SECTION-C

Technical Specifications

Component: 1 Band Pass Filter

S. No	Parameter	Specification
1	Frequency Range	84-95 GHz
2	Rejection at low freq.(< 84GHz)	30dB or better
3	Rejection at High Freq.(> 95GHz)	30 dB or better
4	Insertion loss	2.0dB or better
5	In/out ports Waveguide	WR-10,UG 387/U
6	Technical Datasheet	Required
7	Qty	02 No's
8	The Vendor should attach the Rejections and Insertion Loss graphs signifying the characteristic performance of the component within the specified frequency band along with the component datasheet.	

Component: 2 Balanced Mixer

S. No	Parameter	Specification
1.	RF Input Frequency	84-95 GHz
2.	LO Input Frequency	83 GHz
3.	LO Power	13 dBm (Typ.)
4.	IF Frequency	1-12 GHz
5.	Conversion Loss	9 dB or better
6.	LO to RF Isolation	20 dB (typ) or better
7.	LO to IF Isolation	30 dB (typ) or better
8.	IF connector	SMA (F)
9.	Waveguide and Flange type (RF and LO)	WR-10, UG-387/U
10.	Quantity	02

11	Technical Datasheet	Required
12	The Vendor should attach the Conversion Loss graph signifying the characteristic performance of the component within the specified frequency band along with the component datasheet.	

Component: 3 Gunn Oscillator

Sr.No.	Parameter	Specification
1	Frequency	83 GHz
2	Frequency stability	-5 MHz / °C or better
3	Power	13 dBm or better
4	Power stability	-0.03 dB/°C or better
5	Tuning Range	± 250MHz or better
6	Waveguide, Flange type	WR-10, UG-387/U
7	**Isolator** (E-Band, 60 – 90 GHz)	Required *(integrated to the Gunn oscillator)*
8	**Regulator** (for oscillator power supply)	Required
9	Heat Sink	Required
10	Quantity	02
11	Technical Datasheet	Required
12	The Vendor should attach the frequency stability graph signifying the characteristic performance of the component within the specified frequency band along with the component datasheet.	

Component: 4 IF Amplifiers

Sr.No.	Parameter	IPR Specification
1	Freq. Range	0.5 to 12 GHz
2	Arrangement	The 2 amplifiers should be coupled back to back as a single unit, satisfying the

		asked Tech.specs and NOT as single/individual units.
2	Noise Figure	4.0 dB or better
3	Gain	>50 dB
4	Gain Flatness	+/-2.5dB or better
5	Power at 1 dB compression point	10dBm
6	VSWR	1.5:1
7	Input connector	SMA (F)
8	Output connector	SMA (F)
9	Heat Sink	Required
10	Qty	01 Unit (2 amplifiers coupled together)
11	Technical Datasheet	Required
12	The Vendor should attach the Gain and Noise Figure graphs signifying the characteristic performance of the component within the specified frequency band along with the component datasheet.	

Component: 5 Noise Source

Sr.No.	Parameter	Technical Specification
1	Frequency Range (GHz)	60 – 90 (E-band)
2	ENR (dB)	15
3	Output Power Flatness	± 3 dB or better
4	Waveguide and Flange	WR-12, UG-387-U
5	Qty.	01
6	Technical Datasheet	Required
7	The Vendor should attach the ENR graph signifying the characteristic performance of the component within the specified frequency band along with the component datasheet.	

SECTION-C

Component: 6 Schottky Diode Detectors

Sr.No.	Technical Specification	Parameter
1	Frequency (GHz)	0.01 to 12.4
2	Sensitivity	0.5 mV/µW or better
3	Flatness	± 0.5 dB or better
4	Incident CW power (typ.)	+10dBm
5	Dynamic range (dBm)	-50 dBm to +10 dBm
6	VSWR	1.25:1 or better
7	Input connector	SMA (m)
8	Output connector	SMA (f)
9	Polarity	Positive
10	Quantity	10 No's
11	Technical Datasheet	Required
12	The Vendor should attach the sensitivity graphs signifying the characteristic performance of the component within the specified frequency band along with the component datasheet.	

Warranty: The Vendor should provide 1 year Warranty/Guarantee with each component from the date of acceptance against all sorts of manufacturing defects, faulty material and poor workmanship.

Pre-despatch tests reports to be submitted:

The vendor has to submit the following test reports to IPR before dispatch for approval.

Sr.No.	Component	Required Test Report	Specification
1	**Band Pass Filter**	Rejection at low freq.(< 84GHz)	30dB or better
		Rejection at High Freq.(> 95GHz)	30 dB or better

		Insertion loss	2.0dB or better
2	**Balanced Mixer**	Conversion Loss	9 dB or better
3	**Gunn Oscillator**	Frequency stability	-5 MHz / °C or better
4	**IF Amplifier**	Noise Figure	4.0 dB or better
		Gain	>50 dB
5	**Noise Source**	ENR	15 dB
6	**Detectors**	Sensitivity	0.5 mV/μW or better

Acceptance tests at IPR

Following tests will be done by IPR representative to verify the technical specifications compliance as well as the pre-dispatch tests generated by the vendor at IPR:

Sr.No.	**Component**	**Required Test Report**	**Specification**
1	**Band Pass Filter**	Rejection at low freq.(< 84GHz)	30dB or better
		Rejection at High Freq.(> 95GHz)	30 dB or better
		Insertion loss	2.0dB or better
2	**Balanced Mixer**	Conversion Loss	9 dB or better
3	**Gunn Oscillator**	Frequency stability	-5 MHz / °C or better
4	**IF Amplifier**	Noise Figure	4.0 dB or better
		Gain	>50 dB
5	**Noise Source**	ENR	15 dB
6	**Detectors**	Sensitivity	0.5 mV/μW or better