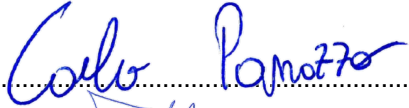



TEST REPORT Nr. R22174501

Federal Communication Commission (FCC)

Report Reference No.	R22174501
Date of issue:	07.10.2022
Total number pages:	22
Customer name	Atlas Copco BLM S.r.l.
Address	Via Guglielmo Pepe, 11 – 20037 Paderno Dugnano (MI) – Italy
Test specification:	
Standards	KDB 447498 D01 General RF Exposure Guidance v06
Non-standard test method	N/A
Test Report Form No.	15-247_HoppingDEKRA
Test Report Form(s) Originator ..	DEKRA Testing and Certification S.r.l.
Master TRF	2022-10
General disclaimer:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of DEKRA Testing and Certification S.r.l.	
(*) Test item description	Gateway between the Power Focus 6000 and the Mechatronic Wrench MWR
(*) Trademark	Atlas Copco
(*) Manufacturer	Atlas Copco AB
(*) Model / Type reference	MWR-KIT
(*) FCC ID	2AIPFMWRKIT
(*) Rating(s)	100-240 V ~ 50/60 Hz single-phase + earth
Report	
Tested by (name + signature)	C. Panozzo 
Approved by (name + signature)	F. Marenda 

(*) information provided by the customer

1	Summary	
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2 Reference standard	
KDB 447498 D01 General RF Exposure Guidance v06	RF exposure procedures and equipment authorization policies for mobile and portable devices
3 List of attachments	
Attachment 1: Instruments list, measurement uncertainty, judgement of compliance and quality manual references	
4 Deviation(s) from test specification	
None	
5 Testing location	
DEKRA Testing and Certification S.r.l. Via della Fisica, 20 – 36016 Thiene (VI) – Italy Test site facility's FCC registration number: 182474	

Revision index	Date	Change history
1.0	07.10.2022	--

Testing and sampling:	
Date of receipt of test item.....	05.09.2022
Testing start date	07.10.2022
Testing end date	07.10.2022
Sampling procedure.....	Equipment used for testing was picked up by the customer
Internal identification.....	Adhesive label with the product number P220866
General remarks:	
<p>This report shall not be reproduced, except in full, without the written approval of DEKRA Testing and Certification S.r.l.</p> <p>The test results presented in this report relate only to the object tested.</p> <p>“(see appended table)”: refers to a table appended to the report.</p> <p>Throughout this report a comma is used as the decimal separator.</p>	
Possible test case verdicts:	
Test case does not apply to the test object:	N/A (Not Applicable)
Test object does meet the requirement:	P (Pass)
Test object does not meet the requirement:	F (Fail)
Test object does not performed:	N/E (Not Executed)
Definition of symbols used in this test report:	
<input checked="" type="checkbox"/> Indicates that the listed condition, standard or equipment is applicable for this report. <input type="checkbox"/> Indicates that the listed condition, standard or equipment is not applicable for this report.	

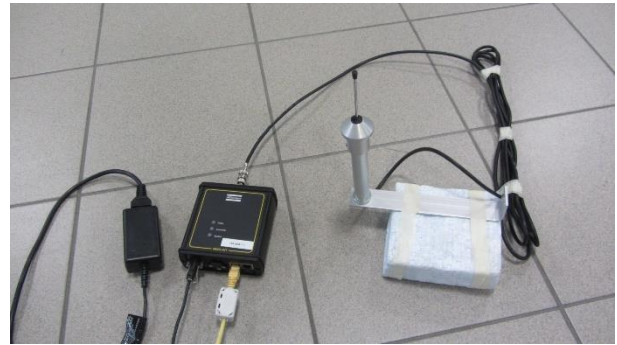
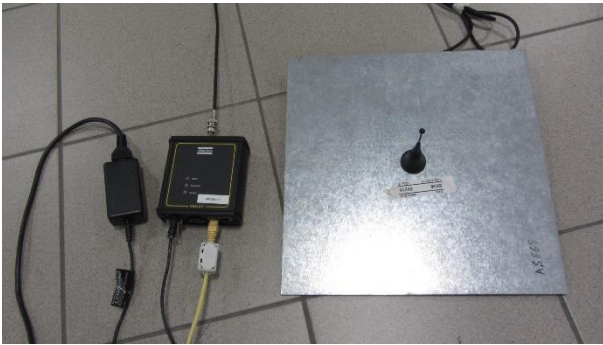
6 General description of tested item and testing condition(s)

