SAR Test Report

Test Report No. 15032644S-A-R1

Customer	**Nintendo Co., Ltd.**
Description of EUT	**Development tool**
Model Number of EUT	**BEE-056**
FCC ID	**BKEBEE056**
Test Regulation	**FCC 47CFR 2.1093**
Test Result	**Complied**
Issue Date	**October 24, 2024**
Remarks	-

Representative Test Engineer	Approved By
H. Naka	T. Imamura
Hiroshi Naka Engineer	Toyokazu Imamura Engineer

CERTIFICATE 1266.03

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☒ There is no testing item of "Non-accreditation".

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REVISION HISTORY

Original Test Report No.: 15032644S-A

This report is a revised version of 15032644S-A. 15032644S-A is replaced with this report.

Revision	Test Report No.	Date	Page Revised Contents
- (Original)	15032644S-A	March 19, 2024	-
-R1	15032644S-A-R1	October 24, 2024	(p3, Abbreviations) Updated content. (p6) Replaced power table with excel version. Added comment about low power in the 2.4 GHz band. (p8, 3.3) Deleted KDB 388624 D01 v18r03 (OVER6G) from the test specification. Added information on past TCB workshops that should be referenced. Comment content has been updated. (p11, 4.2) Changed the SAR test exclusion table to a recalculated Excel version and deleted the WLAN 5.6 GHz and WLAN 5.8 GHz sections. (Page numbers have been revised after p12 due to page reductions.) (p12~14, 5.1) Replaced power measurement data with excel version. (p19, 6.1) Replaced liquid data with excel version. (p21~25, 7.1) Replaced SAR results data with excel version. (p21~25, 7.1.1) Added SAR results for WLAN 2.4GHz low power specification (max.10dBm). (p26, 7.2) Replaced simultaneous transmission evaluation table with excel version. (p40, Appendix 3-1) Added LIMIS ID: 215438 (Attenuator). (p44, Appendix 3-2-2) Replaced SPC results data with excel version. (p49, Appendix 3-3) Replaced uncertainty table with excel version.

Reference : Abbreviations (Including words undescribed in this report) (R16v240731S10v240806)

A2LA	The American Association for Laboratory Accreditation
AC	Alternating Current
AFH	Adaptive Frequency Hopping
AM	Amplitude Modulation
Amp, AMP	Amplifier
ANSI	American National Standards Institute
Ant, ANT	Antenna
AP	Access Point
APD	Absorbed Power Density
ASK	Amplitude Shift Keying
Atten., ATT	Attenuator
AV	Average
BPSK	Binary Phase-Shift Keying
BR	Bluetooth Basic Rate
BT	Bluetooth
BT LE	Bluetooth Low Energy
BW	BandWidth
Cal Int	Calibration Interval
CCK	Complementary Code Keying
CDD	Cyclic Delay Diversity
CFR	Code of Federal Regulations
Ch., CH	Channel
CISPR	Comite International Special des Perturbations Radioelectriques
CW	Continuous Wave
DBPSK	Differential BPSK
DC	Direct Current
D-factor	Distance factor
DFS	Dynamic Frequency Selection
DQPSK	Differential QPSK
DSSS	Direct Sequence Spread Spectrum
DUT	Device Under Test
EDR	Enhanced Data Rate
EIRP, e.i.r.p.	Equivalent Isotropically Radiated Power
EMC	ElectroMagnetic Compatibility
EMI	ElectroMagnetic Interference
EN	European Norm
ERP, e.r.p.	Effective Radiated Power
ETSI	European Telecommunications Standards Institute
EU	European Union
EUT	Equipment Under Test
Fac.	Factor
FCC	Federal Communications Commission
FHSS	Frequency Hopping Spread Spectrum
FM	Frequency Modulation
Freq.	Frequency
FSK	Frequency Shift Keying
GFSK	Gaussian Frequency-Shift Keying
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
HE	High Efficiency (e.g. IEEE 802.11ax20HE)
HT	High Throughput (e.g. IEEE 802.11n20HT)
Hori.	Horizontal
ICES	Interference-Causing Equipment Standard
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IF	Intermediate Frequency
ILAC	International Laboratory Accreditation Conference
IPD	Incident Power Density
ISED	Innovation, Science and Economic Development Canada
ISO	International Organization for Standardization
JAB	Japan Accreditation Board
LAN	Local Area Network
LIMS	Laboratory Information Management System
MCS	Modulation and Coding Scheme
MIMO	Multiple Input Multiple Output (Radio)
MPE	Maximum Permissible Exposure
MRA	Mutual Recognition Arrangement
MU-MIMO	Multi-User Multiple Input Multiple Output (Radio)
N/A	Not Applicable, Not Applied
NII	National Information Infrastructure (Radio)
NIST	National Institute of Standards and Technology
NR	New Radio
NS	Nerve Stimulation
NSA	Normalized Site Attenuation
NVLAP	National Voluntary Laboratory Accreditation Program
OBW	Occupied Band Width
OFDM	Orthogonal Frequency Division Multiplexing
OFDMA	Orthogonal Frequency Division Multiple Access
PD	Power Density
psPD	Peak spatial-average power density
psPDn+	Surface-normal propagation-direction peak spatial-average power density
psPDtot+	Total propagating spatial-average peak power density
psPDmod+	Total peak spatial-average power density considering reactive near-field effects
P/M	Power meter
PCB	Printed Circuit Board
PER	Packet Error Rate
PHY	Physical Layer
PK	Peak
PN	Pseudo random Noise
PP	Preamble Puncturing
PRBS	Pseudo-Random Bit Sequence
PSD	Power Spectral Density
QAM	Quadrature Amplitude Modulation
QP	Quasi-Peak
QPSK	Quadrature Phase Shift Keying
RAT	Radio Access Technology
RBW	Resolution Band Width
RDS	Radio Data System
RE	Radio Equipment
RF	Radio Frequency
RMS	Root Mean Square
RSS	Radio Standards Specifications
RU	Resource Unit
Rx	Receiving
SA, S/A	Spectrum Analyzer
SAR	Specific Absorption Rate
SDM	Space Division Multiplexing
SISO	Single Input Single Output (Radio)
SG	Signal Generator
sPD	Spatial-average power density
sPDn+	Surface-normal propagation-direction spatial-average power density
sPDtot+	Total propagating spatial-average power density
sPDmod+	Total spatial-average power density considering reactive near-field effects
SPLSR	SAR to Peak Location Separation Ratio
SVSWR	Site-Voltage Standing Wave Ratio
TER	Total Exposure Ratio
TSL	Tissue Simulation Liquid
T/R	Test Receiver
Tx	Transmitting
U-NII	Unlicensed National Information Infrastructure (Radio)
URS	Unintentional Radiator(s)
VBW	Video BandWidth
Vert.	Vertical
VHT	Very High Throughput (e.g. IEEE 802.11ac20VHT)
WLAN	Wireless LAN
Wi-Fi, WiFi	Wireless LAN, trademarked by Wi-Fi Alliance
WPT	Wireless Power Transmit

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SECTION 1: Customer information

Company Name	Nintendo Co., Ltd.
Address	11-1 Hokotate-cho, Kamitoba, Minami-ku, Kyoto 601-8501, Japan
Telephone Number	+81-75-662-9600
Contact Person	Yosuke Ishikawa

The information provided from the customer is as follows;
- Customer name, Company name, Type of Equipment, Model No., FCC ID on the cover and other relevant pages.
- SECTION 1: Customer information
- SECTION 2: Equipment under test (EUT)
- SECTION 4: Operation of EUT during testing
- Appendix 1: The part of Antenna location information, Description of EUT and Support Equipment

SECTION 2: Equipment under test (EUT)

2.1 Identification of EUT

Type	Development tool
Model Number	BEE -056
Serial Number	HAL00110048756
Rating	DC 3.78 V (Battery) *. The battery is had built-in in the EUT, and the user can not remove the battery. USB port (bottom): DC 5~15 V input supported, USB port (top): DC 5~15 V input supported.
Condition of sample	Engineering prototype (Not for sale: The sample is equivalent to mass-produced items.)
Receipt Date of sample	December 12, 2023 (for power measurement) (*. No modification by the Lab.) January 16, 2024 (for SAR test) (*. No modification by the Lab.)
Test Date (SAR)	January 17~30, 2024

2.2 Product Description

This report contains data provided by the customer which can impact the validity of results. UL Japan, Inc. is only responsible for the validity of results after the integration of the data provided by the customer. The data provided by the customer is marked "a)" in the table below.

General

Feature of EUT	Model number: BEE-056 (referred to as the EUT in this report) is a Development tool which has WLAN and Bluetooth functions.
SAR Category Identified	Portable device (*. Since EUT may contact to a localized human body during wireless operation, the partial-body SAR (1g) shall be observed.)
SAR Accessory	None

Radio specification

Type	WLAN and Bluetooth module		
Equipment type	Transceiver		
Frequency of operation	Bluetooth (0): 2402 MHz ~ 2480 MHz Bluetooth (1): 2402 MHz ~ 2480 MHz	WLAN 2.4 GHz Band: 2412 MHz ~ 2472 MHz WLAN 5.2 GHz Band (U-NII-1): 5180 MHz ~ 5240 MHz WLAN 5.3 GHz Band (U-NII-2A): 5260 MHz ~ 5320 MHz	
Supported modulations	Bluetooth (0): BR/EDR/BT LE (FHSS, GFSK (*. EDR: GFSK+ π/4-DQPSK, GFSK+ 8DPSK)) Bluetooth (1): BR/EDR/BT LE (FHSS, GFSK (*. EDR: GFSK+ π/4-DQPSK, GFSK+ 8DPSK)) WLAN 2.4 GHz band) DSSS)11b: DBPSK/DQPSK/CCK WLAN 2.4 GHz band) OFDM) 11g/n/ax: BPSK/QPSK/16QAM/64QAM, 11ax: 256QAM/1024QAM WLAN 5 GHz band) OFDM) 11a/n/ac/ax: BPSK/QPSK/16QAM/64QAM, 11ac/ax: 256QAM, 11ax: 1024QAM WLAN 2.4 GHz band) OFDMA) 11ax: BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM, RU: 26~242 WLAN 5 GHz band) OFDMA) 11ax: BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM, RU: 26~996		
Typical and maximum transmit power	*. The specification of typical and maximum transmit power (which may occur) refer to remarks in below "Table of Typical power and Maximum tune-up tolerance limit power". The measured output power (conducted) as SAR reference power refers to section 5 in this report.		
Antenna quantity	3 pcs. (*. Separation distance between each antenna refers to Appendix 1-1.)		
Antenna ID	Antenna 1	Antenna 0	Antenna 2
Support operation mode	Bluetooth (1)	Bluetooth (0), WLAN 2.4 GHz & 5 GHz band	WLAN 2.4 GHz & 5 GHz band
Antenna type	LDS (Laser-Direct-structuring) antenna	LDS + PCB antenna	LDS + PCB antenna
Antenna connector type	PCB side: MHF2, Antenna side: soldered	PCB side: MHF2, Antenna side: soldered	PCB side: MHF2, Antenna side: soldered
Antenna gain a) (max. gain) (*.including cable loss)	-1.74 dBi (2.4 GHz band)	-2.51 dBi (2.4 GHz band), 0.7 dBi (5 GHz band)	0.21 dBi (2.4 GHz band), 4.07 dBi (5 GHz band)

***. Table of Typical power and Maximum power (= Maximum tune-up tolerance limit power)**

Maximum tune-up tolerance limit is conducted burst average power and is defined by a customer as Duty cycle 100% (continuous transmitting).
The SAR test reference power measurement and the SAR test were applied to the lowest data rate (as higher time-based average power) on each operation mode.

