



RF - TEST REPORT

- Human Exposure -

Type / Model Name : MB1

Product Description : Mediaboard with 60 GHz short range radar

Applicant : Schindler

Address : Via della Pace 22

6600 LOCARNO, SWITZERLAND

Manufacturer : Schindler

Address : Via della Pace 22

6600 LOCARNO, SWITZERLAND

Test Result according to the standards listed in clause 1 test standards:

POSITIVE

Test Report No. :

80192188-03 Rev_3

02. October 2024

Date of issue



Deutsche
Akkreditierungsstelle
D-PL-12030-01-00

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ATTACHMENT A as separate supplement

1 TEST STANDARDS

The tests were performed according to following standards:

FCC Rules and Regulations:

Part 1, Subpart I, Section 1.1307

Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.

KDB 447498 D04 V01

Interim General RF Exposure Guidance.

ISED Canada Rules and Regulations:

RSS-102, Issue 6

Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

KDB 447498 D01 V06

General RF Exposure Guidance.

2 EQUIPMENT UNDER TEST

2.1 Information provided by the Client

Please note, we do not take any responsibility for information provided by the client or his representative which may have an influence on the validity of the test results.

2.2 Sampling

The customer is responsible for the choice of sample. Sample configuration, start-up and operation is carried out by the customer or according his/her instructions.

2.3 Photo documentation of the EUT – see Attachment A

2.4 Equipment type, category

The EUT qualifies under FCC §15.255(c)(2)(v) as a field disturbance sensor, and under RSS-210 J.3.2.a as a field disturbance sensor.

2.5 Short description of the equipment under test (EUT)

The EUT is a mediaboard equipped with a field disturbance sensor in the operating band of 61.0 GHz to 61.5 GHz (BGT60LTR11AIP) and is used in elevator panels for the destination control of elevators.

Number of tested samples:	6
Serial number:	PMBL: #1 (CH1), #3 (CH3), #4 (CH4) PMB: #4 (CH1), #5 (CH3), #6 (CH4)
Firmware version:	V1.0.05
HVIN:	PMB
PMN:	PMB / PMBL
FCC ID:	XFIPMB
IC ID:	9114A-PMB

2.6 Variants of the EUT

There are 2 different variants of the MB1:

1. Fully assembled - PMN: PMB
2. Only the radar part is assembled - PMN: PMBL

2.7 Operation frequency and channel plan

The operating frequency is 61.0 GHz to 61.5 GHz.

Channel	Frequency (GHz)
1	61.1
2	61.2
3	61.3
4	61.4

2.8 Transmit operating modes

TX modulated

2.9 Antennas

The following integrated antennas are used with the EUT:

Number	Characteristic	Model number	Plug	Frequency range (GHz)	Gain (dBi)
1	linear	On chip patch antenna for TX	-	61.0-61.5	6
2	linear	On chip patch antenna for RX	-	61.0-61.5	6

The antennas cannot be unattached by the user.

2.10 Power supply system utilised

Power supply voltage V_{nom} : 3.3 V/DC

3 TEST RESULT SUMMARY

Operating in the 61.0 - 61.5 GHz band:

FCC Rule Part	RSS Rule Part	Description	Result
KDB 447498 D04, 2.1.2	KDB 447498 D01 3.a)	1-mW Test Exemption	passed
KDB 447498 D04, 2.1.3	RSS-102 6.3	SAR-Based Exemption	not applicable ¹
KDB 447498 D04, 2.1.4	RSS-102 6.6	MPE-Based Exemption	not applicable ²

Note: ¹ Not applicable, because frequency range of EUT > 6 GHz.

² Not applicable, because distance of user to antenna structures < 20 cm..

3.1 Revision history of test report

Test report No	Rev.	Issue Date	Changes
80192188-03	0	07 February 2024	Initial test report
80192188-03	1	16 April 2024	Results variant PMBL added
80192188-03	2	22 July 2024	5.2 DC correction added; 5.3 + 5.4 1 mW test exemption considered
80192188-03	3	02 October 2024	2.4: updated to RSS-210 J.3.2.a; 2.9: antenna gain corrected

The test report with the highest revision number replaces the previous test reports.

3.2 Final assessment

The equipment under test fulfils the requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records

Testing commenced on : 18 July 2024

Testing concluded on : 18 July 2024

Checked by: Tested by:

Thomas Weise
Laboratory Manager

Sabine Kugler
Radio Team

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

CSA Group Bayern GmbH
Straubinger Strasse 100
94447 PLATTLING
GERMANY

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15 - 35 °C

Humidity: 30 - 60 %

Atmospheric pressure: 86 - 106 kPa

4.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. It is noted that the expanded measurement uncertainty corresponds to the measurement results from the standard measurement uncertainty multiplied by the coverage factor $k = 2$. The true value is located in the corresponding interval with a probability of 95 %. The measurement uncertainty was calculated for all measurements listed in this test report on basis of the ETSI Technical Report TR 100 028 Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1 and Part 2. The results are documented in the quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

4.4 Conformity Decision Rule

The applied conformity decision rule is based on ILAC G8:09/2019 clause 4.2.1 Binary Statement for Simple Acceptance Rule ($w = 0$).