Description	Gateway between the Power Focus 6000 and the Mechatronic Wrench MWR						
Model Number	MWR-KIT						
FCC ID	2AIPFMWRKIT						
Serial Number	--						
Brand name	Atlas Copco						
Frequency band	902 – 928 MHz						
Nominal frequencies	F _L : 902,791 MHz	F _M : 912,271 MHz	F _H : 925,963 MHz				
Test power supply	Voltage and Frequency		Reference poles				
			N	L1	L2	L3	PE
	<input checked="" type="checkbox"/>	AC: 120 V, 60 Hz	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	AC:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	DC:					<input type="checkbox"/>	
Firmware version	1.6.0						
Type of equipment	<input checked="" type="checkbox"/> Transmitter unit <input type="checkbox"/> Receiver unit						
Type of station	<input checked="" type="checkbox"/> Portable station <input type="checkbox"/> Mobile station						
Test arrangements of EUT	<i>Intended operational arrangement(s) of EUT</i>		<i>Test arrangement (see basic standard)</i>				
	<input type="checkbox"/>	Table-top only	Table-top				
	<input type="checkbox"/>	Floor-standing only	Floor-standing				
	<input type="checkbox"/>	Can be floor-standing or table-top	Table-top				
	<input type="checkbox"/>	Rack mounted	In rack or table-top				
	<input checked="" type="checkbox"/>	Other, for example wall mounted, ceiling mounted, handheld, body worn	Table-top				
Operating modes	No.	Operating mode of test item					
	1	EUT in continuous transmission at maximum power					
General product information	Measurements have been performed on the following 3 antenna types:						
	Type	Model Name					
	1/4 λ Whip	Antenna MWR-KIT (SMA) 868/915 MHz					
	Vertical stilus	Extended Cable Antenna, 5 m (BNC) 868/915 MHz					
	Quarter wave ground plane antenna	Cable Antenna 2,5 m (BNC) 868/915 MHz					

Declination of responsibility	<p>Information relating to the description of the sample, components list and software/hardware version (if reported) are provided by the customer. DEKRA Testing and Certification S.r.l. cannot be considered responsible for these information, for any other document sent by the customer and for any difference between the software version present in the tested sample and that present in the object intended for final sale.</p> <p>In some cases, the software in the tested sample is in a version dedicated exclusively to the test, and therefore does not represent the software installed in the final version of the product.</p>
-------------------------------------	---

6.1 Photos of the test item





7 Verdict summary section

KDB 447498 D01 General RF Exposure Guidance v06			
Clause	Requirement – Test case	Basic standard	Verdict
7.1	RF Exposure Analysis	--	P

Normative references	
<i>Reference no.</i>	<i>Description</i>
KDB 447498 D01 General RF Exposure Guidance v06	RF exposure procedures and equipment authorization policies for mobile and portable devices

8 Test conditions

8.1 General

Environmental reference conditions.....:	The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment.		
	The climatic conditions during the tests were within the following limits:		
	Temperature	Humidity	Atmospheric pressure
	15 °C – 35 °C	30 % - 60 %	800 hPa – 1060 hPa
	If explicitly required in the basic standard or applied product standard the climatic values are recorded and documented separately in this test report.		
Measurement uncertainties	Attachment 1		

9 Test results

9.1 RF Exposure Analysis

Tested by	C. Panozzo
Test date	07.10.2022
Test location (stand)	Laboratory
Reference standards	KDB 447498 D01 cl. 7.1 ANSI C63.10
Supplementary information.....	--

Acceptance limits

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition(s), listed below, is (are) satisfied

For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. separation distance, mm})] \times (\sqrt{f(\text{GHz})}) \leq 3$ for 1-g SAR and $\leq 7,5$ for 10-g SAR

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	<i>SAR Test Exclusion Threshold (mW)</i>
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

10-g Extremity SAR Test Exclusion Power Thresholds are 2,5 times higher than the 1-g SAR Test Exclusion Thresholds indicated above.

Result

<i>Antenna</i>	<i>Transmission channel (MHz)</i>	<i>Measured level (dBμV/m)</i>	<i>Peak Output Power (mW)</i>
1/4 λ whip antenna	902,791	93,96	0,374
1/4 λ whip antenna	912,271	93,67	0,350
1/4 λ whip antenna	925,963	93,02	0,301
Vertical stilus antenna	902,791	93,55	0,341
Vertical stilus antenna	912,271	93,21	0,315
Vertical stilus antenna	925,963	93,02	0,301
Quarter wave ground plane antenna	902,791	93,82	0,362
Quarter wave ground plane antenna	912,271	93,07	0,305
Quarter wave ground plane antenna	925,963	93,05	0,303

Standalone 10-g extremity
1/4 λ whip antenna

Using separation distance of 5 mm with the formula above results:

$$(0,374 \text{ mW} / 5 \text{ mm}) * \sqrt{0,902791 \text{ GHz}} = 0,071 \leq 7,5$$

Thus for portable use the SAR exclusion condition is fulfilled and SAR evaluation is not required for separation distance of 5 mm or more.