							SISO (1Tx-1ST)							MIMO (2Tx-2ST)(SDM)					
							-	Antenna 1		Antenna 0		Antenna 2		-	Antenna 0		Antenna 2		SUM
Type	Band	Channel	Frequency [MHz]	Mode	BW [MHz]	OFDMA tested RU	D/R [bps] or MCS index#	Typ. [dBm]	Max. [dBm]	Typ. [dBm]	Max. [dBm]	Typ. [dBm]	Max. [dBm]	D/R [bps] or MCS index#	Typ. [dBm]	Max. [dBm]	Typ. [dBm]	Max. [dBm]	Max. [dBm]
BT	BR	0 to 78	2402 to 2480	DH5	-	-	1M	N/A	6	N/A	6	N/A	N/A						
BT	EDR	0 to 78	2402 to 2480	2DH5	-	-	2M	N/A	6	N/A	6	N/A	N/A						
BT	EDR	0 to 78	2402 to 2480	3DH5	-	-	3M	N/A	6	N/A	6	N/A	N/A						
BT	BTLE	0 to 39	2402 to 2480	-	-	-	125k	N/A	N/A	N/A	6	N/A	N/A						
BT	BTLE	0 to 39	2402 to 2480	-	-	-	500k	N/A	N/A	N/A	6	N/A	N/A						
BT	BTLE	0 to 39	2402 to 2480	PHY1	-	-	1M	N/A	6	N/A	6	N/A	N/A						
BT	BTLE	0 to 39	2402 to 2480	PHY2	-	-	2M	N/A	6	N/A	6	N/A	N/A						
WLAN	2.4GHz	1 to 11	2412 to 2462	11b	20	-	1M to 11M	N/A	N/A	12	14	12	14						
WLAN	2.4GHz	1 to 11	2412 to 2462	11g	20	-	6M to 54M	N/A	N/A	12	14	12	14						
WLAN	2.4GHz	1 to 11	2412 to 2462	11n	20	-	#0 to #7	N/A	N/A	12	14	12	14	#8 to #15	5	7	5	7	10
WLAN	2.4GHz	1 to 11	2412 to 2462	11ax	20	-	#0 to #11	N/A	N/A	12	14	12	14	#0 to #11	5	7	5	7	10
WLAN	2.4GHz	1 to 11	2412 to 2462	11ax	20	106 , 242	#0 to #11	N/A	N/A	12	14	12	14	#0 to #11	5	7	5	7	10
WLAN	2.4GHz	12 , 13	2467 , 2472	11b	20	-	1M to 11M	N/A	N/A	3	5	3	5						
WLAN	2.4GHz	12 , 13	2467 , 2472	11g	20	-	6M to 54M	N/A	N/A	3	5	3	5						
WLAN	2.4GHz	12 , 13	2467 , 2472	11n	20	-	#0 to #7	N/A	N/A	3	5	3	5	#8 to #15	3	5	3	5	8
WLAN	2.4GHz	12 , 13	2467 , 2472	11ax	20	-	#0 to #11	N/A	N/A	3	5	3	5	#0 to #11	3	5	3	5	8
WLAN	2.4GHz	12 , 13	2467 , 2472	11ax	20	106 , 242	#0 to #11	N/A	N/A	3	5	3	5	#0 to #11	3	5	3	5	8
WLAN	5.2 GHz	36 to 48	5180 to 5240	11a	20	-	6M to 54M	N/A	N/A	6.5	8.5	6.5	8.5						
WLAN	5.2 GHz	36 to 48	5180 to 5240	11n	20	-	#0 to #7	N/A	N/A	6.5	8.5	6.5	8.5	#8 to #15	6.5	8.5	6.5	8.5	11.5
WLAN	5.2 GHz	36 to 48	5180 to 5240	11ac	20	-	#0 to #8	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #8	6.5	8.5	6.5	8.5	11.5
WLAN	5.2 GHz	36 to 48	5180 to 5240	11ax	20	-	#0 to #11	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #11	6.5	8.5	6.5	8.5	11.5
WLAN	5.2 GHz	36 to 48	5180 to 5240	11ax	20	242	#0 to #11	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #11	6.5	8.5	6.5	8.5	11.5
WLAN	5.2 GHz	38 , 46	5190 , 5230	11n	40	-	#0 to #7	N/A	N/A	6.5	8.5	6.5	8.5	#8 to #15	6.5	8.5	6.5	8.5	11.5
WLAN	5.2 GHz	38 , 46	5190 , 5230	11ac	40	-	#0 to #9	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #9	6.5	8.5	6.5	8.5	11.5
WLAN	5.2 GHz	38 , 46	5190 , 5230	11ax	40	-	#0 to #11	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #11	6.5	8.5	6.5	8.5	11.5
WLAN	5.2 GHz	38 , 46	5190 , 5230	11ax	40	484	#0 to #11	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #11	6.5	8.5	6.5	8.5	11.5
WLAN	5.2 GHz	42	5210	11ac	80	-	#0 to #9	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #9	6.5	8.5	6.5	8.5	11.5
WLAN	5.2 GHz	42	5210	11ax	80	-	#0 to #11	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #11	6.5	8.5	6.5	8.5	11.5
WLAN	5.2 GHz	42	5210	11ax	80	996	#0 to #11	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #11	6.5	8.5	6.5	8.5	11.5
WLAN	5.3 GHz	52 to 64	5260 to 5320	11a	20	-	6M to 54M	N/A	N/A	6.5	8.5	6.5	8.5						
WLAN	5.3 GHz	52 to 64	5260 to 5320	11n	20	-	#0 to #7	N/A	N/A	6.5	8.5	6.5	8.5	#8 to #15	6.5	8.5	6.5	8.5	11.5
WLAN	5.3 GHz	52 to 64	5260 to 5320	11ac	20	-	#0 to #8	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #8	6.5	8.5	6.5	8.5	11.5
WLAN	5.3 GHz	52 to 64	5260 to 5320	11ax	20	-	#0 to #11	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #11	6.5	8.5	6.5	8.5	11.5
WLAN	5.3 GHz	52 to 64	5260 to 5320	11ax	20	242	#0 to #11	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #11	6.5	8.5	6.5	8.5	11.5
WLAN	5.3 GHz	54 , 62	5270 , 5310	11n	40	-	#0 to #7	N/A	N/A	6.5	8.5	6.5	8.5	#8 to #15	6.5	8.5	6.5	8.5	11.5
WLAN	5.3 GHz	54 , 62	5270 , 5230	11ac	40	-	#0 to #9	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #9	6.5	8.5	6.5	8.5	11.5
WLAN	5.3 GHz	54 , 62	5270 , 5310	11ax	40	-	#0 to #11	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #11	6.5	8.5	6.5	8.5	11.5
WLAN	5.3 GHz	54 , 62	5270 , 5310	11ax	40	484	#0 to #11	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #11	6.5	8.5	6.5	8.5	11.5
WLAN	5.3 GHz	58	5290	11ac	80	-	#0 to #9	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #9	6.5	8.5	6.5	8.5	11.5
WLAN	5.3 GHz	58	5290	11ax	80	-	#0 to #11	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #11	6.5	8.5	6.5	8.5	11.5
WLAN	5.3 GHz	58	5290	11ax	80	996	#0 to #11	N/A	N/A	6.5	8.5	6.5	8.5	#0 to #11	6.5	8.5	6.5	8.5	11.5

*. The higher maximum output power in each operation band is marked with yellow marker (x.xxx).
*. D/R: data rate, Index: MCS index number, Ant.: antenna, Max. Maximum tune-up limit power, n/a: Not applicable.
*. The EUT do not use the special transmitting technique such as “beam-forming” and “time-space code diversity.”
*. WLAN and Bluetooth are transmitted simultaneously. Therefore, simultaneously transmitted SAR is considered.
*. Since OFDMA has maximum power in the largest RU, only the power in the largest RU is listed in the table (except WLAN 2.4GHz).
*. The SAR test reference power measurement and the SAR test were applied to the lowest data rate mainly.
*. The 2.4 GHz band of WLAN power is reduced by firmware to a maximum power of 10 dBm in use cases.

SECTION 3: Maximum SAR value, test specification and procedures

3.1 Summary of Maximum SAR Value

Mode / Band	Highest Reported SAR [W/kg]								
	Partial-body (Separation 0 mm, Flat phantom)			Head (Separation 0 mm, SAM phantom)			Limbs (Separation 0 mm, Flat phantom)		
	SAR type: SAR (1g)			SAR type: SAR (1g)			SAR type: SAR (10g)		
	Standalone (*1)			Standalone			Standalone		
	Ant.1	Ant.0	Ant.2	Ant.1	Ant.0	Ant.2	Ant.1	Ant.0	Ant.2
WLAN 2.4 GHz	**N/A**	**0.74**	**1.05**	N/A	N/A	N/A	N/A	N/A	N/A
WLAN 5.2 GHz	**N/A**	**0.95**	**1.39**	N/A	N/A	N/A	N/A	N/A	N/A
WLAN 5.3 GHz	**N/A**	**0.91**	**1.47**	N/A	N/A	N/A	N/A	N/A	N/A
Bluetooth	**0.12**	**0.12**	**N/A**	N/A	N/A	N/A	N/A	N/A	N/A
Simultaneous SAR	**SPLSR of each antenna pair was < 0.04.** (Even if the sum of SAR1g of all antennas was over 1.6 W/kg. (See 7.2))			N/A			N/A		
Limit applied	Partial bod y/Head: 1.6 W/kg (SAR (1g)), Limbs: 4 W/kg (SAR (10g)), for general population/uncontrolled exposure is specified in FCC 47 CFR 2.1093.								
Test Procedure	Refer to Section 3.2 in this report. In addition; UL Japan's SAR measurement work procedures No. ULID-003599 (13-EM-W0430). UL Japan's SAR measurement equipment calibration and inspection work procedures No. ULID-003598 (13-EM-W0429).								

*1. (KDB 248227 D01v02r02, Clause 6.1: Antenna Spatial Configurations) The SAR1g distribution of antenna 0, antenna 1 and antenna 2 wasn't overlapped, because the distance between the antenna 0, antenna 1 and antenna 2 was away sufficiently. (refer to clause 7.2, Appendix 1-1 of antenna position) Therefore, SAR from an antenna (either antenna 0 or antenna 1 or antenna 2) was the result which indicates the higher SAR value.

Conclusion

The SAR 1g test values found for the device are separately of each antenna below the maximum limit of 1.6 W/kg and SPLSR is smaller than 0.04 for the simultaneous SAR 1g.

3.2 RF Exposure limit

SAR Exposure Limit (100 kHz ~ 6 GHz)		
	General Population / Uncontrolled Exposure (*1) [W/kg]	Occupational / Controlled Exposure (*2) [W/kg]
Spatial Peak SAR (*3) (Whole Body)	0.08	0.4
Spatial Peak SAR (*4) (Partial-Body, Head or Body)	1.6	8
Spatial Peak SAR (*5) (Hands / Feet / Ankle / Wrist)	4	20

*. For the purpose of this Regulation, FCC has adopted the SAR and RF exposure limits established in FCC 47 CFR 1.1310: Radiofrequency radiation exposure limits.
*1. General Population / Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.
*2. Occupational / Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation).
*3. The Spatial Average value of the SAR averaged over the whole body.
*4. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time
*5. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time

The limit applied to this device which tested in this report is;

Limit of Spatial Peak SAR (Partial-Body)	**1.6 W/kg**	**General population / uncontrolled exposure**

3.3 Test specification

Standard	Description	Version
47 CFR 2.1093	(Limit) Radiofrequency radiation exposure evaluation: portable devices	-
ANSI/IEEE C95.1	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 KHz to 300 GHz	1992
IEEE Std. 1528	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.	2013
KDB 248227 D01	SAR Guidance for IEEE 802.11 (Wi-Fi) transmitters	v02r02
KDB 447498 D04	Interim General RF Exposure Guidance	v01
KDB 447498 D03	OET Bulletin 65, Supplement C Cross-Reference	v01
KDB 865664 D01	SAR measurement 100 MHz to 6 GHz	v01r04
KDB 865664 D02	RF exposure compliance reporting and documentation considerations	v01r02

*. The measurement uncertainty budget is suggested by IEC/IEEE 62209-1528:2020 and determined by SPEAG, DASY8 Manual. Refer to Appendix3-3.

In addition to the above, the following information was used:

TCB workshop 2016-10	(RF Exposure Procedure) Bluetooth Duty Factor.
TCB workshop 2016-10	(RF Exposure Procedure) DUT Holder Perturbations; When the highest reported SAR of an antenna is > 1.2 W/kg, holder perturbation verification is required for each antenna, using the highest SAR configuration among all applicable frequency bands.
TCB workshop 2017-05	(RF Exposure Procedure) Broadband liquid above 3 GHz. Allow application of 10% tissue dielectric tolerance correction in KDB 865664 D01.
TCB workshop 2018-04	(RF Exposure Procedure) Allow Expedited Area Scans. (including mother scans)
TCB workshop 2019-04	(RF Exposure Procedure) 802.11ax SAR Testing
TCB workshop 2019-04	(RF Exposure Procedure) Tissue Simulating Liquids (TSL) FCC has permitted the use of single head tissue simulating liquid specified in IEC 62209 for all SAR tests. If FCC parameters are used, 5 % tolerance. If IEC parameters, 10 %.
TCB workshop 2019-04	(RF Exposure Policy) SAR Zoom-Scan Update.
TCB workshop 2021-04	(RF Exposure Procedure) Application of specific phantoms. (case by case, PAG)

3.4 Addition, deviation and exclusion to the test procedure

No addition, exclusion nor deviation has been made from the test procedure.

3.5 Test Location

UL Japan, Inc., Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 JAPAN
Telephone number: +81 463 50 6400 / Facsimile number: +81 463 50 6401

*. A2LA Certificate Number: 1266.03 (FCC Test Firm Registration Number: 626366, ISED Lab Company Number: 2973D / CAB identifier: JP0001)

Place	Width × Depth × Height (m)	Size of reference ground plane (m) / horizontal conducting plane
No.7 Shielded room	2.76 × 3.76 × 2.4	2.76 × 3.76

3.6 SAR measurement procedure

3.6.1 SAR Definition

SAR is defined as the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). The equation description is shown in right.	SAR = $\frac{d}{dt}(\frac{dW}{dm}) = \frac{d}{dt}(\frac{dW}{\rho * dV})$
SAR measurement can be related to the electrical field in the tissue by the equation in right. SAR is expressed in units of Watts per kilogram (W/kg). Where : σ = conductivity of the tissue (S/m), ρ = mass density of the tissue (kg/m^3), E = RMS electric field strength in tissue (V/m)	SAR = $\frac{\sigma \lvert E \rvert^2}{\rho}$

3.6.2 Full SAR measurement procedure

The SAR measurement procedures are as follows: (1) The EUT is installed engineering testing software that provides continuous transmitting signal; (2) Measure output power through RF cable and power meter; (3) Set scan area, grid size and other setting on the DASY software; (4) Find out the largest SAR result on these testing positions of each band; (5) Measure SAR results for other channels in worst SAR testing position if the SAR of highest power channel is larger than 0.8 W/kg.

*. According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:
Step 1) Power measurement -> SAR: Step 2) Power reference measurement -> Step 3) Area scan -> Step 4) Zoom scan -> Step 5) Power drift measurement

Step 1: Confirmation before SAR testing

Before SAR test, the RF wiring for the sample had been switched to the antenna conducted power measurement line from the antenna line and the average power was measured. This SAR reference power measurement was proceeded with the lowest data rate (which may have the higher time-based average power typically) on each operation mode and on the lower, middle (or near middle), upper and specified channels. The power measurement result is shown in Section 5.

*. The EUT transmission power used SAR test was verified that it was not more than 2 dB lower than the maximum tune-up tolerance limit. (KDB447498 D01 (v06))

Step 2: Power reference measurement

Measured psSAR value at a peak location of Fast Area Scan was used as a reference value for assessing the power drop.

Step 3: Area Scan

(Scan parameters: KDB 865664 D01, IEC/IEEE 62209-1528 (> 6GHz))

Area Scans are used to determine the peak location of the measured field before doing a finer measurement around the hotspot. Peak location can be found accurately even on coarse grids using the advanced interpolation routines implemented in DASY8. Area Scans measure a two dimensional volume covering the full device under test area. DASY8 uses Fast Averaged SAR algorithm to compute the 1 g and 10 g of simulated tissue from the Area Scan. DASY8 can either manually or automatically generates Area Scan grid settings based on device dimensions. In automatically case, the scan extent is defined by the device dimensions plus additional 15mm on each side. In manually, the scan covered the entire dimension of the antenna of EUT.

Step 4: Zoom Scan and post-processing

(Scan parameters: KDB 865664 D01, IEC/IEEE 62209-1528 (> 6GHz))

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure.

*. A minimum volume of 30 mm (x) × 30 mm (y) × 30 mm (z) was assessed by "Ratio step" method (*1), for 2.4 GHz band. (Step XY: 5 mm)
*. A minimum volume of 24 mm (x) × 24 mm (y) × 24 mm (z) was assessed by "Ratio step" method (*1), for 5 GHz band (Step XY: 4 mm).
*. A minimum volume of 24 mm (x) × 24 mm (y) × 24 mm (z) was assessed by "Ratio step" method (*1), for 6 GHz band (Step XY: 3.4 mm).

When the SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are proceeded for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR. If the zoom scan measured as defined above complies with both of the following criteria. or if the peak spatial-average SAR is below 0.1 W/kg, no additional measurements are needed.

*. The smallest horizontal distance from the local SAR peaks to all points 3 dB below the SAR peak shall be larger than the horizontal grid steps in both x and y directions and recorded.
*. The ratio of the SAR at the second measured point to the SAR at the closest measured point at the x-y location of the measured maximum SAR value shall be at least 30 % and recorded.

			$f \leq 3$ GHz	3 GHz < $f \leq 10$ GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 mm ± 1 mm	1/2 × δ × ln(2) mm ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			5 ° ± 1 °(flat phantom only) 30 ° ± 1 °(other phantom)	5 ° ± 1 °(flat phantom only) 30 ° ± 1 °(other phantom)
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz : ≤ 15 mm, 2~3 GHz : ≤ 12 mm	3~4 GHz : ≤ 12 mm, 4~6 GHz : ≤ 10 mm > 6 GHz : ≤ 60/f mm, or half of the corresponding zoom scan length, whichever is smaller.
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz : ≤ 8 mm, 2~3 GHz : ≤ 5 mm (*1)	3~4 GHz : ≤ 5 mm (*1), 4~6 GHz : ≤ 4 mm (*1) > 6 GHz : ≤ 24/f mm
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3~4 GHz : ≤ 4 mm, 4~5 GHz : ≤ 3 mm, 5~6 GHz : ≤ 2 mm > 6 GHz : ≤ 10/(f-1) mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3~4 GHz : ≤ 3 mm, 4~5 GHz : ≤ 2.5 mm, 5~6 GHz : ≤ 2 mm > 6 GHz : ≤ 12/f mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5 × Δz_{zoom} (n-1) mm	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3~4 GHz : ≥ 28 mm, 4~ 5 GHz : ≥ 25 mm, 5~6 GHz : ≥ 22 mm > 6 GHz : ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 (≤ 6 GHz) and IEC/IEEE 62209-1528 (≤ 10 GHz) for details.
*1. When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz. (KDB 865664 D01)
*. The scan parameters of > 6GHz is defined IEC/IEEE 62209-1528.

