Calibration Laboratory of Microwave Measuring Equipment of MWMLab

ISO 17025
ACCREDITED LABORATORY

Calibration certificate

ИСО 9001

Accreditation certificate No. **№ BY/112 5.0065** **of** **09.01.2015**

Certificate number **10-21** **Date when calibrated** **11.02.2021** **Page** 1 **of** 2

Item calibrated **Signal Generator Extension Module # SGX 645 (E8257DV06)**

Customer Bureau Veritas Consumer Products Services (Hong Kong) Limited, Taoyuan Branch

Method of calibration GOST 20271.1, MK KL 05.3-2014

All measurements are traceable to the SI units which are realized by national measurement standards of NMI and state standards of RF. Power measurements above 178 GHz are to confirm operation functionality and traceable only to MWMLab standards and OML. This certificate shall not be reproduced, except in full. Any publication extracts from the calibration certificate requires written permission of the issuing calibration laboratory of microwave measuring equipment.

Authorising signature / Technical manager **Date of issue** **11.02.2021**

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Calibration Certificate

Certificate number **10-21**

Calibration is performed by using

Model	Model Description	Equipment ID	Cal Due Date	Certificate Number	Trace Value
M 523	Reference power meter	162	24 March 2022	1/111-172-20	RF Power
M 534	Reference power meter	161	24 March 2022	1/111-173-20	RF Power
V7-34	Universal voltmeter	0067787	23 September 2021	2742-42	DC Voltage
RCH3-72	Frequency meter	931200	18 September 2021	2822-43	Frequency
MG3694C	Signal generator	133805	11 September 2021	2726-43	RF Power Frequency

Calibration conditions

Temperature: 22.2 °C.
Humidity: 37.0 %.
Pressure: 100.2 kPa.

Calibration results are given in the measurement report # 10-21

#	Parameter	Specifications required	Specifications tested and measured
1	RF Frequency Band	110 – 170 GHz	Corresponds
2	Multiplication Factor (Low / High)	12 / 4	Corresponds
3	Low Frequency RF Input	9.17 – 14.17 GHz	Corresponds
4	Low Freq. RF Input Power (Typical / Damage)	10 dBm ± 3dB / 16 dBm	Corresponds
5	High Frequency RF Input	27.5 – 42.5 GHz	Corresponds
6	High Freq. RF Input Power (Typical / Damage)	0 dBm ± 3dB / 6 dBm	Corresponds (Table 1)
7	Output Power (Typical / Minimum)	8* dBm / 3 dBm	Corresponds

* – Expanded uncertainty of measurements 1.0 dB.

The uncertainty evaluation has been performed in accordance with ISO/IEC Guide 98-3:2008 (GUM). The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95 %. This probability corresponds to a coverage factor of k=2 for a normal distribution.

Signature of the person who has performed calibration / Engineer

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Technical Manager

February 11, 2021

MEASUREMENT REPORT # 10-21

February 11, 2021

Customer:	Bureau Veritas Consumer Products Services (Hong Kong) Limited, Taoyuan Branch
Item calibrated:	**Signal Generator Extension Module # SGX 645 (E8257DV06)**
Method of calibration:	GOST 20271.1, MK KL 05.3-2014
Number of samples:	One
Delivery date of the sample:	14.01.2021
Date of calibration:	From 14.01.2021 to 11.02.2021

MEASUREMENT CONDITIONS

Temperature: 22.2 °C	Humidity: 37 %	Pressure: 100.2 kPa

MEASUREMENT EQUIPMENT

Model	Model Description	Equipment ID	Cal Due Date	Certificate Number	Trace Value
M 523	Reference power meter	162	24 March 2022	1/111-172-20	RF Power
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V7-34	Universal voltmeter	0067787	23 September 2021	2742-42	DC Voltage
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MG3694C	Signal generator	133805	11 September 2021	2726-43	RF Power Frequency

MEASUREMENT RESULTS

Table 1

RF output frequency, GHz	110	140	170
RF input frequency, GHz	9.167	11.667	14.167
RF input power, dBm	10.0	10.0	10.0
RF output power, dBm	**10.78**	**8.2**	**5.0**
Expanded uncertainty, dB	0.80	1.0	1.0

The uncertainty evaluation has been performed in accordance with ISO/IEC Guide 98-3:2008 (GUM). The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95 %. This probability corresponds to a coverage factor of k=2 for a normal distribution.

Engineer