Vertical stilus antenna

Using separation distance of 5 mm with the formula above results:

$$(0,341 \text{ mW} / 5 \text{ mm}) * \sqrt{0,902791 \text{ GHz}} = 0,065 \leq 7,5$$

Thus for portable use the SAR exclusion condition is fulfilled and SAR evaluation is not required for separation distance of 5 mm or more.

Quarter wave ground plane antenna

Using separation distance of 5 mm with the formula above results:

$$(0,362 \text{ mW} / 5 \text{ mm}) * \sqrt{0,902791 \text{ GHz}} = 0,069 \leq 7,5$$

Thus for portable use the SAR exclusion condition is fulfilled and SAR evaluation is not required for separation distance of 5 mm or more

Attachment 1

Instruments list

<i>Id. number</i>	<i>Manufacturer</i>	<i>Model</i>	<i>Description</i>	<i>Serial number</i>
CMC S003	SCHAFFNER	NSG 2025-4	Burst Source with CDN	1010
CMC S006	Chauvin Arnoux	CA43	Field Meter	218541RLV
CMC S009	Rohde & Schwarz	ESH2-Z5	Artificial Network	839497/007
CMC S010	Rohde & Schwarz	ESH3-Z2	Impulses Limiting Device	---
CMC S013	Rohde & Schwarz	EZ-17	Current Probe	840411/009
CMC S014	Rohde & Schwarz	ESH2-Z3	Passive Probe	---
CMC S016	Rohde & Schwarz	HK116	Broadband Antenna	839472/001
CMC S017	Rohde & Schwarz	HL223	Broadband Antenna	825584/009
CMC S018	SCHAFFNER	CDN 126	Coupling Clamp	128
CMC S019	FCC	FCC 801-M5-25	CDN Power Line	06
CMC S022	Teseo	LAS 1	Loop Antenna	3971
CMC S027	Amplifier Research	75A250	RF Amplifier	19349
CMC S028	FCC	FCC-203I	Injection Clamp	209
CMC S029	Keytek	Cemaster	Surge/Dip/Burst Generator	9609258
CMC S031	Tektronix	TDS 210	Digital Oscilloscope	B010552
CMC S032	SCHAFFNER	NSG 2050	Surge Source with CDN	200111-253AR
CMC S034	Schwarzbeck	UHA 9105	Dipole	UHA 91052234
CMC S035	Eutron	BVR 1800 30-50	DC Power Source	3004
CMC S037	Rohde & Schwarz	NRVS	Power Meter	845127/023
CMC S039	CMC	BI 01	Induction Coil	---
CMC S040	Walker Scientific	ELF 50-D	Magnetic Field Meter	K71484-290
CMC S042	Fluke	Fluke 73	Multimeter	67771510
CMC S076	Altitude	25438	Barometer	---
CMC S078	Amplifier Research	100W1000M1	RF Amplifier	21849
CMC S079	AH System, Inc	SAS-200/542	Broadband Antenna	504
CMC S080	AH System; Inc	SAS-200/510	Broadband Antenna	807
CMC S082	AH System; Inc	SAS-200/560	Loop Antenna	635
CMC S083	AH System; Inc	BCP-200/510	Current Probe	564
CMC S084	AH System; Inc	BCP-200/511	Current Probe	579
CMC S085	AH System; Inc	SAS-200/530	Broadband Dipole	504
CMC S086	CMC	RVCP01	Resistance 470kOhm	---
CMC S087	CMC	RHCP01	Resistance 470kOhm	---
CMC S091	CMC	DIPLP	Dipole for Loop Antenna control	---
CMC S093	LeCroy	9370	Digital oscilloscope	937001338
CMC S094	Schwarzbeck	NNBM 8126-A	LISN 5µH	8126A161
CMC S095	FCC	FCC 801-M3-16	CDN power line	9821
CMC S106	Gigatronix	900	RF Signal Generator	323001
CMC S107	Hewlett Packard	HP8563E	Spectrum Analyser	3846A09658
CMC S108	Emco	3115	Horn Antenna	9811-5622
CMC S109	Farnell	LFM4	LF Signal Generator	531
CMC S111	LEM HEME	PR 1001	Current Probes	---
CMC S112	Amplifier Research	DC3010	Directional Coupler	15238
CMC S114	Schwarzbeck	VHA 9103	Dipole	VHA 91031801
CMC S116	CMC	BCIP01	Calibration BCI-JIG	--
CMC S117	MARCONI	2019A	RF Signal Generator	118453/014
CMC S118	Hewlett Packard	E3632A	Programmable Power Supply	KR75301881