Details can be found in the procedure CSA_B_V50_29.

5 HUMAN EXPOSURE

5.1 RF output power

Variant PMB:

The output power of the device is taken from the power measurement in the test report 80192188-02 issued by CSA Group Bayern GmbH.

Peak EIRP:

Channel	Frequency (GHz)	Level PK (dBm)	Limit PK (dBm)	Margin PK (dB)
CH1	61.1	12.1	43.0	-30.9
CH3	61.3	12.0	43.0	-31.0
CH4	61.4	12.1	43.0	-30.9

Variant PMBL:

The output power of the device is taken from the power measurement in the test report 80192188-04 issued by CSA Group Bayern GmbH.

Peak EIRP:

Channel	Frequency (GHz)	Level PK (dBm)	Limit PK (dBm)	Margin PK (dB)
CH1	61.1	12.0	43.0	-31.0
CH3	61.3	12.0	43.0	-31.0
CH4	61.4	12.1	43.0	-30.9

Remarks: None

5.2 Correction for pulse operation (duty cycle)

For test instruments and accessories used see section 6 Part **DC**.

5.2.1 Description of the test location

Test location: Shielded Room SR2

5.2.2 Photo documentation of the test set-up – Please see attachment B

5.2.3 Applicable standard

According to FCC Part 15A, Section 15.35(c):

When the radiated emission limits are expressed in terms of average value and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete puls train, including blanking intervals, as long as the pulse train does not exceed 0.1s. In cases where the puls train exceeds 0.1s, the measured field strength shall be determined from the average absolute voltage during a 0.1s interval during which the field strength is at its maximum. The exact method of calculating the average field strength shall be submitted.

According to RSS-Gen 8.2:

When the field strength or envelope power is not constant or it is in pulses, and an average detector is specified to be used, the value of field strength or power shall be determined by averaging over one complete pulse train during which the field strength or power is at its maximum value, including blanking intervals within the pulse train, provided that the pulse train does not exceed 0.1 seconds. In cases where the pulse train exceeds 0.1 seconds, the average value of field strength or output power shall be determined during a 0.1 seconds interval during which the field strength or power is at its maximum value.

5.2.4 Description of Measurement

The duty cycle factor (dB) is calculated applying the following formula:

$$K_E = 20 \log (T_{on} / T_{conn})$$

K_E : pulse operation correction factor
 T_{on} : on air duration
 T_{conn} : connection interval duration

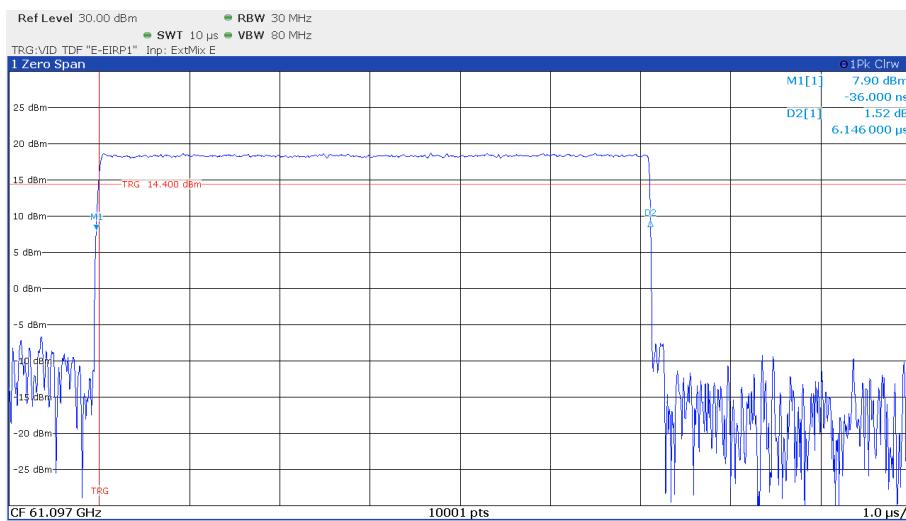
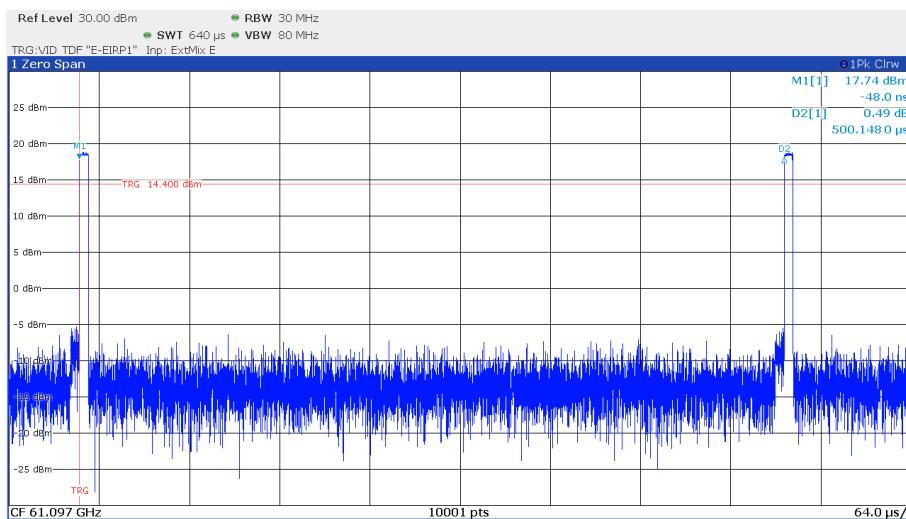
5.2.5 Test result

