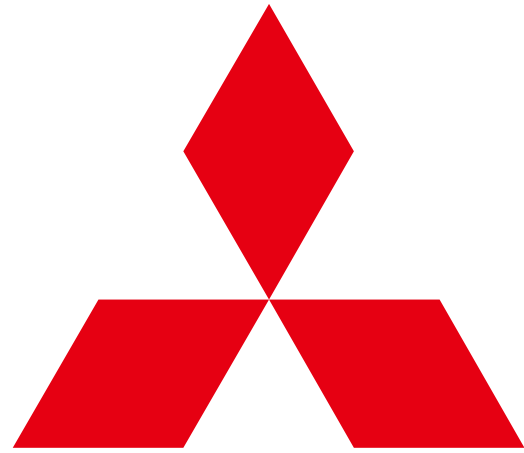


Fig.7 Extinction Ratio



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Access Transceivers

SPM-PON Transceivers

Features:

- Low Power Consumption
- High Tx power/Quick AGC response

Applications:

- 10G FTTx with large loss budget (Class E1)

Type	Item		Specifications
Class E1	Tx Power [dBm]	10G	+6 to +9
		2.5G	+3 to +7
	Rx Sensitivity [dBm]	10G	-30.0@10 ⁻³
		2.5G	-31.5@10 ⁻⁴
	Power Consumption [W]		2.6

MPM-PON Transceivers

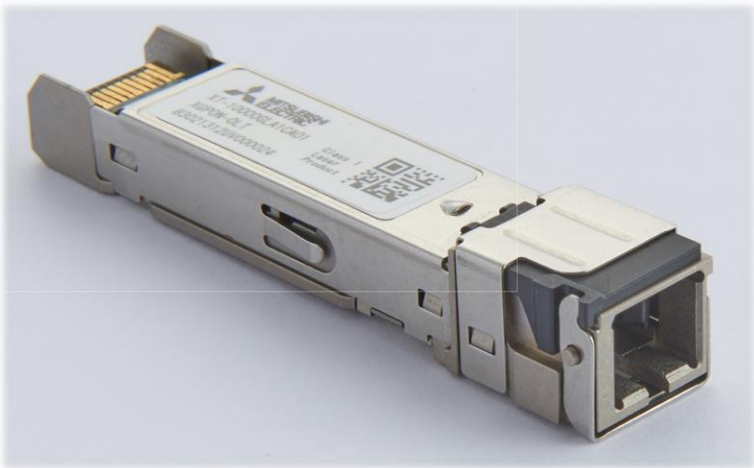
Features:

- High Tx power / Rx sensitivity
- Low Power Consumption

Applications:

- 10G FTTx with large loss budget (Class C+)

Type	Item		Specifications
Class C+	Tx Power [dBm]	10G	+5 to +8
		2.5G	+3 to +7
	Rx Sensitivity [dBm]	10G	-29.0@10 ⁻³
		2.5G	-30.5@10 ⁻⁴
		1.25G	-32 @10 ⁻¹⁰
	Power Consumption [W]		3.0



SFP+ (MPM-PON OLT)

Product Roadmap for PON Transceivers