Attachment 1

<i>Id. number</i>	<i>Manufacturer</i>	<i>Model</i>	<i>Description</i>	<i>Serial number</i>
CMC S119	Hewlett Packard	HP8903B	Audio Analyzer	3011A09055
CMC S120	FCC	FC130-A	Current Injection Probe	118
CMC S121	Wavetek	LCR55	Bridge LCR	20104738
CMC S122	Fluke	336	Amperometric Clamp Meter	81754972
CMC S124	Spin	AMTP42-20	Horn Antenna	103
CMC S127	SCHAFFNER	HLA6120	Loop Antenna	1191
CMC S128	SCHAFFNER	CBA9428	RF Amplifier	1006
CMC S129	Rohde & Schwarz	ESPI7	Receiver	836.914/004
CMC S130	SCHAFFNER	NSG 5000	Automotive Impulse Generator	02032579-1
CMC S131	SCHAFFNER	CDN 500	Capacitive Clamp	400-151/0128
CMC S132	CMC	OPS150	Open Strip Line 150mm	- - -
CMC S135	LEM HEME	PR 30	Current Probe	P04217832830
CMC S136	Schwarzbeck	VULB 9136	Broadband Antenna	9136-205
CMC S138	Agilent	33220A	Function/Arbitrary Waveform Gener.	MY44003979
CMC S142	Narda	ELT-400+B-sensor	Exposure level tester	D-0034+D-0032
CMC S144	Rohde & Schwarz	URV5	Power Meter	881375/004
CMC S145	Hewlett Packard	778D	Directional Coupler	17237
CMC S146	Amplifier Research	10W1000B	RF Amplifier	18451
CMC S150	RKB	LOG3080	Broadband Antenna	- - -
CMC S151	CMC	CI 02	Induction Multi Coil	- - -
CMC S152	CMC	CDN100	Direct injection device	001
CMC S155	Chroma	61705	Power supply source	000000088
CMC S156	Yokogawa	DL9040	Digital Oscilloscope	91F643771
CMC S161	EM TEST	EFT 500 M4 S1	Burst source with CDN	V0739102946
CMC S162	FCC	FCC 801-M2-16	CDN power line	07047
CMC S163	NOISEKEN	ESS-2002+TC-815R	ESD simulator	ESS0787336
CMC S164	Rohde & Schwarz	ESU26	EMC receiver	100052
CMC S170	Amplifier Research	FL7006	Field meter	0327425
CMC S171	Schwarzbeck	BBHA 9120 LF(A)	Broadband Antenna	284
CMC S172	Schwarzbeck	VHBD9134+BBAL9136	Broadband Antenna	9134-037
CMC S173	Luthi	CDN L-801 AF4	CDN I/O line	2481
CMC S174	Luthi	CDN L-801 AF8	CDN I/O line	2482
CMC S175	Luthi	CDN L-801 T2	CDN I/O line	2473
CMC S176	Luthi	CDN L-801 T4	CDN I/O line	2475
CMC S177	Luthi	CDN L-801 T8	CDN I/O line	2476
CMC S178	Schwarzbeck	STLP 9128 C	Broadband Antenna	086
CMC S179	Frankonia	FLL-250A	RF Amplifier	1023
CMC S181	Milmega	AS0822-200	RF Amplifier	1031424
CMC S182	Milmega	AS0206-50	RF Amplifier	1031425
CMC S183	Minicircuits	PWR-SEN-6G+	USB Power Sensor	0809070042
CMC S184	ARRAY	3400A	Arbitrary Waveform Generation	TW00009164
CMC S185	EM TEST	OCS 500 M6 S4	Oscillatory compact simulator	V0915104789
CMC S186	Schwarzbeck	SBA 9119	Broadband Antenna	009
CMC S187	Rohde & Schwarz	SMB100A	RF signal generator	102572
CMC S189	Eutron	BVR 1800 300V5A	DC Power Source	9100
CMC S190	Spin	AMDR-10180	Horn Antenna	01-309-09
CMC S191	EM TEST	UCS 500 N5	Burst/Surge/PFQ compact simulator	V0947105547
CMC S193	Solar	6552-1A	BF Amplifier	- - -