Step 5: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same project. The Power Drift Measurement gives the SAR difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. It was checked that the power drift was within ± 5% (0.21 dB) in single SAR project run. The verification of power drift during the SAR test shown in SAR plot data of APPENDIX 2.

*. The most of SAR tests were conservatively performed with test separation distance 0 mm. The phantom bottom thickness is approx. 2mm. Therefore, the distance between the SAR probe tip to the surface of test device which is touched the bottom surface of the phantom is approx. 2.4 mm. Typical distance from probe tip to probe's dipole centers is 1mm.
*1. "Ratio step" method parameters used; the first measurement point: "1.4 mm" from the phantom surface, the initial z grid separation: "1.5 mm", subsequent graded grid ratio: "1.5" for 2.4 GHz band and the initial z grid separation: "1.4 mm", subsequent graded grid ratio: "1.4" for above 5 GHz. These parameters comply with the requirement of KDB 865664 D01and recommended by Schmid & Partner Engineering AG (DASY8 manual).

SECTION 4: Operation of EUT during testing

4.1 Operating modes for testing

The EUT has Bluetooth and IEEE 802.11b, 11g, 11a, 11n, 11ac and 11ax (OFDM/OFDMA) continuous transmitting modes. The frequency and the modulation used in the SAR testing are shown as a following.

Operation mode		11b		11g		11n20			11ax20			11ax20 /OFDMA			BR	EDR		BT LE				BR	EDR		BT LE	
band		WLAN 2.4 GHz (DTS)													Bluetooth (BT(0))							Bluetooth (BT(1))				
Tx band [MHz]		2412~2472													2402~2480							2402~2480				
Antenna#		0	2	0	2	0	2	0+2	0	2	0+2	0	2	0+2	0							1				
Max.power [dBm]		14	14	14	14	14	14	7+7	14	14	7+7	14	14	7+7	6	6	6	6				6	6		6	
(*1) SAR test considered? ("*" initial test setup)	Back*	○*	○*	×	×	×	×	○	○	○	×	○	○	×	×	×	×	○	×	×	×	×	×	×	○	×
	Front	○	○	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	Left	○	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	Top	○	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	Right	×	○	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	Bottom	×	○	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Frequency tested		(*2)	(*2)	n/a	n/a	n/a	n/a	(*2)	(*2)	(*2)	n/a	(*2)	(*2)	n/a	n/a	n/a	n/a	(*2)	n/a	n/a	n/a	n/a	n/a	n/a	(*2)	
D/R [bps], MCS Index#		1M	1M	6M	6M	#0	#0	#8	#0	#0	#0	#0	#0	#0	1M	2M	3M	125k	500k	1M	2M	1M	2M	3M	1M	2M

Operation mode		11a		11n20			11ac20			11ax20			11ax20 /OFDMA			11n40			11ac40			11ax40			11ax40 /OFDMA			11ac80			11ax80			11ax80 /OFDMA		
band		WLAN 5.2 GHz (U-NII-1) (*3)																																		
Tx band [MHz]		5180~5240														5190,5230												5210								
Antenna#		0	2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2
Max.power [dBm]		8.5	8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5
(*1) SAR test considered? ("*" initial test setup)	Back*	○	○	×	×	○	×	×	○	×	×	○	×	×	○	○	○	○	×	×	○	○	○	○	○	○	○	○	○	○*	○	○	○	○	○	○
	Front	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	×	×	×	×	×	×
	Left	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	×	×	×	×	×	×
	Top	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	×	×	×	×	×	×
	Right	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	×	×	×	×	×	×
	Bottom	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	×	×	×	×	×	×
Frequency tested		(*2)	(*2)	n/a	n/a	(*2)	n/a	n/a	(*2)	n/a	n/a	(*2)	n/a	n/a	(*2)	(*2)	(*2)	(*2)	n/a	n/a	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)
D/R [bps], MCS Index#		6M	6M	#0	#0	#8	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#8	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0

Operation mode		11a		11n20			11ac20			11ax20			11ax20 /OFDMA			11n40			11ac40			11ax40			11ax40 /OFDMA			11ac80			11ax80			11ax80 /OFDMA		
band		WLAN 5.3 GHz (U-NII-2A) (*3)																																		
Tx band [MHz]		5260~5320														5270,5310												5290								
Antenna#		0	2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2	0	2	0+2
Max.power [dBm]		8.5	8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5	8.5	8.5	8.5 +8.5
(*1) SAR test considered? ("*" initial test setup)	Back*	○	○	×	○	○	×	○	○	○	○	○	○	○	○	○	○	○	×	○	○	○	○	○	○	○	○	○	○	○*	○	○	○	○	○	○
	Front	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	×	×	×	×	×	×
	Left	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	×	×	×	×	×	×
	Top	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	×	×	×	×	×	×
	Right	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	×	×	×	×	×	×
	Bottom	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	×	×	×	×	×	×
Frequency tested		(*2)	(*2)	n/a	(*2)	(*2)	n/a	n/a	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	n/a	n/a	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)	(*2)
D/R [bps], MCS Index#		6M	6M	#0	#0	#8	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#8	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0	#0

*. Max.power: Maximum power (tune-up limit power), n/a: SAR test was not applied.
*. For OFDM/OFDMA mode, Initial setup procedure was applied.
*1. "○": SAR test was applied. "×": SAR test can be reduced (refer to clause 4.2).
*2. The tested frequencies refer to SAR test results in Section 7.
*3. (KDB 248227 D01) Initial SAR test was applied to the operation mode which has higher bandwidth with the highest tune-up power and lowest data rate (lowest modulation).

Controlled software	Test name	Software name	Version	Date	Storage location / Remarks
	Power measurement, SAR	WlanBtRelayTool	1.0.0	2023-12-12	Host PC, EUT memory.

Below is the test reduction procedure for KDB.

***. OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements**

(KDB 248227 D01, SAR Guidance for Wi-Fi Transmitters) The initial test configuration for 2.4 GHz and 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures.
When multiple channel bandwidth configurations in a frequency band have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected.

***. SAR test reduction considerations**

(KDB 447498 D04(v01), General RF Exposure Guidance) Testing of other required channels within the operating mode of a frequency band is not required when the reported 1g or 10g SAR for the mid-band or highest output power channel is:
(1) ≤ 0.8 W/kg for 1g , or 2.0 W/kg for 10g respectively, when the transmission band is ≤ 100 MHz
(2) ≤ 0.6 W/kg for 1g, or 1.5 W/kg for 10g respectively, when the transmission band is between 100 MHz and 200 MHz
(3) ≤ 0.4 W/kg for 1g, or 1.0 W/kg for 10g respectively, when the transmission band is ≥ 200 MHz
The SAR has been measured with highest transmission duty factor supported by the test mode tool for WLAN and/or Bluetooth. When the transmission duty factor could not be 100%, the reported SAR will be scaled to 100% transmission duty factor to determine compliance. When SAR is not measured at the maximum power level allowed for production unit, the measured SAR will be scaled to the maximum tune-up tolerance limit to determine compliance.

(KDB 248227 D01, SAR Guidance for Wi-Fi Transmitters) When the reported SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for subsequent next highest measured output power channel(s) in the initial test configuration until reported SAR is ≤ 1.2 W/kg or all required channels are tested.

For 2.4GHz band, the highest measured maximum output power channel of DSSS was selected for SAR measurement, When the reported SAR is ≤ 0.8 W/kg, no further SAR test is required in this exposure configuration. Otherwise, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel. For OFDM modes (802.11g/n), SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

For 5GHz band, the initial test configuration was selected accordance to the transmission mode with the highest maximum output power. When the reported SAR is > 0.8 W/kg, SAR is required for the subsequent highest measured output power channel until the reported SAR result is ≤ 1.2 W/kg or all required channels are measured. For other transmission modes, SAR is not required when the highest reported SAR for initial test configuration is adjusted by the ratio of subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

4.2 RF exposure conditions (Test exemption)

Antenna separation distances in each test setup plan are shown as follows.

		Antenna ID:	0		1	2
		Operation mode:	BT(0)	WLAN	BT(1)	WLAN
Setup	Explanation of EUT setup (*. Refer to Appendix 1 for test setup photographs.)		D [mm]	D [mm]	D [mm]	D [mm]
Back	The back surface of EUT was touched to the Flat phantom.		**1.44**	**1.44**	**1.39**	**1.44**
Front	The front surface (LCD) of EUT was touched to the Flat phantom.		**9.14**	**9.14**	**9.3**	**8**
Top	The top surface of EUT was touched to the Flat phantom.		**10.55**	**10.55**	**7.51**	**77.35**
Left	The left surface of EUT was touched to the Flat phantom.		**9.93**	**9.93**	**133.55**	**163.55**
Bottom	The bottom surface existed) of EUT was touched to the Flat phantom.		**81.45**	**81.45**	**99.58**	**15.65**
Right	The right surface of EUT was touched to the Flat phantom.		**184.63**	**184.63**	**46.55**	**21.79**

*. **D:** Antenna separation distance. It is the distance from the antenna inside EUT to the outer surface of EUT which user may touch.
*. Details of "antenna separation distance" and "Size of EUT" are shown in Appendix 1-1.

SAR test exemption consideration by KDB 447498 D04 (v01)

							Antenna 1 Separation distance [mm]					
							1.39	7.51	9.3	46.55	99.58	133.55
		Antenna 1					Back	Top	Front	Right	Bottom	Left
Tx mode	Higher Freq. [MHz]	Max. ATP		Gain	ERP		SAR1g test exempt threshold power [mW] (upper row)					
		[dBm]	[mW]	[dBi]	[dBm]	[mW]	Judge of SAR test exemption (lower row)					
BT(1) -	2480	6	4	-1.74	2.11	1.63	2.72	5.9	8.86	190.45	810.66	1417.9
							Test	Exempt	Exempt	Exempt	Exempt	Exempt

												Antenna 0 Separation distance [mm]						Antenna 2 Separation distance [mm]					
												1.44	9.14	9.93	10.55	81.45	184.63	1.44	8	15.65	21.79	77.35	163.55
		Antenna 0					Antenna 2					Back	Front	Left	Top	Bottom	Right	Back	Front	Bottom	Right	Top	Left
Tx mode	Higher Freq. [MHz]	Max. ATP		Gain	ERP		Max. ATP		Gain	ERP		SAR1g test exempt threshold power [mW] (upper row)						SAR1g test exempt threshold power [mW] (upper row)					
		[dBm]	[mW]	[dBi]	[dBm]	[mW]	[dBm]	[mW]	[dBi]	[dBm]	[mW]	Judge of SAR test exemption (lower row)						Judge of SAR test exemption (lower row)					
BT(0) -	2480	6	3.98	-2.51	1.34	1.36	N/A	N/A	N/A	N/A	N/A	2.72	8.57	10.04	11.27	552.82	2627.68						
												Test	Exempt	Exempt	Exempt	Exempt	Exempt						
WLAN 2.4 GHz SISO	2480	14	25.12	-2.51	9.34	8.59	14	25.12	0.21	12.06	16.07	2.72	8.57	10.04	11.27	552.82	2627.68	2.72	6.65	23.88	44.86	501.03	2085.84
												Test	Test	Test	Test	Exempt	Exempt	Test	Test	Test	Exempt	Exempt	Exempt
WLAN 2.4 GHz MIMO	2462	7	5.01	-2.51	2.34	1.71	7	5.01	0.21	5.06	3.21	2.73	8.61	10.09	11.32	553.61	2628.01	2.73	6.69	23.98	45.02	501.78	2086.51
												Test	Exempt	Exempt	Exempt	Exempt	Exempt	Test	Exempt	Exempt	Exempt	Exempt	Exempt
WLAN 5.2 GHz SISO&MIMO	5240	8.5	7.08	0.7	7.05	5.07	8.5	7.08	4.07	10.42	11.02	1.49	5.19	6.16	6.99	477.76	2593.77	1.49	3.94	15.79	31.29	429.38	2018.77
												Test	Test	Test	Test	Exempt	Exempt	Test	Test	Exempt	Exempt	Exempt	Exempt
WLAN 5.3 GHz SISO&MIMO	5320	8.5	7.08	0.7	7.05	5.07	8.5	7.08	4.07	10.42	11.02	1.47	5.14	6.1	6.92	476.35	2593.09	1.47	3.9	15.65	31.07	428.04	2017.44
												Test	Test	Test	Test	Exempt	Exempt	Test	Test	Exempt	Exempt	Exempt	Exempt

*. Freq.: Frequency, ATP: Antenna terminal conducted power.
*. Antenna separation distance. It is the distance from the antenna inside EUT to the outer surface of EUT which user may touch. Details of "antenna separation distance" and "Size of EUT" are shown in Appendix 1-1.
*. The table shows the upper frequency which has the maximum power (as "Tune-up limit") in each operation band, in mode and on the single antenna transmission.
*. Since this method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive), when the minimum test separation distance is < 5 mm, a distance of 5 mm was applied to determine SAR test exclusion for the calculation.

Calculating formula:

1) ERP
ERP (dBm) = (Max. ATP, dBm) + (antenna gain, dBi) – 2.15

2) SAR test exempt threshold power
$P_{th}(mW)$ =

$$ERP_{20cm}(mW) = \begin{cases} 2040f & 0.3\ GHz \le f < 1.5\ GHz \\ \text{[illegible]} & \\ 3060 & 1.5\ GHz \le f \le 6.0\ GHz \end{cases} \quad (B.1)$$

$$P_{th}(mW) = \begin{cases} ERP_{20cm}(d/20)^x & d \le 20cm \\ \text{[illegible]} & \\ ERP_{20cm} & 20cm < d \le 40cm \end{cases} \quad (B.2)$$

$$where \quad x = -log_{10}\left(\frac{60}{ERP_{20cm}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and ERP20cm is per Formula (B.1).

TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

RF Source Frequency			Minimum Distance			Threshold ERP
f_L MHz		f_H MHz	$\lambda_L/2\pi$		$\lambda_H/2\pi$	W
0.3	-	1.34	159 m	-	35.6 m	$1920\ R^2$
1.34	-	30	35.6 m	-	1.6 m	$1920\ R^2/f^2$
30	-	300	1.6 m	-	159 m	$3.83\ R^2$
300	-	1500	159 mm	-	31.8 mm	$0.0128\ R^2 f$
1500	-	100000	31.8 mm	-	0.5 mm	$19.2\ R^2$

Subscripts L and H are low and high; λ is wavelength.
From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns. R is in meter, f is in MHz.
Upper 2.4GHz; Threshold ERP [W] = 19.2 × R^2, at distance: over 40 cm

SAR-based thresholds (Pth (mW) shown below table of "Example Power Thresholds [mW]" are derived based on frequency, power, and separation distance of the RF source. The formula defines the thresholds in general for either available maximum time-averaged power or maximum time-averaged effective radiated power (ERP), whichever is greater. The SAR-based exemption is calculated by Formula (B.2) in below, applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold Pth (mW).
When 10-g extremity SAR applies, SAR test exemption may be considered by applying a factor of 2.5 to the SAR-based exemption thresholds.
*. This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive).