T_{on} : 6.146 μ s
 T_{conn} : 500.146 μ s

$$K_E = 20 \log (6.146 / 500.146) = -38.2 \text{ dB}$$

Remarks: For detailed results, please see the test protocol below.

5.2.6 Test protocol



5.3 RF Exposure Test Exemption according to FCC

5.3.1 Applicable standard

According to KDB 447498 D04 2.1.2:

Per § 1.1307(b)(3)(i)(A), a single RF source is exempt RF device (from the requirement to show data demonstrating compliance to RF exposure limits, as previously mentioned) if the available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption applies to all operating configurations and exposure conditions, for the frequency range 100 kHz to 100 GHz, regardless of fixed, mobile, or portable device exposure conditions. This is a standalone exemption, and it cannot be applied in conjunction with any other test exemption.

5.3.2 Determination of the SAR-Based Exemption

PMB:

Frequency (GHz)	Level PK EIRP (dBm)	Tune-up (dB)	DC corr. factor (dB)	Max time-av. EIRP (dBm)	Max time-av. EIRP (mW)	Limit (mW)	Margin (mW)
61.1	12.1	3.0	-38.2	-23.1	0.005	1.0	-0.995
61.3	12.0	3.0	-38.2	-23.2	0.005	1.0	-0.995
61.4	12.1	3.0	-38.2	-23.1	0.005	1.0	-0.995

PMBL:

Frequency (GHz)	Level PK EIRP (dBm)	Tune-up (dB)	DC corr. factor (dB)	Max time-av. EIRP (dBm)	Max time-av. EIRP (mW)	Limit (mW)	Margin (mW)
61.1	12.0	3.0	-38.2	-23.2	0.005	1.0	-0.995
61.3	12.0	3.0	-38.2	-23.2	0.005	1.0	-0.995
61.4	12.1	3.0	-38.2	-23.1	0.005	1.0	-0.995

Conclusion: The maximum time-averaged power including tune-up is lower than the limit, SAR measurement is NOT necessary.

The requirements are **FULFILLED**.

Remarks: For determination of EIRP and DC please refer to sections 5.1 and 5.2.

5.4 Exemption Limits for Routine Evaluation according to ISED

5.4.1 Applicable standard

According to KDB 447498 D01 / § 1.1307(b)(3)(i)(A):

For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

5.4.2 Determination of Exemption from Routine Evaluation

PMB:

Frequency	Level PK EIRP	Tune-up	DC corr. factor	Max time-av. EIRP	Max time-av. EIRP	Limit	Margin
(GHz)	(dBm)	(dB)	(dB)	(dBm)	(mW)	(mW)	(mW)
61.1	12.1	3.0	-38.2	-23.1	0.005	1.0	-0.995
61.3	12.0	3.0	-38.2	-23.2	0.005	1.0	-0.995
61.4	12.1	3.0	-38.2	-23.1	0.005	1.0	-0.995

PMBL:

Frequency	Level PK EIRP	Tune-up	DC corr. factor	Max time-av. EIRP	Max time-av. EIRP	Limit	Margin
(GHz)	(dBm)	(dB)	(dB)	(dBm)	(mW)	(mW)	(mW)
61.1	12.0	3.0	-38.2	-23.2	0.005	1.0	-0.995
61.3	12.0	3.0	-38.2	-23.2	0.005	1.0	-0.995
61.4	12.1	3.0	-38.2	-23.1	0.005	1.0	-0.995

Conclusion: The maximum time-averaged power including tune-up is lower than the limit, SAR measurement is NOT necessary.

The requirements are **FULFILLED**.

Remarks: For determination of EIRP and DC please refer to sections 5.1 and 5.2.

6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.

Test ID	Model Type	Equipment No.	Next Calib.	Last Calib.	Next Verif.	Last Verif.
DC	FS-Z90	02-02/11-14-003	10/05/2025	10/05/2024	10/05/2025	10/05/2024
	FSW43	02-02/11-21-001	07/06/2025	07/06/2024		
	QWH-EPRR00/WR-12/60-90	02-02/24-14-004				
	UFA210A (LU7-022-1000)	02-02/50-17-030				
	UFA210A (LU7-022-1000)	02-02/50-17-031				

- End of test report -