Attachment 1

<i>Id. number</i>	<i>Manufacturer</i>	<i>Model</i>	<i>Description</i>	<i>Serial number</i>
CMC S194	CMC	CDN 16 PL	CDN Power line	---
CMC S195	Schwarzbeck	VULB 9118 E sp.	Broadband Antenna	827
CMC S196	EM TEST	BS 200N	Electronic switch	V100510506
CMC S197	EM TEST	UCS 200N	Pulse generator	V0825103901
CMC S198	FCC	F - 55	RF Current Probe	100999
CMC S199	EM TEST	CNI 503	CDN for Burst and Surge	V1026106843
CMC S200	Schwarzbeck	NSLK 8128	V-LISN	8128-273
CMC S201	S.M. ELECTRONICS	SA3N150-06F	Attenuator	---
CMC S202	Rohde & Schwarz	CMU200	Universal radio communication tester	104099
CMC S203	CMC	VH	Van der Hoofden test-head	---
CMC S205	Schwarzbeck	NNBM 8124	LISN 5µH	065
CMC S206	Rohde & Schwarz	ESCI 7	EMC Receiver	100781
CMC S207	AlphaLab	ASMGM	Milligauss meter	584
CMC S209	Elettrotest	TPS40K 30K60S	AC Source	002.11
CMC S210	EM TEST	PFS 200N30	Power Fail simulator	V1130110311
CMC S211	Luthi	CDN L-801 M1	CDN M line	2811
CMC S212	Luthi	CDN L-801 M2	CDN M line	2812
CMC S213	Luthi	CDN L-801 M3	CDN M line	2813
CMC S214	EM TEST	VDS200N10	Voltage drope simulator	V1150111222
CMC S215	FCC	F-130A-1	BCI Probe	112166
CMC S216	Luthi	MDS21	Absorbing Clamp	4101
CMC S217	Schwarzbeck	TK9420	Voltage Probe	458
CMC S218	RS	50WCW	50 ohm Load	---
CMC S219	EM TEST	CNV 504 N1.2	Box Surge	V1210112161
CMC S221	Minicircuits	BW-N20W5+	Attenuator	0612
CMC S222	A-INFOMW	ACB06-100SN	Attenuator	J3081111111003
CMC S223	Minicircuits	BW-N20W20+	Attenuator	1217
CMC S224	Fairview microwave	SMC4037-20	Directional Coupler	JSDF568-081
CMC S225	Fairview microwave	SA3550N	Step Attenuator	201237026
CMC S226	Werlatone	C6021-10	Dual Directional Coupler	99019
CMC S227	Rohde & Schwarz	ESR7	EMI Test Receiver 7GHz	101121
CMC S228	Agilent	U3401A	Digital Multimeter	MY52270047
CMC S229	Schwarzbeck	CAT5 8158	ISN 8-Wire	CAT5-8158-0074
CMC S230	Werlatone	C1795-10	Dual Directional Coupler	100140
CMC S234	Schwarzbeck	VTSD 9561-F	Pulse Limiter/Attenuator	9561-F023
CMC S235	Schwarzbeck	VUSLP 9111B	Broadband Antenna	9111B-118
CMC S236	Schwarzbeck	BBA 9106 + VHBB 9124	Broadband Antenna	9124-672
CMC S237	EM TEST	DPA 503N	Harmonic & Flicker analyser	P1338124620
CMC S238	Minicircuits	PWR-SEN-6GHS	USB Power Sensor	11302250023
CMC S239	Schwarzbeck	UAH 9105	Dipole	9105-2599
CMC S240	CMC	ITF2	Three-phase Impedances cabinet	---
CMC S241	Schwarzbeck	BBV 9718	Broadband Preamplifier	9718-126
CMC S242	CMC	W-IM1	Shielded Cable	---
CMC S243	Minicircuits	ZX60-33LN-S+	Low Noise Amplifier	S F558500921
CMC S244	EM TEST	AutoWave	Automotive Waveforms Gen.	P1303110740
CMC S245	CMC	AEP1	Automotive ESD Plane	---
CMC S246	Minicircuits	ZFBT-6GW	Bias Tee	RF405100521