<Conclusion for consideration for SAR test reduction>

1) **All SAR tests were conservatively performed with test separation distance 0 mm.**
2) **For WLAN 2.4 GHz operation, "Back", "Front", "Left" and "Top" setups of antenna 0 and "Back", "Front" and "Bottom" setups of antenna 2 should be SAR tested, because of judge of SAR test exemption is "Test".**
   For WLAN 5 GHz operation, "Back", "Front", "Left" and "Top" setups of antenna 0 and "Back" and "Front" setups of antenna 2 should be SAR tested, because of judge of SAR test exemption is "Test".
3) **For Bluetooth operation, for antenna 0 and antenna 1, "Back" setup which is worst SAR setup of WLAN mode, is applied SAR test.**

*. **The actual test setup tested depends on the measurement results. See Section 7 for the actual tested test setup.**

SECTION 5: Confirmation before testing

5.1 Test reference power measurement

CH	Freq.	Tx mode			OFDMA		ANT. No.	Power			Duty cycle	Duty factor	Duty scaled factor	Power				ANT. No.	Power			Power				SUM Power			
		Mode	D/R	Number of Tx ant.	RU	Index		Typ.	Max.	Set				Burst Ave.	Δmax	Scaled Factor	Time. Ave		Typ.	Max.	Set	Burst Ave.	Δmax	Scaled Factor	Time. Ave	Max.	Burst Ave.	Δmax	Time. Ave
	[MHz]		[Mbps]					[dBm]	[dBm]		[%]	[dB]	[-]	[dBm]	[dB]		[dBm]		[dBm]	[dBm]		[dBm]	[dB]		[dBm]	[dB]	[dBm]	dB	[dBm]
0	2402	BR	1	-	-	-	1	-	6	5	77.2	1.12	1.30	4.98	1.02	1.26	3.86												
39	2441	BR	1	-	-	-	1	-	6	5	77.2	1.12	1.30	4.97	1.03	1.27	3.85												
78	2480	BR	1	-	-	-	1	-	6	5	77.2	1.12	1.30	4.90	1.10	1.29	3.78												
0	2402	EDR(2M)	2	-	-	-	1	-	6	5	77.2	1.12	1.30	5.12	0.88	1.22	4.00												
39	2441	EDR(2M)	2	-	-	-	1	-	6	5	77.2	1.12	1.30	5.08	0.92	1.24	3.96												
78	2480	EDR(2M)	2	-	-	-	1	-	6	5	77.2	1.12	1.30	5.22	0.78	1.20	4.10												
0	2402	EDR(3M)	3	-	-	-	1	-	6	5	77.3	1.12	1.29	5.11	0.89	1.23	3.99												
39	2441	EDR(3M)	3	-	-	-	1	-	6	5	77.3	1.12	1.29	5.07	0.93	1.24	3.95												
78	2480	EDR(3M)	3	-	-	-	1	-	6	5	77.3	1.12	1.29	5.09	0.91	1.23	3.97												
0	2402	BT LE(1M)	1	-	-	-	1	-	6	5	85.6	0.68	1.17	4.83	1.17	1.31	4.15												
19	2440	BT LE(1M)	1	-	-	-	1	-	6	5	85.6	0.68	1.17	4.69	1.31	1.35	4.01												
39	2480	BT LE(1M)	1	-	-	-	1	-	6	5	85.6	0.68	1.17	4.66	1.34	1.36	3.98												
0	2402	BT LE(2M)	2	-	-	-	1	-	6	5	58.2	2.35	1.72	4.73	1.27	1.34	2.38												
19	2440	BT LE(2M)	2	-	-	-	1	-	6	5	58.2	2.35	1.72	4.72	1.28	1.34	2.37												
39	2480	BT LE(2M)	2	-	-	-	1	-	6	5	58.2	2.35	1.72	4.67	1.33	1.36	2.32												
0	2402	BR	1	-	-	-	0	-	6	5	77.1	1.13	1.30	5.46	0.54	1.13	4.33												
39	2441	BR	1	-	-	-	0	-	6	5	77.1	1.13	1.30	5.41	0.59	1.15	4.28												
78	2480	BR	1	-	-	-	0	-	6	5	77.1	1.13	1.30	5.22	0.78	1.20	4.09												
0	2402	EDR(2M)	2	-	-	-	0	-	6	5	77.3	1.12	1.29	5.62	0.38	1.09	4.50												
39	2441	EDR(2M)	2	-	-	-	0	-	6	5	77.3	1.12	1.29	5.60	0.40	1.10	4.48												
78	2480	EDR(2M)	2	-	-	-	0	-	6	5	77.3	1.12	1.29	5.25	0.75	1.19	4.13												
0	2402	EDR(3M)	3	-	-	-	0	-	6	5	77.3	1.12	1.29	5.57	0.43	1.10	4.45												
39	2441	EDR(3M)	3	-	-	-	0	-	6	5	77.3	1.12	1.29	5.55	0.45	1.11	4.43												
78	2480	EDR(3M)	3	-	-	-	0	-	6	5	77.3	1.12	1.29	5.27	0.73	1.18	4.15												
0	2402	BT LE(125k)	125k	-	-	-	0	-	6	5	97.5	0.11	1.03	5.63	0.37	1.09	5.52												
19	2440	BT LE(125k)	125k	-	-	-	0	-	6	5	97.5	0.11	1.03	5.42	0.58	1.14	5.31												
39	2480	BT LE(125k)	125k	-	-	-	0	-	6	5	97.5	0.11	1.03	5.32	0.68	1.17	5.21												
0	2402	BT LE(500k)	500k	-	-	-	0	-	6	5	91.3	0.40	1.10	5.63	0.37	1.09	5.23												
19	2440	BT LE(500k)	500k	-	-	-	0	-	6	5	91.3	0.40	1.10	5.43	0.57	1.14	5.03												
39	2480	BT LE(500k)	500k	-	-	-	0	-	6	5	91.3	0.40	1.10	5.33	0.67	1.17	4.93												
0	2402	BT LE(1M)	1	-	-	-	0	-	6	5	85.6	0.68	1.17	5.43	0.57	1.14	4.75												
19	2440	BT LE(1M)	1	-	-	-	0	-	6	5	85.6	0.68	1.17	5.43	0.57	1.14	4.75												
39	2480	BT LE(1M)	1	-	-	-	0	-	6	5	85.6	0.68	1.17	5.14	0.86	1.22	4.46												
0	2402	BT LE(2M)	2	-	-	-	0	-	6	5	58.0	2.37	1.72	5.45	0.55	1.14	3.08												
19	2440	BT LE(2M)	2	-	-	-	0	-	6	5	58.0	2.37	1.72	5.45	0.55	1.14	3.08												
39	2480	BT LE(2M)	2	-	-	-	0	-	6	5	58.0	2.37	1.72	5.15	0.85	1.22	2.78												
1	2412	11b	1	1Tx	-	-	0	8	10	8.5	99.6	0.02	1.00	8.78	1.22	1.32	8.76	2	8	10	8.5	8.16	1.84	1.53	8.14				
6	2437	11b	1	1Tx	-	-	0	8	10	8.5	99.6	0.02	1.00	8.89	1.11	1.29	8.87	2	8	10	8.5	8.09	1.91	1.55	8.07				
7	2442	11b	1	1Tx	-	-	0	8	10	8.5	99.6	0.02	1.00	8.81	1.19	1.32	8.79	2	8	10	8.5	8.38	1.62	1.45	8.36				
11	2462	11b	1	1Tx	-	-	0	8	10	8.5	99.6	0.02	1.00	9.19	0.81	1.21	9.17	2	8	10	8.5	8.36	1.64	1.46	8.34				
1	2412	11b	1	1Tx	-	-	0	12	14	12.5	99.6	0.02	1.00	13.04	0.96	1.25	13.02	2	12	14	12.5	12.23	1.77	1.50	12.21				
6	2437	11b	1	1Tx	-	-	0	12	14	12.5	99.6	0.02	1.00	13.30	0.70	1.17	13.28	2	12	14	12.5	12.43	1.57	1.44	12.41				
7	2442	11b	1	1Tx	-	-	0	12	14	12.5	99.6	0.02	1.00	13.24	0.76	1.19	13.22	2	12	14	12.5	12.49	1.51	1.42	12.47				
11	2462	11b	1	1Tx	-	-	0	12	14	12.5	99.6	0.02	1.00	13.29	0.71	1.18	13.27	2	12	14	12.5	12.43	1.57	1.44	12.41				
12	2467	11b	1	1Tx	-	-	0	3	5	4	99.6	0.02	1.00	4.66	0.34	1.08	4.64	2	3	5	4	3.70	1.30	1.35	3.68				
13	2472	11b	1	1Tx	-	-	0	3	5	4	99.6	0.02	1.00	3.95	1.05	1.27	3.93	2	3	5	4	3.40	1.60	1.45	3.38				
1	2412	11g	6	1Tx	-	-	0	8	10	8.5	97.3	0.12	1.03	9.10	0.90	1.23	8.98	2	8	10	8.5	8.42	1.58	1.44	8.30				
6	2437	11g	6	1Tx	-	-	0	8	10	8.5	97.3	0.12	1.03	9.11	0.89	1.23	8.99	2	8	10	8.5	8.52	1.48	1.41	8.40				
7	2442	11g	6	1Tx	-	-	0	8	10	8.5	97.3	0.12	1.03	9.17	0.83	1.21	9.05	2	8	10	8.5	8.51	1.49	1.41	8.39				
11	2462	11g	6	1Tx	-	-	0	8	10	8.5	97.3	0.12	1.03	9.21	0.79	1.20	9.09	2	8	10	8.5	8.38	1.62	1.45	8.26				
1	2412	11g	6	1Tx	-	-	0	12	14	12.5	97.3	0.12	1.03	13.03	0.97	1.25	12.91	2	12	14	12.5	12.45	1.55	1.43	12.33				
6	2437	11g	6	1Tx	-	-	0	12	14	12.5	97.3	0.12	1.03	13.07	0.93	1.24	12.95	2	12	14	12.5	12.51	1.49	1.41	12.39				
7	2442	11g	6	1Tx	-	-	0	12	14	12.5	97.3	0.12	1.03	13.12	0.88	1.22	13.00	2	12	14	12.5	12.51	1.49	1.41	12.39				
11	2462	11g	6	1Tx	-	-	0	12	14	12.5	97.3	0.12	1.03	13.18	0.82	1.21	13.06	2	12	14	12.5	12.60	1.40	1.38	12.48				
12	2467	11g	6	1Tx	-	-	0	3	5	3.5	97.3	0.12	1.03	4.43	0.57	1.14	4.31	2	3	5	3.5	3.59	1.41	1.38	3.47				
13	2472	11g	6	1Tx	-	-	0	3	5	3.5	97.3	0.12	1.03	4.40	0.60	1.15	4.28	2	3	5	3.5	3.67	1.33	1.36	3.55				
1	2412	11n20	MCS0	1Tx	-	-	0	8	10	8.5	97.7	0.10	1.02	8.84	1.16	1.31	8.74	2	8	10	8.5	8.20	1.80	1.51	8.10				
6	2437	11n20	MCS0	1Tx	-	-	0	8	10	8.5	97.7	0.10	1.02	8.94	1.06	1.28	8.84	2	8	10	8.5	8.30	1.70	1.48	8.20				
7	2442	11n20	MCS0	1Tx	-	-	0	8	10	8.5	97.7	0.10	1.02	9.01	0.99	1.26	8.91	2	8	10	8.5	8.30	1.70	1.48	8.20				
11	2462	11n20	MCS0	1Tx	-	-	0	8	10	8.5	97.7	0.10	1.02	9.02	0.98	1.25	8.92	2	8	10	8.5	8.22	1.78	1.51	8.12				
1	2412	11n20	MCS0	1Tx	-	-	0	12	14	12.5	97.7	0.10	1.02	12.85	1.15	1.30	12.75	2	12	14	12.5	12.22	1.78	1.51	12.12				
6	2437	11n20	MCS0	1Tx	-	-	0	12	14	12.5	97.7	0.10	1.02	12.90	1.10	1.29	12.80	2	12	14	12.5	12.54	1.46	1.40	12.44				
7	2442	11n20	MCS0	1Tx	-	-	0	12	14	12.5	97.7	0.10	1.02	12.91	1.09	1.29	12.81	2	12	14	12.5	12.32	1.68	1.47	12.22				
11	2462	11n20	MCS0	1Tx	-	-	0	12	14	12.5	97.7	0.10	1.02	12.93	1.07	1.28	12.83	2	12	14	12.5	12.19	1.81	1.52	12.09				
12	2467	11n20	MCS0	1Tx	-	-	0	3	5	3.5	97.7	0.10	1.02	4.26	0.74	1.19	4.16	2	3	5	3.5	3.52	1.48	1.41	3.42				
13	2472	11n20	MCS0	1Tx	-	-	0	3	5	3.5	97.7	0.10	1.02	4.22	0.78	1.20	4.12	2	3	5	3.5	3.52	1.48	1.41	3.42				
1	2412	11ax20	MCS0	1Tx	-	-	0	8	10	8.5	97.1	0.13	1.03	9.14	0.86	1.22	9.01	2	8	10	8.5	8.41	1.59	1.44	8.28				
6	2437	11ax20	MCS0	1Tx	-	-	0	8	10	8.5	97.1	0.13	1.03	9.16	0.84	1.21	9.03	2	8	10	8.5	8.51	1.49	1.41	8.38				
7	2442	11ax20	MCS0	1Tx	-	-	0	8	10	8.5	97.1	0.13	1.03	9.18	0.82	1.21	9.05	2	8	10	8.5	8.50	1.50	1.41	8.37				
11	2462	11ax20	MCS0	1Tx	-	-	0	8	10	8.5	97.1	0.13	1.03	9.25	0.75	1.19	9.12	2	8	10	8.5	8.41	1.59	1.44	8.28				
1	2412	11ax20	MCS0	1Tx	-	-	0	12	14	12.5	97.1	0.13	1.03	13.02	0.98	1.25	12.89	2	12	14	12.5	12.42	1.58	1.44	12.29				
6	2437	11ax20	MCS0	1Tx	-	-	0	12	14	12.5	97.1	0.13	1.03	13.10	0.90	1.23	12.97	2	12	14	12.5	12.44	1.56	1.43	12.31				
7	2442	11ax20	MCS0	1Tx	-	-	0	12	14	12.5	97.1	0.13	1.03	13.12	0.88	1.22	12.99	2	12	14	12.5	12.48	1.52	1.42	12.35				
11	2462	11ax20	MCS0	1Tx	-	-	0	12	14	12.5	97.1	0.13	1.03	13.15	0.85	1.22	13.02	2	12	14	12.5	12.38	1.62	1.45	12.25				
12	2467	11ax20	MCS0	1Tx	-	-	0	3	5	3.5	97.1	0.13	1.03	4.41	0.59	1.15	4.28	2	3	5	3.5	3.64	1.36	1.37	3.51				
13	2472	11ax20	MCS0	1Tx	-	-	0	3	5	3.5	97.1	0.13	1.03	4.46	0.54	1.13	4.33	2	3	5	3.5	3.72	1.28	1.34	3.59				
1	2412	11ax20	MCS0	1Tx	106	57	0	8	10	8.5	97.7	0.10	1.02	9.60	0.40	1.10	9.50	2	8	10	8.5	8.96	1.04	1.27	8.86				
6	2437	11ax20	MCS0	1Tx	106	57	0	8	10	8.5	97.7	0.10	1.02	9.78	0.22	1.05	9.68	2	8	10	8.5	9.14	0.86	1.22	9.04				
7	2442	11ax20	MCS0	1Tx	106	57	0	8	10	8.5	97.7	0.10	1.02	9.78	0.22	1.05	9.68	2	8	10	8.5	9.19	0.81	1.21	9.09				
11	2462	11ax20	MCS0	1Tx	106	57	0	8	10	8.5	97.7	0.10	1.02	9.89	0.11	1.03	9.79	2	8	10	8.5	9.14	0.86	1.22	9.04				
1	2412	11ax20	MCS0	1Tx	106	57	0	12	14	12.5	97.7	0.10	1.02	13.56	0.44	1.11	13.46	2	12	14	12.5	12.91	1.09	1.29	12.81				
6	2437	11ax20	MCS0	1Tx	106	57	0	12	14	12.5	97.7	0.10	1.02	13.80	0.20	1.05	13.70	2	12	14	12.5	13.11	0.89	1.23	13.01				
7	2442	11ax20	MCS0	1Tx	106	57	0	12	14	12.5	97.7	0.10	1.02	13.76	0.24	1.06	13.66	2	12	14	12.5	13.18	0.82	1.21	13.08				
11	2462	11ax20	MCS0	1Tx	106	57	0	12	14	12.5	97.7	0.10	1.02	13.88	0.12	1.03	13.78	2	12	14	12.5	13.32	0.68	1.17	13.22				
12	2467	11ax20	MCS0	1Tx	106	57	0	3	5	3.5	97.7	0.10	1.02	4.95	0.05	1.01	4.85	2	3	5	3.5	4.29	0.71	1.18	4.19				
13	2472	11ax20	MCS0	1Tx	106	57	0	3	5	3.5	97.7	0.10	1.02	4.96	0.04	1.01	4.86	2	3	5	3.5	4.33	0.67	1.17	4.23				
1	2412	11ax20	MCS0	1Tx	242	61	0	8	10	8.5	94.8	0.23	1.05	9.12	0.88	1.22	8.89	2	8	10	8.5	8.49	1.51	1.42	8.26				
6	2437	11ax20	MCS0	1Tx	242	61	0	8	10	8.5	94.8	0.23	1.05	9.22	0.78	1.20	8.99	2	8	10	8.5	8.51	1.49	1.41	8.28				
7	2442	11ax20	MCS0	1Tx	242	61	0	8	10	8.5	94.8	0.23	1.05	9.20	0.80	1.20	8.97	2	8	10	8.5	8.54	1.46	1.40	8.31				
11	2462	11ax20	MCS0	1Tx	242	61	0	8	10	8.5	94.8	0.23	1.05	9.25	0.75	1.19	9.02	2	8	10	8.5	8.41	1.59	1.44	8.18				
1	2412	11ax20	MCS0	1Tx	242	61	0	12	14	12.5	94.8	0.23	1.05	13.11	0.89	1.23	12.88	2	12	14	12.5	12.46	1.54	1.43	12.23				
6	2437	11ax20	MCS0	1Tx	242	61	0	12	14	12.5	94.8	0.23	1.05	13.12	0.88	1.22	12.89	2	12	14	12.5	12.74	1.26	1.34	12.51				
7	2442	11ax20	MCS0	1Tx	242	61	0	12	14	12.5	94.8	0.23	1.05	13.16	0.84	1.21	12.93	2	12	14	12.5	12.53	1.47	1.40	12.30				
11	2462	11ax20	MCS0	1Tx	242	61	0	12	14	12.5	94.8	0.23	1.05	13.22	0.78	1.20	12.99	2	12	14	12.5	12.16	1.84	1.53	11.93				
12	2467	11ax20	MCS0	1Tx	242	61	0	3	5	3.5	94.8	0.23	1.05	4.38	0.62	1.15	4.15	2	3	5	3.5	3.59	1.41	1.38	3.36				
13	2472	11ax20	MCS0	1Tx	242	61	0	3	5	3.5	94.8	0.23	1.05	4.39	0.61	1.15	4.16	2	3	5	3.5	3.64	1.36	1.37	3.41				
1	2412	11n20	MCS8	2Tx	-	-	0	5	7	5.5	95.6	0.20	1.05	6.14	0.86	1.22	5.94	2				5.61	1.39	1.38	5.41	10	8.89	1.11	8.70
6	2437	11n20	MCS8	2Tx	-	-	0	5	7	5.5	95.6	0.20	1.05	6.16	0.84	1.21	5.96	2				5.63	1.37	1.37	5.43	10	8.92	1.08	8.71
7	2442	11n20	MCS8	2Tx	-	-	0	5	7	5.5	95.6	0.20	1.05	6.22	0.78	1.20	6.02	2				5.64	1.36	1.37	5.44	10	8.95	1.05	8.75
11	2462	11n20	MCS8	2Tx	-	-	0	5	7	5.5	95.6	0.20	1.05	6.28	0.72	1.18	6.08	2				5.45	1.55	1.43	5.25	10	8.90	1.10	8.70
12	2467	11n20	MCS8	2Tx	-	-	0	3	5	3.5	95.6	0.20	1.05	4.33	0.67	1.17	4.13	2				3.50	1.50	1.41	3.30	8	6.95	1.05	6.75
13	2472	11n20	MCS8	2Tx	-	-	0	3	5	3.5	95.6	0.20	1.05	4.40	0.60	1.15	4.20	2				3.60	1.40	1.38	3.40	8	7.02	0.98	6.83