Attachment 1

<i>Id. number</i>	<i>Manufacturer</i>	<i>Model</i>	<i>Description</i>	<i>Serial number</i>
CMC S247	Minicircuits	ZFBT-6GW+	Bias Tee	RF476100846
CMC S249	Schwarzbeck	NNBM 8124	LISN 5µH	685
CMC S250	Pico Technology	PicoLog1216	USB Data Logger	CO117/017
CMC S251	Schwarzbeck	BBV 9745	Broadband Preamplifier	9745-0019
CMC S252	Agilent	34972A	Data Acquisition	MY49018010
CMC S253	Minicircuits	PWR-SEN-6GHS	USB Power Sensor	11405260039
CMC S254	Prana	DR220	RF Amplifier	1610
CMC S255	S.M.ELECTRONICS	SA3N100-03F	Attenuator	- - -
CMC S256	HAMEG	HM8135	RF signal generator	014759546
CMC S257	Schwarzbeck	VAMP 9243	Active Monopole Antenna	9243-468
CMC S259	Schwarzbeck	SBA 9113 B	Broadband Antenna	247
CMC S260	CMC	Wfr_N_white	Shielded Cable	Wfr_ant10-1
CMC S261	CMC	Wfr_N	Shielded Cable	Wfr_ant20-1
CMC S262	CMC	Wfr_N_fix	Shielded Cable	Wfr_fix32-1
CMC S263	CMC	Wfr_N_fix	Shielded Cable	Wfr_fix31-1
CMC S264	CMC	Wfr_N	Shielded Cable	Wfr_ext03-1
CMC S265	CMC	Wfr_N_fix	Shielded Cable	Wfr_fix22-1
CMC S266	CMC	Wfr_N	Shielded Cable	Wfr_ext02-1
CMC S267	CMC	Wfr_N	Shielded Cable	Wfr_ant20-2
CMC S268	Schwarzbeck	HLC 27	Compact Dipole Antenna	005
CMC S269	Fairview microwave	FMCP1005	Dual Directional Coupler	1520
CMC S270	Schwarzbeck	SBA 9112	Broadband Antenna	295
CMC S271	Schwarzbeck	BBA 9106 + VHBB 9124	Broadband Antenna	831
CMC S272	Minicircuits	PWR-SEN-6GHS	USB Power Sensor	11408040322
CMC S273	Minicircuits	PWR-SEN-6GHS	USB Power Sensor	11408040304
CMC S274	Minicircuits	PWR-SEN-6GHS	USB Power Sensor	11408040326
CMC S275	Schwarzbeck	NNHV 8123	LISN 5µH	8123-200#76
CMC S276	Schwarzbeck	NNHV 8123	LISN 5µH	8123-200#77
CMC S277	CMC	Wsac03_N_fix	Shielded Cable	Wsac03_fix21-1
CMC S278	CMC	Wsac03_N_fix	Shielded Cable	Wsac03_fix12-1
CMC S279	CMC	Wsac03_N_fix	Shielded Cable	Wsac03_fix12-2
CMC S280	CMC	Wsac03_N_white	Shielded Cable	Wsac03_ant10-1
CMC S281	CMC	Wsac03_N	Shielded Cable	Wsac03_ext02-1
CMC S282	CMC	Wsac03_N	Shielded Cable	Wsac03_int20-1
CMC S283	CMC	Wsac03_N_white	Shielded Cable	Wsac03_bci20-1
CMC S284	Rohde & Schwarz	SMB100A	RF signal generator	3.20.390.24
CMC S287	Schwarzbeck	VUSLP 9111B	Broadband Antenna	9111B-203
CMC S288	CMC	W_sma_white	Joint Shielded Cable	W_001
CMC S290	Schwarzbeck	BBHA 9170	Horn Antenna	733
CMC S291	Milmega	AS0860-40/25	RF Amplifier	1076710
CMC S292	BONN	BLWA 0310-300	RF Amplifier	1610818
CMC S293	Schwarzbeck	422NJ	Antenna Flat Elements	422NJ-051
CMC S294	TESEQ	NSG 437	ESD Simulator	899
CMC S295	Rohde & Schwarz	FSW43	Spectrum Analyzer	104059
CMC S296	Milmega	80RF1000-300	RF Amplifier	1078225
CMC S298	RIGOL	DSG3060	RF signal generator	DSG3A183600076
CMC S299	CMC	Wfr_sma	Shielded Cable	Wfr_ant20-2