*. The 2.4 GHz band of WLAN power is reduced by firmware to a maximum power of 10 dBm in use cases.

CH	Freq.	Tx mode			OFDMA		ANT. No.	Power			Duty cycle	Duty factor	Duty scaled factor	Power				ANT. No.	Power			Power				SUM Power			
		Mode	D/R	Number of Tx ant.	RU	Index		Typ.	Max.	Set				Burst Ave.	Δmax	Scaled Factor	Time. Ave		Typ.	Max.	Set	Burst Ave.	Δmax	Scaled Factor	Time. Ave	Max.	Burst Ave.	Δmax	Time. Ave
	[MHz]		[Mbps]					[dBm]	[dBm]		[%]	[dB]	[-]	[dBm]	[dB]		[dBm]		[dBm]	[dBm]		[dBm]	[dB]		[dBm]	[dB]	[dBm]	dB	[dBm]
1	2412	11ax20	MCS0	2Tx	-	-	0	5	7	5.5	94.9	0.23	1.05	6.41	0.59	1.15	6.18	2				5.71	1.29	1.35	5.48	10	9.08	0.92	8.85
6	2437	11ax20	MCS0	2Tx	-	-	0	5	7	5.5	94.9	0.23	1.05	6.46	0.54	1.13	6.23	2				5.83	1.17	1.31	5.60	10	9.17	0.83	8.94
7	2442	11ax20	MCS0	2Tx	-	-	0	5	7	5.5	94.9	0.23	1.05	6.47	0.53	1.13	6.24	2				5.84	1.16	1.31	5.61	10	9.18	0.82	8.95
11	2462	11ax20	MCS0	2Tx	-	-	0	5	7	5.5	94.9	0.23	1.05	6.58	0.42	1.10	6.35	2				5.72	1.28	1.34	5.49	10	9.18	0.82	8.95
12	2467	11ax20	MCS0	2Tx	-	-	0	3	5	3.5	94.9	0.23	1.05	4.56	0.44	1.11	4.33	2				3.78	1.22	1.32	3.55	8	7.20	0.80	6.96
13	2472	11ax20	MCS0	2Tx	-	-	0	3	5	3.5	94.9	0.23	1.05	4.60	0.40	1.10	4.37	2				3.84	1.16	1.31	3.61	8	7.24	0.76	7.02
1	2412	11ax20	MCS0	2Tx	106	57	0	5	7	5.5	95.6	0.20	1.05	6.79	0.21	1.05	6.59	2				6.21	0.79	1.20	6.01	10	9.52	0.48	9.32
6	2437	11ax20	MCS0	2Tx	106	57	0	5	7	5.5	95.6	0.20	1.05	6.96	0.04	1.01	6.76	2				6.40	0.60	1.15	6.20	10	9.70	0.30	9.50
7	2442	11ax20	MCS0	2Tx	106	57	0	5	7	5.5	95.6	0.20	1.05	6.96	0.04	1.01	6.76	2				6.42	0.58	1.14	6.22	10	9.71	0.29	9.51
11	2462	11ax20	MCS0	2Tx	106	57	0	5	7	5.5	95.6	0.20	1.05	6.98	0.02	1.00	6.78	2				6.30	0.70	1.17	6.10	10	9.67	0.33	9.46
12	2467	11ax20	MCS0	2Tx	106	57	0	3	5	3	95.6	0.20	1.05	4.68	0.32	1.08	4.48	2				4.05	0.95	1.24	3.85	8	7.39	0.61	7.19
13	2472	11ax20	MCS0	2Tx	106	57	0	3	5	3	95.6	0.20	1.05	4.63	0.37	1.09	4.43	2				3.99	1.01	1.26	3.79	8	7.33	0.67	7.13
1	2412	11ax20	MCS0	2Tx	242	61	0	5	7	5.5	91.6	0.38	1.09	6.31	0.69	1.17	5.93	2				5.72	1.28	1.34	5.34	10	9.04	0.96	8.66
6	2437	11ax20	MCS0	2Tx	242	61	0	5	7	5.5	91.6	0.38	1.09	6.37	0.63	1.16	5.99	2				5.82	1.18	1.31	5.44	10	9.12	0.88	8.73
7	2442	11ax20	MCS0	2Tx	242	61	0	5	7	5.5	91.6	0.38	1.09	6.42	0.58	1.14	6.04	2				5.84	1.16	1.31	5.46	10	9.15	0.85	8.77
11	2462	11ax20	MCS0	2Tx	242	61	0	5	7	5.5	91.6	0.38	1.09	6.43	0.57	1.14	6.05	2				5.55	1.45	1.40	5.17	10	9.03	0.97	8.65
12	2467	11ax20	MCS0	2Tx	242	61	0	3	5	3.5	91.6	0.38	1.09	4.53	0.47	1.11	4.15	2				3.77	1.23	1.33	3.39	8	7.18	0.82	6.79
13	2472	11ax20	MCS0	2Tx	242	61	0	3	5	3.5	91.6	0.38	1.09	4.48	0.52	1.13	4.10	2				3.84	1.16	1.31	3.46	8	7.19	0.81	6.80

*. The 2.4 GHz band of WLAN power is reduced by firmware to a maximum power of 10 dBm in use cases.

CH	Freq.	Tx mode			OFDMA		ANT. No.	Power			Duty cycle	Duty factor	Duty scaled factor	Power				ANT. No.	Power			Power				SUM Power			
		Mode	D/R	Number of Tx ant.	RU	Index		Typ.	Max.	Set				Burst Ave.	Δmax	Scaled Factor	Time. Ave		Typ.	Max.	Set	Burst Ave.	Δmax	Scaled Factor	Time. Ave	Max.	Burst Ave.	Δmax	Time. Ave
	[MHz]		[Mbps]					[dBm]	[dBm]		[%]	[dB]	[-]	[dBm]	[dB]		[dBm]		[dBm]	[dBm]		[dBm]	[dB]		[dBm]	[dB]	[dBm]	dB	[dBm]
36	5180	11a	6	1Tx	-	-	0	6.5	8.5	7	97.8	0.10	1.02	7.23	1.27	1.34	7.13	2	6.5	8.5	7	7.70	0.80	1.20	7.60				
40	5200	11a	6	1Tx	-	-	0	6.5	8.5	7	97.8	0.10	1.02	7.32	1.18	1.31	7.22	2	6.5	8.5	7	7.70	0.80	1.20	7.60				
44	5220	11a	6	1Tx	-	-	0	6.5	8.5	7	97.8	0.10	1.02	7.45	1.05	1.27	7.35	2	6.5	8.5	7	7.69	0.81	1.21	7.59				
48	5240	11a	6	1Tx	-	-	0	6.5	8.5	7	97.8	0.10	1.02	7.41	1.09	1.29	7.31	2	6.5	8.5	7	7.57	0.93	1.24	7.47				
52	5260	11a	6	1Tx	-	-	0	6.5	8.5	7	97.8	0.10	1.02	7.91	0.59	1.15	7.81	2	6.5	8.5	7	7.47	1.03	1.27	7.37				
56	5280	11a	6	1Tx	-	-	0	6.5	8.5	7	97.8	0.10	1.02	7.80	0.70	1.17	7.70	2	6.5	8.5	7	7.47	1.03	1.27	7.37				
60	5300	11a	6	1Tx	-	-	0	6.5	8.5	7	97.8	0.10	1.02	7.86	0.64	1.16	7.76	2	6.5	8.5	7	7.57	0.93	1.24	7.47				
64	5320	11a	6	1Tx	-	-	0	6.5	8.5	7	97.8	0.10	1.02	7.86	0.64	1.16	7.76	2	6.5	8.5	7	7.71	0.79	1.20	7.61				
36	5180	11n20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.9	0.09	1.02	7.20	1.30	1.35	7.11	2	6.5	8.5	7	7.65	0.85	1.22	7.56				
40	5200	11n20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.9	0.09	1.02	7.38	1.12	1.29	7.29	2	6.5	8.5	7	7.63	0.87	1.22	7.54				
44	5220	11n20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.9	0.09	1.02	7.47	1.03	1.27	7.38	2	6.5	8.5	7	7.56	0.94	1.24	7.47				
48	5240	11n20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.9	0.09	1.02	7.36	1.14	1.30	7.27	2	6.5	8.5	7	7.47	1.03	1.27	7.38				
52	5260	11n20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.9	0.09	1.02	7.87	0.63	1.16	7.78	2	6.5	8.5	7	7.40	1.10	1.29	7.31				
56	5280	11n20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.9	0.09	1.02	7.79	0.71	1.18	7.70	2	6.5	8.5	7	7.40	1.10	1.29	7.31				
60	5300	11n20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.9	0.09	1.02	7.80	0.70	1.17	7.71	2	6.5	8.5	7	7.40	1.10	1.29	7.31				
64	5320	11n20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.9	0.09	1.02	7.79	0.71	1.18	7.70	2	6.5	8.5	7	7.54	0.96	1.25	7.45				
36	5180	11ac20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.6	0.11	1.02	7.28	1.22	1.32	7.17	2	6.5	8.5	7	7.73	0.77	1.19	7.62				
40	5200	11ac20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.6	0.11	1.02	7.42	1.08	1.28	7.31	2	6.5	8.5	7	7.68	0.82	1.21	7.57				
44	5220	11ac20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.6	0.11	1.02	7.44	1.06	1.28	7.33	2	6.5	8.5	7	7.67	0.83	1.21	7.56				
48	5240	11ac20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.6	0.11	1.02	7.41	1.09	1.29	7.30	2	6.5	8.5	7	7.53	0.97	1.25	7.42				
52	5260	11ac20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.6	0.11	1.02	7.88	0.62	1.15	7.77	2	6.5	8.5	7	7.41	1.09	1.29	7.30				
56	5280	11ac20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.6	0.11	1.02	7.88	0.62	1.15	7.77	2	6.5	8.5	7	7.47	1.03	1.27	7.36				
60	5300	11ac20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.6	0.11	1.02	7.86	0.64	1.16	7.75	2	6.5	8.5	7	7.51	0.99	1.26	7.40				
64	5320	11ac20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.6	0.11	1.02	7.82	0.68	1.17	7.71	2	6.5	8.5	7	7.62	0.88	1.22	7.51				
36	5180	11ax20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.1	0.13	1.03	7.40	1.10	1.29	7.27	2	6.5	8.5	7	7.94	0.56	1.14	7.81				
40	5200	11ax20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.1	0.13	1.03	7.60	0.90	1.23	7.47	2	6.5	8.5	7	7.83	0.67	1.17	7.70				
44	5220	11ax20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.1	0.13	1.03	7.65	0.85	1.22	7.52	2	6.5	8.5	7	7.81	0.69	1.17	7.68				
48	5240	11ax20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.1	0.13	1.03	7.62	0.88	1.22	7.49	2	6.5	8.5	7	7.82	0.68	1.17	7.69				
52	5260	11ax20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.1	0.13	1.03	8.09	0.41	1.10	7.96	2	6.5	8.5	7	7.62	0.88	1.22	7.49				
56	5280	11ax20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.1	0.13	1.03	8.04	0.46	1.11	7.91	2	6.5	8.5	7	7.65	0.85	1.22	7.52				
60	5300	11ax20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.1	0.13	1.03	7.96	0.54	1.13	7.83	2	6.5	8.5	7	7.76	0.74	1.19	7.63				
64	5320	11ax20	MCS0	1Tx	-	-	0	6.5	8.5	7	97.1	0.13	1.03	7.98	0.52	1.13	7.85	2	6.5	8.5	7	7.81	0.69	1.17	7.68				
36	5180	11ax20	MCS0	1Tx	242	61	0	6.5	8.5	7	94.6	0.24	1.06	7.40	1.10	1.29	7.16	2	6.5	8.5	7	7.93	0.57	1.14	7.69				
40	5200	11ax20	MCS0	1Tx	242	61	0	6.5	8.5	7	94.6	0.24	1.06	7.47	1.03	1.27	7.23	2	6.5	8.5	7	7.83	0.67	1.17	7.59				
44	5220	11ax20	MCS0	1Tx	242	61	0	6.5	8.5	7	94.6	0.24	1.06	7.53	0.97	1.25	7.29	2	6.5	8.5	7	7.75	0.75	1.19	7.51				
48	5240	11ax20	MCS0	1Tx	242	61	0	6.5	8.5	7	94.6	0.24	1.06	7.58	0.92	1.24	7.34	2	6.5	8.5	7	7.77	0.73	1.18	7.53				
52	5260	11ax20	MCS0	1Tx	242	61	0	6.5	8.5	7	94.6	0.24	1.06	8.00	0.50	1.12	7.76	2	6.5	8.5	7	7.60	0.90	1.23	7.36				
56	5280	11ax20	MCS0	1Tx	242	61	0	6.5	8.5	7	94.6	0.24	1.06	7.98	0.52	1.13	7.74	2	6.5	8.5	7	7.62	0.88	1.22	7.38				
60	5300	11ax20	MCS0	1Tx	242	61	0	6.5	8.5	7	94.6	0.24	1.06	7.97	0.53	1.13	7.73	2	6.5	8.5	7	7.68	0.82	1.21	7.44				
64	5320	11ax20	MCS0	1Tx	242	61	0	6.5	8.5	7	94.6	0.24	1.06	8.00	0.50	1.12	7.76	2	6.5	8.5	7	7.80	0.70	1.17	7.56				
38	5190	11n40	MCS0	1Tx	-	-	0	6.5	8.5	7	95.4	0.20	1.05	7.00	1.50	1.41	6.80	2	6.5	8.5	7	7.91	0.59	1.15	7.71				
46	5230	11n40	MCS0	1Tx	-	-	0	6.5	8.5	7	95.4	0.20	1.05	7.12	1.38	1.37	6.92	2	6.5	8.5	7	7.89	0.61	1.15	7.69				
54	5270	11n40	MCS0	1Tx	-	-	0	6.5	8.5	7	95.4	0.20	1.05	7.56	0.94	1.24	7.36	2	6.5	8.5	7	7.55	0.95	1.24	7.35				
62	5310	11n40	MCS0	1Tx	-	-	0	6.5	8.5	7	95.4	0.20	1.05	7.43	1.07	1.28	7.23	2	6.5	8.5	7	7.72	0.78	1.20	7.52				
38	5190	11ac40	MCS0	1Tx	-	-	0	6.5	8.5	7	95.4	0.20	1.05	6.98	1.52	1.42	6.78	2	6.5	8.5	7	7.95	0.55	1.14	7.75				
46	5230	11ac40	MCS0	1Tx	-	-	0	6.5	8.5	7	95.4	0.20	1.05	7.16	1.34	1.36	6.96	2	6.5	8.5	7	7.84	0.66	1.16	7.64				
54	5270	11ac40	MCS0	1Tx	-	-	0	6.5	8.5	7	95.4	0.20	1.05	7.52	0.98	1.25	7.32	2	6.5	8.5	7	7.60	0.90	1.23	7.40				
62	5310	11ac40	MCS0	1Tx	-	-	0	6.5	8.5	7	95.4	0.20	1.05	7.51	0.99	1.26	7.31	2	6.5	8.5	7	7.75	0.75	1.19	7.55				
38	5190	11ax40	MCS0	1Tx	-	-	0	6.5	8.5	7	94.3	0.25	1.06	7.29	1.21	1.32	7.04	2	6.5	8.5	7	8.17	0.33	1.08	7.92				
46	5230	11ax40	MCS0	1Tx	-	-	0	6.5	8.5	7	94.3	0.25	1.06	7.35	1.15	1.30	7.10	2	6.5	8.5	7	8.05	0.45	1.11	7.80				
54	5270	11ax40	MCS0	1Tx	-	-	0	6.5	8.5	7	94.3	0.25	1.06	7.74	0.76	1.19	7.49	2	6.5	8.5	7	7.81	0.69	1.17	7.56				
62	5310	11ax40	MCS0	1Tx	-	-	0	6.5	8.5	7	94.3	0.25	1.06	7.69	0.81	1.21	7.44	2	6.5	8.5	7	7.95	0.55	1.14	7.70				
38	5190	11ax40	MCS0	1Tx	484	65	0	6.5	8.5	7	91.2	0.40	1.10	7.15	1.35	1.36	6.75	2	6.5	8.5	7	8.15	0.35	1.08	7.75				
46	5230	11ax40	MCS0	1Tx	484	65	0	6.5	8.5	7	91.2	0.40	1.10	7.26	1.24	1.33	6.86	2	6.5	8.5	7	8.01	0.49	1.12	7.61				
54	5270	11ax40	MCS0	1Tx	484	65	0	6.5	8.5	7	91.2	0.40	1.10	7.71	0.79	1.20	7.31	2	6.5	8.5	7	7.74	0.76	1.19	7.34				
62	5310	11ax40	MCS0	1Tx	484	65	0	6.5	8.5	7	91.2	0.40	1.10	7.66	0.84	1.21	7.26	2	6.5	8.5	7	7.91	0.59	1.15	7.51				
42	5210	11ac80	MCS0	1Tx	-	-	0	6.5	8.5	7	91.0	0.41	1.10	6.92	1.58	1.44	6.51	2	6.5	8.5	7	7.40	1.10	1.29	6.99				
58	5290	11ac80	MCS0	1Tx	-	-	0	6.5	8.5	7	91.0	0.41	1.10	7.38	1.12	1.29	6.97	2	6.5	8.5	7	7.29	1.21	1.32	6.88				
42	5210	11ax80	MCS0	1Tx	-	-	0	6.5	8.5	7	90.0	0.46	1.11	7.25	1.25	1.33	6.79	2	6.5	8.5	7	7.70	0.80	1.20	7.24				
58	5290	11ax80	MCS0	1Tx	-	-	0	6.5	8.5	7	90.0	0.46	1.11	7.68	0.82	1.21	7.22	2	6.5	8.5	7	7.50	1.00	1.26	7.04				
42	5210	11ax80	MCS0	1Tx	996	67	0	6.5	8.5	7	85.6	0.68	1.17	7.21	1.29	1.35	6.53	2	6.5	8.5	7	7.68	0.82	1.21	7.00				
58	5290	11ax80	MCS0	1Tx	996	67	0	6.5	8.5	7	85.6	0.68	1.17	7.63	0.87	1.22	6.95	2	6.5	8.5	7	7.52	0.98	1.25	6.84				
36	5180	11n20	MCS8	2Tx	-	-	0	6.5	8.5	7	95.6	0.20	1.05	7.12	1.38	1.37	6.92	2				7.64	0.86	1.22	7.44	11.5	10.40	1.10	10.20
40	5200	11n20	MCS8	2Tx	-	-	0	6.5	8.5	7	95.6	0.20	1.05	7.18	1.32	1.36	6.98	2				7.57	0.93	1.24	7.37	11.5	10.39	1.11	10.19
44	5220	11n20	MCS8	2Tx	-	-	0	6.5	8.5	7	95.6	0.20	1.05	7.29	1.21	1.32	7.09	2				7.59	0.91	1.23	7.39	11.5	10.45	1.05	10.25
48	5240	11n20	MCS8	2Tx	-	-	0	6.5	8.5	7	95.6	0.20	1.05	7.22	1.28	1.34	7.02	2				7.52	0.98	1.25	7.32	11.5	10.38	1.12	10.19
52	5260	11n20	MCS8	2Tx	-	-	0	6.5	8.5	7	95.6	0.20	1.05	7.67	0.83	1.21	7.47	2				7.34	1.16	1.31	7.14	11.5	10.52	0.98	10.32
56	5280	11n20	MCS8	2Tx	-	-	0	6.5	8.5	7	95.6	0.20	1.05	7.70	0.80	1.20	7.50	2				7.36	1.14	1.30	7.16	11.5	10.55	0.95	10.34
60	5300	11n20	MCS8	2Tx	-	-	0	6.5	8.5	7	95.6	0.20	1.05	7.65	0.85	1.22	7.45	2				7.44	1.06	1.28	7.24	11.5	10.56	0.94	10.36
64	5320	11n20	MCS8	2Tx	-	-	0	6.5	8.5	7	95.6	0.20	1.05	7.66	0.84	1.21	7.46	2				7.62	0.88	1.22	7.42	11.5	10.65	0.85	10.45
36	5180	11ac20	MCS0	2Tx	-	-	0	6.5	8.5	7	95.5	0.20	1.05	7.07	1.43	1.39	6.87	2				7.71	0.79	1.20	7.51	11.5	10.41	1.09	10.21
40	5200	11ac20	MCS0	2Tx	-	-	0	6.5	8.5	7	95.5	0.20	1.05	7.21	1.29	1.35	7.01	2				7.58	0.92	1.24	7.38	11.5	10.41	1.09	10.21
44	5220	11ac20	MCS0	2Tx	-	-	0	6.5	8.5	7	95.5	0.20	1.05	7.31	1.19	1.32	7.11	2				7.63	0.87	1.22	7.43	11.5	10.48	1.02	10.28
48	5240	11ac20	MCS0	2Tx	-	-	0	6.5	8.5	7	95.5	0.20	1.05	7.23	1.27	1.34	7.03	2				7.52	0.98	1.25	7.32	11.5	10.39	1.11	10.19
52	5260	11ac20	MCS0	2Tx	-	-	0	6.5	8.5	7	95.5	0.20	1.05	7.79	0.71	1.18	7.59	2				7.41	1.09	1.29	7.21	11.5	10.61	0.89	10.41
56	5280	11ac20	MCS0	2Tx	-	-	0	6.5	8.5	7	95.5	0.20	1.05	7.74	0.76	1.19	7.54	2				7.48	1.02	1.26	7.28	11.5	10.62	0.88	10.43
60	5300	11ac20	MCS0	2Tx	-	-	0	6.5	8.5	7	95.5	0.20	1.05	7.72	0.78	1.20	7.52	2				7.58	0.92	1.24	7.38	11.5	10.66	0.84	10.46
64	5320	11ac20	MCS0	2Tx	-	-	0	6.5	8.5	7	95.5	0.20	1.05	7.68	0.82	1.21	7.48	2				7.60	0.90	1.23	7.40	11.5	10.65	0.85	10.45