Attachment 1

<i>Id. number</i>	<i>Manufacturer</i>	<i>Model</i>	<i>Description</i>	<i>Serial number</i>
CMC S300	CMC	Wfr_sma_fix	Shielded Cable	Wfr_fix32-3
CMC S301	CMC	Wfr_sma	Shielded Cable	Wfr_ext03-2
CMC S302	Testo	175H1	Data Logger	40370182 610
CMC S303	Schwarzbeck	VHBD 9134 + BBAE 9179	Broadband Antenna	9134-037 + 00020
CMC S304	Rohde & Schwarz	CMW290	Functional radio communication tester	101637
CMC S308	CMC	CDN100	Direct injection device	002
CMC S309	EM TEST	compact NX5	Burst/Surge/PFQ compact simulator	P1640185047
CMC S310	TESEQ	CDN M432	CDN M line	48108
CMC S311	Rohde & Schwarz	BBA150	RF Amplifier	103021
CMC S312	EM TEST	coupling NX5	CDN for Burst and Surge	P1737203098
CMC S313	EM TEST	NetWave 30-400	AC Source	P1751211689
CMC S318	RIGOL	DSG815	RF signal generator	DSG8A202600203
CMC S319	TESEQ	KEMZ 801A	Injection Clamp	51292
CMC S322	Werlatone	C5960-10	Dual Directional Coupler	117666
CMC S323	Vectawave	VBA250-800	RF Amplifier	123091
CMC S324	CMC	CCC01	Coupling Clamp	001
CMC S326	RIGOL	DSG3060	RF signal generator	DSG3A204600091
CMC S327	Minicircuits	PWR-SEN-6GHS	USB Power Sensor	11901020110
CMC S328	Minicircuits	PWR-SEN-6GHS	USB Power Sensor	11901020127
CMC S329	Schwarzbeck	BBHA 9120 J	Horn Antenna	9120J-0167
CMC S331	Bruel & Kjaer	2260 + 4231	Phonometer	1847463 + 2095024
CMC S332	Schwarzbeck	STLP 9128 D	Double Log-periodic Antenna	91028 D 049
CMC S333	CMC	Wfr_sma_fix	Shielded Cable	Wfr_fix32-4
CMC S334	Wainwright Instruments	WHKX12-935-1000-15000-40SS	High Pass Filter	46
CMC S335	Wainwright Instruments	WHKX12-2487.1-2660-18000-40SS	High Pass Filter	01
CMC S336	Narda	EP601	Field Meter	711WX90802
CMC S337	Milmega	AS0860A-100/50	RF Amplifier	1087595
CMC S338	RIGOL	DSG815	RF signal generator	DSG8A212700221
CMC S339	Minicircuits	ZHSS-8G-S+	High Pass Filter	32002
CMC S340	Schwarzbeck	NNBM 8124 200A	LISN 5µH	8124-200 00629
CMC S341	Schwarzbeck	NNBM 8124 200A	LISN 5µH	8124-200 00630
CMC S342	Micsig	CP2100B	Current Probe	310000980
CMC S344	Fairview microwave	SCE18110101-800CM	Shielded Cable	---
CMC S345	Fairview microwave	SCE18110101-250CM	Shielded Cable	---
CMC S346	Fairview microwave	FMC2929085-500CM	Shielded Cable	---
CMC S347	Fairview microwave	FMAM3260	Broadband Preamplifier	V000669F02152016H045
CMC S348	Rohde & Schwarz	RTM3004	Digital Oscilloscope	1335.8794K04-104249-KF
CMC S349	EM TEST	AutoWave	Automotive Waveforms Generator	P2012239934
CMC S350	EM TEST	VDS 200Q50.2	Voltage Drop Simulator	P2012239962
CMC S351	EM TEST	UCS 200N	Pulse Generator	P2026241998
CMC S352	Schwarzbeck	CDN S8 RJ45	CDN I/O line	00023
CMC S353	Rohde & Schwarz	ESW26	Emi Test Receiver	101492
CMC S354	CMC	Wfr_sma_white	Shielded Cable	Wfr_ant20-1
CMC S355	CMC	Wfar03_N_white	Shielded Cable	Wfar03_bckng
CMC S356	Minicircuits	ZAPD-2-252-N+	Power Splitter	NFG23501720

Attachment 1

<i>Id. number</i>	<i>Manufacturer</i>	<i>Model</i>	<i>Description</i>	<i>Serial number</i>
CMC S357	Minicircuits	ZAPD-30-S+	Power Splitter	SFG24201721
CMC S358	CMC	Wsac03_N	Shielded Cable	Wsac03_ant10-2
CMC S359	Wainwright Instruments GmbH	WRCJV8-2350-2400-2483.5-2533.5-40SS	Band Reject Filter	12
CMC S360	TESEQ	CIP 9136A	Bulk Current Injection Probe	61394
CMC S361	CMC	Tnet01	T Network	T001
CMC A001	Sispe	F5123	Shield chamber	---
CMC A002	SIDT	951130	Anechoic chamber	---
CMC A007	CMC	10707	Semi-anechoic chamber	---
CMC A008	CMC	BPA	Track for absorbing clamp	---
CMC A013	CMC	TR01	Rotary motorized table	---
CMC A014	CMC	PM01	Antenna positionning Mast	---
CMC A070	Frankonia	SAC10	Semi-anechoic chamber	F159003
CMC A071	Frankonia	FC06	Controller Turntable & Antennamast	FC06-2014-015
CMC A072	Frankonia	FAM2-4	Antenna mast	---
CMC A073	Frankonia	FTM 3-3	Turntable	FC062015029
CMC A075	Schwarzbeck	AM9144	Modular Antenna Mast	---
CMC A076	Frankonia	SAC03	Semi-anechoic chamber	F159002
CMC B026	Angelantoni	UY 245 IU	Climatic chamber	1059.78
CMC B069	Angelantoni	CH 600C	Climatic Chamber	41973
CMC B087	Yokogawa	WT3000	Precision Power analyzer	91JB15155