CH	Freq.	Tx mode			OFDMA		ANT. No.	Power			Duty cycle	Duty factor	Duty scaled factor	Power				ANT. No.	Power			Power				SUM Power			
		Mode	D/R	Number of Tx ant.	RU	Index		Typ.	Max.	Set				Burst Ave.	Δmax	Scaled Factor	Time. Ave		Typ.	Max.	Set	Burst Ave.	Δmax	Scaled Factor	Time. Ave	Max.	Burst Ave.	Δmax	Time. Ave
	[MHz]		[Mbps]					[dBm]	[dBm]		[%]	[dB]	[-]	[dBm]	[dB]		[dBm]		[dBm]	[dBm]		[dBm]	[dB]		[dBm]	[dB]	[dBm]	dB	[dBm]
36	5180	11ax20	MCS0	2Tx	-	-	0	6.5	8.5	7	94.5	0.25	1.06	7.18	1.32	1.36	6.93	2				7.87	0.63	1.16	7.62	11.5	10.55	0.95	10.30
40	5200	11ax20	MCS0	2Tx	-	-	0	6.5	8.5	7	94.5	0.25	1.06	7.42	1.08	1.28	7.17	2				7.76	0.74	1.19	7.51	11.5	10.60	0.90	10.35
44	5220	11ax20	MCS0	2Tx	-	-	0	6.5	8.5	7	94.5	0.25	1.06	7.51	0.99	1.26	7.26	2				7.78	0.72	1.18	7.53	11.5	10.66	0.84	10.41
48	5240	11ax20	MCS0	2Tx	-	-	0	6.5	8.5	7	94.5	0.25	1.06	7.41	1.09	1.29	7.16	2				7.73	0.77	1.19	7.48	11.5	10.58	0.92	10.33
52	5260	11ax20	MCS0	2Tx	-	-	0	6.5	8.5	7	94.5	0.25	1.06	7.98	0.52	1.13	7.73	2				7.47	1.03	1.27	7.22	11.5	10.74	0.76	10.49
56	5280	11ax20	MCS0	2Tx	-	-	0	6.5	8.5	7	94.5	0.25	1.06	7.98	0.52	1.13	7.73	2				7.57	0.93	1.24	7.32	11.5	10.79	0.71	10.54
60	5300	11ax20	MCS0	2Tx	-	-	0	6.5	8.5	7	94.5	0.25	1.06	7.89	0.61	1.15	7.64	2				7.63	0.87	1.22	7.38	11.5	10.77	0.73	10.52
64	5320	11ax20	MCS0	2Tx	-	-	0	6.5	8.5	7	94.5	0.25	1.06	7.85	0.65	1.16	7.60	2				7.74	0.76	1.19	7.49	11.5	10.81	0.69	10.55
36	5180	11ax20	MCS0	2Tx	242	61	0	6.5	8.5	7	91.2	0.40	1.10	7.27	1.23	1.33	6.87	2				7.83	0.67	1.17	7.43	11.5	10.57	0.93	10.17
40	5200	11ax20	MCS0	2Tx	242	61	0	6.5	8.5	7	91.2	0.40	1.10	7.43	1.07	1.28	7.03	2				7.75	0.75	1.19	7.35	11.5	10.60	0.90	10.20
44	5220	11ax20	MCS0	2Tx	242	61	0	6.5	8.5	7	91.2	0.40	1.10	7.46	1.04	1.27	7.06	2				7.71	0.79	1.20	7.31	11.5	10.60	0.90	10.20
48	5240	11ax20	MCS0	2Tx	242	61	0	6.5	8.5	7	91.2	0.40	1.10	7.41	1.09	1.29	7.01	2				7.73	0.77	1.19	7.33	11.5	10.58	0.92	10.18
52	5260	11ax20	MCS0	2Tx	242	61	0	6.5	8.5	7	91.2	0.40	1.10	7.90	0.60	1.15	7.50	2				7.53	0.97	1.25	7.13	11.5	10.73	0.77	10.33
56	5280	11ax20	MCS0	2Tx	242	61	0	6.5	8.5	7	91.2	0.40	1.10	7.87	0.63	1.16	7.47	2				7.66	0.84	1.21	7.26	11.5	10.77	0.73	10.37
60	5300	11ax20	MCS0	2Tx	242	61	0	6.5	8.5	7	91.2	0.40	1.10	7.83	0.67	1.17	7.43	2				7.65	0.85	1.22	7.25	11.5	10.75	0.75	10.35
64	5320	11ax20	MCS0	2Tx	242	61	0	6.5	8.5	7	91.2	0.40	1.10	7.80	0.70	1.17	7.40	2				7.78	0.72	1.18	7.38	11.5	10.80	0.70	10.40
38	5190	11n40	MCS8	2Tx	-	-	0	6.5	8.5	7	91.9	0.37	1.09	6.81	1.69	1.48	6.44	2				7.79	0.71	1.18	7.42	11.5	10.34	1.16	9.97
46	5230	11n40	MCS8	2Tx	-	-	0	6.5	8.5	7	91.9	0.37	1.09	6.99	1.51	1.42	6.62	2				7.72	0.78	1.20	7.35	11.5	10.38	1.12	10.01
54	5270	11n40	MCS8	2Tx	-	-	0	6.5	8.5	7	91.9	0.37	1.09	7.38	1.12	1.29	7.01	2				7.48	1.02	1.26	7.11	11.5	10.44	1.06	10.07
62	5310	11n40	MCS8	2Tx	-	-	0	6.5	8.5	7	91.9	0.37	1.09	7.36	1.14	1.30	6.99	2				7.65	0.85	1.22	7.28	11.5	10.52	0.98	10.15
38	5190	11ac40	MCS0	2Tx	-	-	0	6.5	8.5	7	91.7	0.38	1.09	6.79	1.71	1.48	6.41	2				7.79	0.71	1.18	7.41	11.5	10.33	1.17	9.95
46	5230	11ac40	MCS0	2Tx	-	-	0	6.5	8.5	7	91.7	0.38	1.09	6.95	1.55	1.43	6.57	2				7.74	0.76	1.19	7.36	11.5	10.37	1.13	10.00
54	5270	11ac40	MCS0	2Tx	-	-	0	6.5	8.5	7	91.7	0.38	1.09	7.38	1.12	1.29	7.00	2				7.49	1.01	1.26	7.11	11.5	10.45	1.05	10.06
62	5310	11ac40	MCS0	2Tx	-	-	0	6.5	8.5	7	91.7	0.38	1.09	7.30	1.20	1.32	6.92	2				7.66	0.84	1.21	7.28	11.5	10.49	1.01	10.12
38	5190	11ax40	MCS0	2Tx	-	-	0	6.5	8.5	7	90.1	0.45	1.11	7.02	1.48	1.41	6.57	2				8.01	0.49	1.12	7.56	11.5	10.55	0.95	10.10
46	5230	11ax40	MCS0	2Tx	-	-	0	6.5	8.5	7	90.1	0.45	1.11	7.15	1.35	1.36	6.70	2				8.00	0.50	1.12	7.55	11.5	10.61	0.89	10.16
54	5270	11ax40	MCS0	2Tx	-	-	0	6.5	8.5	7	90.1	0.45	1.11	7.61	0.89	1.23	7.16	2				7.73	0.77	1.19	7.28	11.5	10.68	0.82	10.23
62	5310	11ax40	MCS0	2Tx	-	-	0	6.5	8.5	7	90.1	0.45	1.11	7.54	0.96	1.25	7.09	2				7.91	0.59	1.15	7.46	11.5	10.74	0.76	10.29
38	5190	11ax40	MCS0	2Tx	484	65	0	6.5	8.5	6.5	86.3	0.64	1.16	6.96	1.54	1.43	6.32	2				7.95	0.55	1.14	7.31	11.5	10.50	1.00	9.85
46	5230	11ax40	MCS0	2Tx	484	65	0	6.5	8.5	6.5	86.3	0.64	1.16	7.03	1.47	1.40	6.39	2				7.84	0.66	1.16	7.20	11.5	10.46	1.04	9.83
54	5270	11ax40	MCS0	2Tx	484	65	0	6.5	8.5	6.5	86.3	0.64	1.16	7.48	1.02	1.26	6.84	2				7.64	0.86	1.22	7.00	11.5	10.57	0.93	9.93
62	5310	11ax40	MCS0	2Tx	484	65	0	6.5	8.5	6.5	86.3	0.64	1.16	7.44	1.06	1.28	6.80	2				7.80	0.70	1.17	7.16	11.5	10.64	0.86	10.00
42	5210	11ac80	MCS0	2Tx	-	-	0	6.5	8.5	7	85.4	0.69	1.17	6.70	1.80	1.51	6.01	2				7.37	1.13	1.30	6.68	11.5	10.06	1.44	9.37
58	5290	11ac80	MCS0	2Tx	-	-	0	6.5	8.5	7	85.4	0.69	1.17	7.20	1.30	1.35	6.51	2				7.17	1.33	1.36	6.48	11.5	10.20	1.30	9.51
42	5210	11ax80	MCS0	2Tx	-	-	0	6.5	8.5	7	85.5	0.68	1.17	6.93	1.57	1.44	6.25	2				7.58	0.92	1.24	6.90	11.5	10.28	1.22	9.60
58	5290	11ax80	MCS0	2Tx	-	-	0	6.5	8.5	7	85.5	0.68	1.17	7.42	1.08	1.28	6.74	2				7.44	1.06	1.28	6.76	11.5	10.44	1.06	9.76
42	5210	11ax80	MCS0	2Tx	996	67	0	6.5	8.5	7	80.3	0.95	1.25	6.98	1.52	1.42	6.03	2				7.59	0.91	1.23	6.64	11.5	10.31	1.19	9.36
58	5290	11ax80	MCS0	2Tx	996	67	0	6.5	8.5	7	80.3	0.95	1.25	7.37	1.13	1.30	6.42	2				7.46	1.04	1.27	6.51	11.5	10.43	1.07	9.48

*. The following table is "RU size vs power" to confirm RU with highest output power.

CH	Freq.	Tx mode			OFDMA		ANT. No.	Power			Duty cycle	Duty factor	Duty scaled factor	Power				ANT. No.	Power			Power				SUM Power			
		Mode	D/R	Number of Tx ant.	RU	Index		Typ.	Max.	Set				Burst Ave.	Δmax	Scaled Factor	Time. Ave		Typ.	Max.	Set	Burst Ave.	Δmax	Scaled Factor	Time. Ave	Max.	Burst Ave.	Δmax	Time. Ave
	[MHz]		[Mbps]					[dBm]	[dBm]		[%]	[dB]	[-]	[dBm]	[dB]		[dBm]		[dBm]	[dBm]		[dBm]	[dB]		[dBm]	[dB]	[dBm]	dB	[dBm]
1	2412	11ax20	MCS0	1Tx	26	4	0	9	**11**	9.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	9	11	9.5	N/A	N/A	N/A	N/A				
1	2412	11ax20	MCS0	1Tx	52	39	0	12	**14**	12.5	98.8	0.05	1.01	13.43	0.57	1.14	13.38	2	12	14	12.5	12.72	1.28	1.34	12.67				
1	2412	11ax20	MCS0	1Tx	106	54	0	12	**14**	12.5	97.7	0.10	1.02	13.64	0.36	1.09	13.54	2	12	14	12.5	13.01	0.99	1.26	12.91				
1	2412	11ax20	MCS0	1Tx	242	61	0	12	**14**	12.5	94.8	0.23	1.05	13.08	0.92	1.24	12.85	2	12	14	12.5	12.47	1.53	1.42	12.24				
1	2412	11ax20	MCS0	2Tx	26	4	0	5	**7**	5.5	98.8	0.05	1.01	6.72	0.28	1.07	6.67	2				6.08	0.92	1.24	6.03	10	9.43	0.57	9.38
1	2412	11ax20	MCS0	2Tx	52	39	0	5	**7**	5.5	97.7	0.10	1.02	6.66	0.34	1.08	6.56	2				6.00	1.00	1.26	5.90	10	9.35	0.65	9.25
1	2412	11ax20	MCS0	2Tx	106	54	0	5	**7**	5.5	95.6	0.20	1.05	6.79	0.21	1.05	6.59	2				6.20	0.80	1.20	6.00	10	9.52	0.48	9.31
1	2412	11ax20	MCS0	2Tx	242	61	0	5	**7**	5.5	91.6	0.38	1.09	6.34	0.66	1.16	5.96	2				5.80	1.20	1.32	5.42	10	9.09	0.91	8.70
36	5180	11ax20	MCS0	1Tx	26	4	0	3	**5**	3.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	3	5	3.5	N/A	N/A	N/A	N/A				
36	5180	11ax20	MCS0	1Tx	52	39	0	6	**8**	6.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	6	8	6.5	N/A	N/A	N/A	N/A				
36	5180	11ax20	MCS0	1Tx	106	54	0	6.5	**8.5**	7	97.6	0.11	1.02	7.52	0.98	1.25	7.41	2	6.5	8.5	7	7.97	0.53	1.13	7.86				
36	5180	11ax20	MCS0	1Tx	242	61	0	6.5	**8.5**	7	94.6	0.24	1.06	7.49	1.01	1.26	7.25	2	6.5	8.5	7	7.95	0.55	1.14	7.71				
36	5180	11ax20	MCS0	2Tx	26	4	0	0	**2**	0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2				N/A	N/A	N/A	N/A	5	N/A	N/A	N/A
36	5180	11ax20	MCS0	2Tx	52	39	0	3	**5**	3.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2				N/A	N/A	N/A	N/A	8	N/A	N/A	N/A
36	5180	11ax20	MCS0	2Tx	106	54	0	6	**8**	6.5	95.5	0.20	1.05	N/A	N/A	N/A	N/A	2				N/A	N/A	N/A	N/A	11	N/A	N/A	N/A
36	5180	11ax20	MCS0	2Tx	242	61	0	6.5	**8.5**	7	91.2	0.40	1.10	7.26	1.24	1.33	6.86	2				7.82	0.68	1.17	7.42	11.5	10.56	0.94	10.16
52	5260	11ax20	MCS0	1Tx	26	4	0	1	**3**	1.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2				N/A	N/A	N/A	N/A	6	N/A	N/A	N/A
52	5260	11ax20	MCS0	1Tx	52	39	0	4	**6**	4.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2				N/A	N/A	N/A	N/A	9	N/A	N/A	N/A
52	5260	11ax20	MCS0	1Tx	106	54	0	6.5	**8.5**	7	95.5	0.20	1.05	7.90	0.60	1.15	7.70	2				7.54	0.96	1.25	7.34	11.5	10.74	0.76	10.53
52	5260	11ax20	MCS0	1Tx	242	61	0	6.5	**8.5**	7	91.2	0.40	1.10	7.93	0.57	1.14	7.53	2				7.53	0.97	1.25	7.13	11.5	10.74	0.76	10.34
38	5190	11ax40	MCS0	1Tx	26	4	0	2	**4**	2.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	2	4	2.5	N/A	N/A	N/A	N/A				
38	5190	11ax40	MCS0	1Tx	52	39	0	5	**7**	5.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	5	7	5.5	N/A	N/A	N/A	N/A				
38	5190	11ax40	MCS0	1Tx	106	54	0	6.5	**8.5**	7	97.6	0.11	1.02	7.05	1.45	1.40	6.94	2	6.5	8.5	7	7.88	0.62	1.15	7.77				
38	5190	11ax40	MCS0	1Tx	242	61	0	6.5	**8.5**	7	95.1	0.22	1.05	6.99	1.51	1.42	6.77	2	6.5	8.5	7	7.91	0.59	1.15	7.69				
38	5190	11ax40	MCS0	1Tx	484	65	0	6.5	**8.5**	7	91.2	0.40	1.10	7.19	1.31	1.35	6.79	2	6.5	8.5	7	8.16	0.34	1.08	7.76				
38	5190	11ax40	MCS0	2Tx	26	4	0	-0.5	**1.5**	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2				N/A	N/A	N/A	N/A	4.5	N/A	N/A	N/A
38	5190	11ax40	MCS0	2Tx	52	39	0	2.5	**4.5**	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2				N/A	N/A	N/A	N/A	7.5	N/A	N/A	N/A
38	5190	11ax40	MCS0	2Tx	106	54	0	5.5	**7.5**	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2				N/A	N/A	N/A	N/A	10.5	N/A	N/A	N/A
38	5190	11ax40	MCS0	2Tx	242	61	0	6.5	**8.5**	7	91.3	0.40	1.10	6.83	1.67	1.47	6.43	2				7.82	0.68	1.17	7.42	11.5	10.36	1.14	9.97
38	5190	11ax40	MCS0	2Tx	484	65	0	6.5	**8.5**	7	86.3	0.64	1.16	6.98	1.52	1.42	6.34	2				7.98	0.52	1.13	7.34	11.5	10.52	0.98	9.88
42	5210	11ax80	MCS0	1Tx	26	4	0	-1	**1**	-0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	-1	1	-0.5	N/A	N/A	N/A	N/A				
42	5210	11ax80	MCS0	1Tx	52	39	0	2	**4**	2.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	2	4	2.5	N/A	N/A	N/A	N/A				
42	5210	11ax80	MCS0	1Tx	106	54	0	5	**7**	5.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	5	7	5.5	N/A	N/A	N/A	N/A				
42	5210	11ax80	MCS0	1Tx	242	61	0	6.5	**8.5**	7	94.8	0.23	1.05	7.02	1.48	1.41	6.79	2	6.5	8.5	7	7.45	1.05	1.27	7.22				
42	5210	11ax80	MCS0	1Tx	484	65	0	6.5	**8.5**	7	91.5	0.39	1.09	7.06	1.44	1.39	6.67	2	6.5	8.5	7	7.51	0.99	1.26	7.12				
42	5210	11ax80	MCS0	1Tx	996	67	0	6.5	**8.5**	7	85.6	0.68	1.17	7.27	1.23	1.33	6.59	2	6.5	8.5	7	7.66	0.84	1.21	6.98				
42	5210	11ax80	MCS0	2Tx	26	4	0	-1.5	**-0.5**	-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2				N/A	N/A	N/A	N/A	2.5	N/A	N/A	N/A
42	5210	11ax80	MCS0	2Tx	52	39	0	0.5	**2.5**	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2				N/A	N/A	N/A	N/A	5.5	N/A	N/A	N/A
42	5210	11ax80	MCS0	2Tx	106	54	0	3.5	**5.5**	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2				N/A	N/A	N/A	N/A	8.5	N/A	N/A	N/A
42	5210	11ax80	MCS0	2Tx	242	61	0	6.5	**8.5**	7	91.1	0.40	1.10	6.82	1.68	1.47	6.42	2				7.36	1.14	1.30	6.96	11.5	10.11	1.39	9.71
42	5210	11ax80	MCS0	2Tx	484	65	0	6.5	**8.5**	7	86.2	0.64	1.16	6.81	1.69	1.48	6.17	2				7.40	1.10	1.29	6.76	11.5	10.13	1.37	9.48
42	5210	11ax80	MCS0	2Tx	996	67	0	6.5	**8.5**	7	80.3	0.95	1.25	7.06	1.44	1.39	6.11	2				7.65	0.85	1.22	6.70	11.5	10.37	1.13	9.43