Attachment 1

Measurement uncertainty

<i>Test</i>	<i>Test Setup</i>	<i>Expanded uncertainty</i>	<i>Note</i>
Conducted emission CISPR 16 LISN 50uH 0,009-0,0150 MHz	PE001_01	3,4 dB	1
Conducted emission CISPR 16 LISN 50uH 0,150-30,0 MHz	PE001_01	3,0 dB	1
Conducted emission CISPR 16 Voltage Probe 0,15-30 MHz	PE001_02	2,3 dB	1
Conducted emission CISPR 16 Current Probe 0,15-30 MHz	PE001_03	2,6 dB	1
Conducted emission CISPR 16 ISN 0,15-30 MHz	PE001_04	4,7 dB	1
Clic CISPR 16 LISN 50uH 0,150-30,0 MHz	PE001_05	2,9 dB	1
Radiated Emission CDNE 30-300 MHz	PE001_06	3,3 dB	1
Disturbance Power 30-300 MHz	PE002_01	3,8 dB	1
Radiated Emission LAS 0,15-30 MHz	PE003_01	2,0 dB	1
Radiated Emission CISPR 16 Loop Ant. 0,15-30 MHz	PE004_01	4,1 dB	1
Radiated Emission CISPR 16 Bicon. Ant. 30-300 MHz	PE004_02	4,7 dB	1
Radiated Emission CISPR 16 LogP. Ant. 300-1000 MHz	PE004_03	4,6 dB	1
Radiated Emission CISPR 16 Horn Ant. 1-18 GHz	PE004_04	4,7 dB	1
Human Exposure to electromagnetic fields	PE005_01	16,7 %	1
Harmonics	PE006_01	10 mA + 2,9 %	1
Flicker	PE007_01	4,15 %	1
Radiated Immunity 80 MHz - 6 GHz	PE102_XX	2,20 dB 0,86 V/m a 3V/m	1
Conducted Immunity 0,15 - 230 MHz	PE105_XX	1,20 dB 0,44 V a 3V	1
AC Magnetic field	PE106_01	1,55 % 0,15 A/m a 10A/m	1
Pulse Magnetic field	PE107_01	6,23 % 18,7 A/m a 300A/m	1
Dumped Magnetic field	PE108_01	6,23 % 1,87 A/m a 30A/m	1
Common mode conducted immunity	PE112_01	2,16 % 0,22 V a 10V	1

Attachment 1

Test	Test Setup	Expanded uncertainty	Note
Power/Spurious 9kHz-30MHz	PR001_01	4,1 dB	1
Power/Spurious ERP 30-1000MHz d=10m	PR001_02+03	4,7 dB	1
Misura della potenza EIRP 1-18GHz d=3m	PR001_04+05	4,7 dB	1
Misura della potenza EIRP 18-40GHz d=3m	PR001_06	5,4 dB	1
Frequency error	PR002_01+02	< 1x10 ⁻⁷	1
Timing zero span (1001pts.)	PR002_01+02	0,2 % SWT	1
Modulation bandwidth	PR002_01+02	< 1x10 ⁻⁷	1
Conducted RF power and spurious emission	PR002_01+02	1,1 dB	1
Adjacent channel power	PR002_01+02	1,1 dB	1
Blocking	PR002_01+02	1,1 dB	1

Test	Test Setup	Expanded uncertainty	Note
Electrostatic discharge immunity test	PE101_0X		2
Electrical fast transients / burst immunity test	PE103_0X		2
Surge immunity test	PE104_0X		2
Short interruption immunity test	PE109_01		2
Ring Wave immunity test	PE110_01		2
Low frequency immunity test	PE111_01		2
Dumped Oscillatory immunity test	PE113_01		2
Rev_22_01 date 31/01/2022			

Note 1:

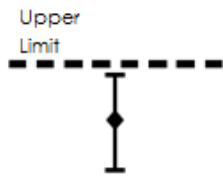
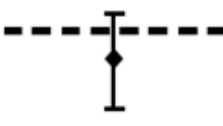

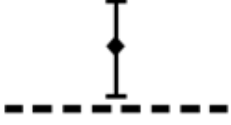
The expanded uncertainty reported according to the document EA-4-02 is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of p = 95%

Note 2:

It has been demonstrated that the used test equipment meets the specified requirements in the standard with at least a 95% confidence, covering factor k=2

Attachment 1

Judgement of compliance

Case 1	Case 2	Case 3	Case 4
 <p>The sample complies with the requirements.</p> <p>The measurement results is within the specification limit when the measurement uncertainty is taken into account.</p>	 <p>The sample complies with the requirements.</p> <p>It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty although the measurement result is below the limit.</p>	 <p>The sample does not comply with the requirements.</p> <p>It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty also the measurement result is upper the limit.</p>	 <p>The sample does not comply with the requirements.</p> <p>The measurement results is outside the specification limit when the measurement uncertainty is taken into account.</p>

In agreement with ILAC-G8:09/2019 cl.4.2.1 Guidelines on Decision Rules and Statements of Conformity

Quality manual references – Internal procedure

Internal Procedure PM001 rev. 4.0 (Quality Manual)	Measure procedure
Internal Procedure INC_M rev. 10.0 (Quality Manual)	Measurement uncertainty calculation