*. CH: Channel; Power spec.: Power specification; Typ.: Typical power; Max.: Maximum; Set pwr.: software setting power; Burst Ave.: Measured burst average power; Time Ave.: Measured time-based average power; SUM Ave.: Sum power of antenna 0 and 2; n/a: Not applied,/Not applicable.

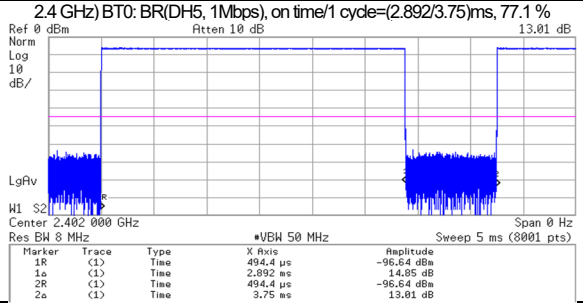
*. Calculating formula: Time average power (dBm) = (P/M Reading, dBm)+(Cable loss, dB)+(Attenuator, dB)
Burst power (dBm) = (P/M Reading, dBm)+(Cable loss, dB)+(Attenuator, dB)+(duty factor, dB)
Duty cycle: (duty cycle, %) = (Tx on time) / (1 cycle time) × 100, Duty factor (dBm) = 10 × log (100/(duty cycle, %))
Duty cycle scaled factor: Duty cycle correction factor for obtained SAR value, Duty scaled factor [-] = 100(%) / (duty cycle, %)
Δ Max. (Deviation form max. power, dB) = (Burst power measured (average, dBm)) - (Max.tune-up limit power (average, dBm))
Tune-up factor: Power tune-up factor for obtained SAR value, Tune-up factor [-] = 1 / (10 ^ ("Deviation from max., dB" / 10))

*. Date measured: December 13, 15, 20 and 21, 2023 / Measured by: H. Naka/ Place: Preparation room of No. 7 shield room. (23 deg.C./ (30~45) %RH)

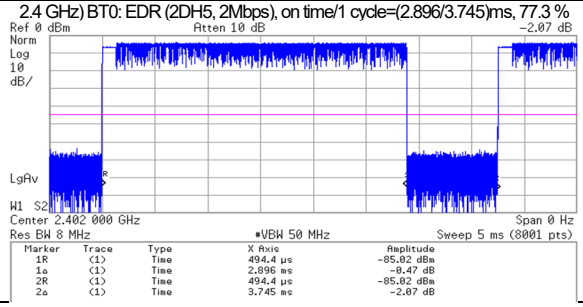
*. Uncertainty of antenna port conducted test; (±) 0.81 dB (Average power), (±) 0.27 % (duty cycle).

*. Chart of the worst duty cycle for each operation mode in right and in follows.

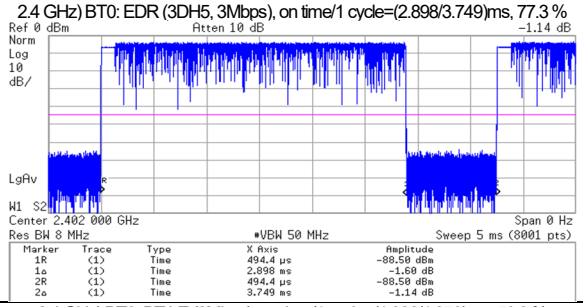
2.4 GHz) BT0: BR(DH5, 1Mbps), on time/1 cycle=(2.892/3.75)ms, 77.1 %



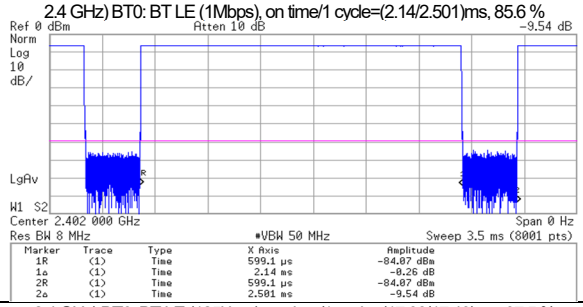
2.4 GHz) BT0: EDR (2DH5, 2Mbps), on time/1 cycle=(2.896/3.745)ms, 77.3 %



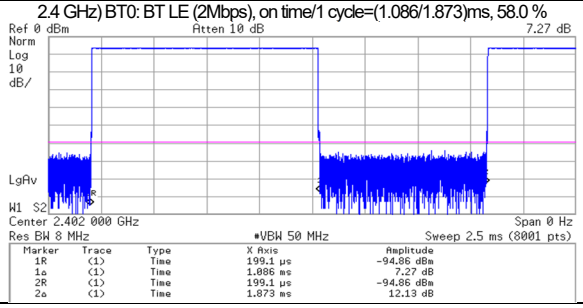
2.4 GHz) BT0: EDR (3DH5, 3Mbps), on time/1 cycle=(2.898/3.749)ms, 77.3 %



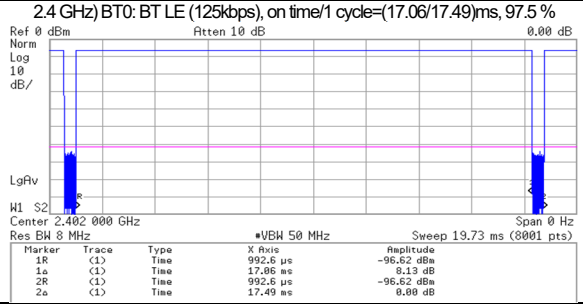
2.4 GHz) BT0: BT LE (1Mbps), on time/1 cycle=(2.14/2.501)ms, 85.6 %



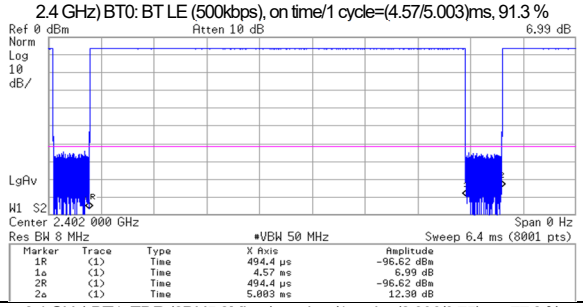
2.4 GHz) BT0: BT LE (2Mbps), on time/1 cycle=(1.086/1.873)ms, 58.0 %



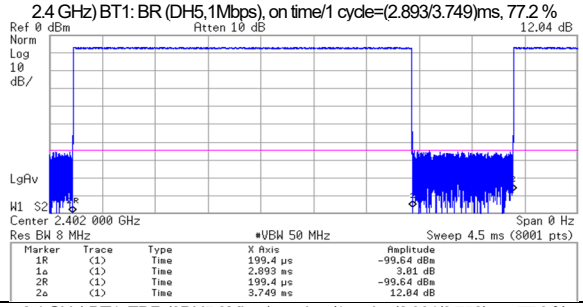
2.4 GHz) BT0: BT LE (125kbps), on time/1 cycle=(17.06/17.49)ms, 97.5 %



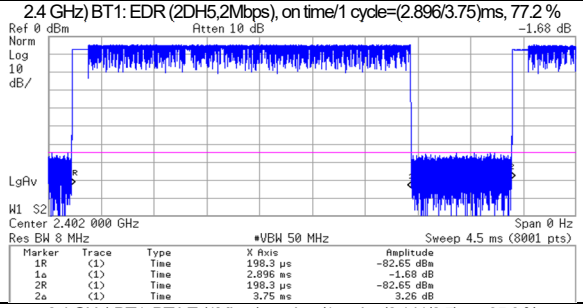
2.4 GHz) BT0: BT LE (500kbps), on time/1 cycle=(4.57/5.003)ms, 91.3 %



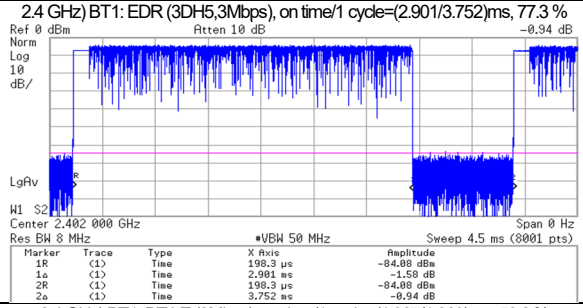
2.4 GHz) BT1: BR (DH5,1Mbps), on time/1 cycle=(2.893/3.749)ms, 77.2 %



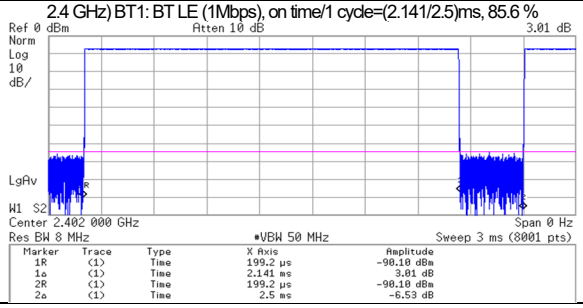
2.4 GHz) BT1: EDR (2DH5,2Mbps), on time/1 cycle=(2.896/3.75)ms, 77.2 %



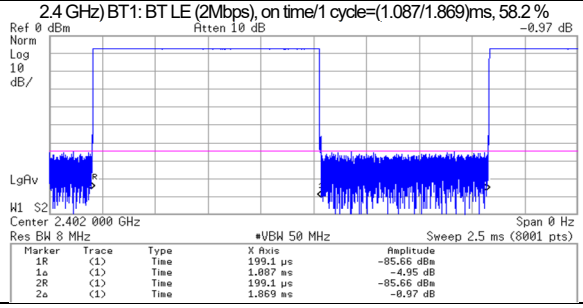
2.4 GHz) BT1: EDR (3DH5,3Mbps), on time/1 cycle=(2.901/3.752)ms, 77.3 %



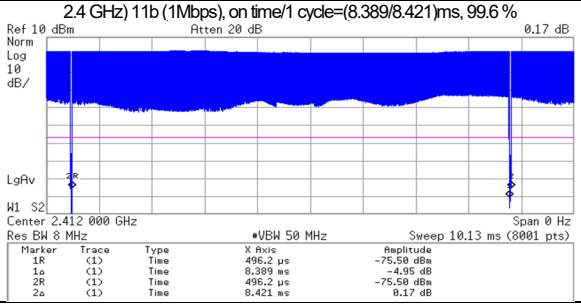
2.4 GHz) BT1: BT LE (1Mbps), on time/1 cycle=(2.141/2.5)ms, 85.6 %



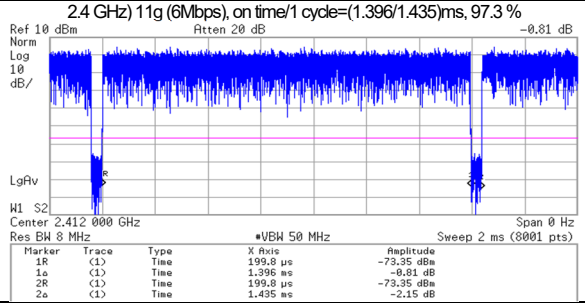
2.4 GHz) BT1: BT LE (2Mbps), on time/1 cycle=(1.087/1.869)ms, 58.2 %



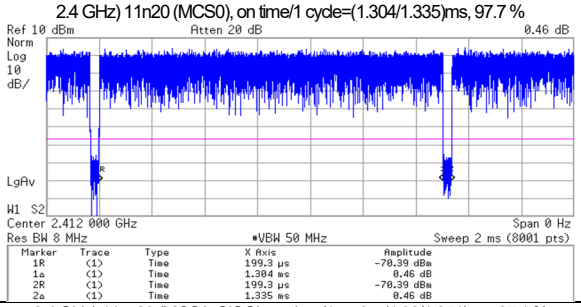
2.4 GHz) 11b (1Mbps), on time/1 cycle=(8.389/8.421)ms, 99.6 %



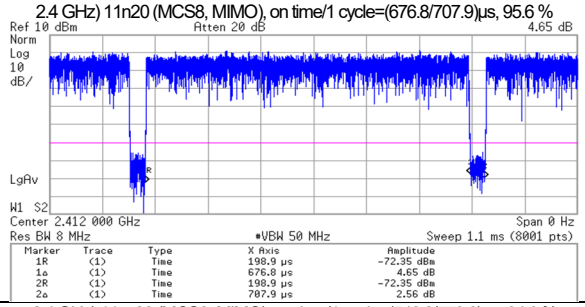
2.4 GHz) 11g (6Mbps), on time/1 cycle=(1.396/1.435)ms, 97.3 %



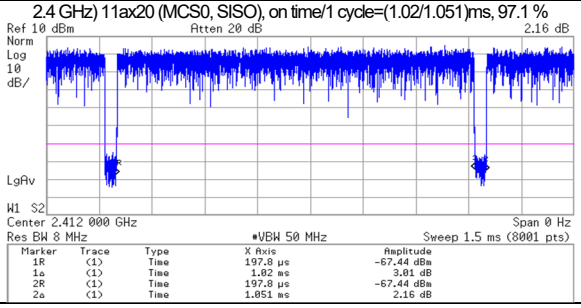
2.4 GHz) 11n20 (MCS0), on time/1 cycle=(1.304/1.335)ms, 97.7 %



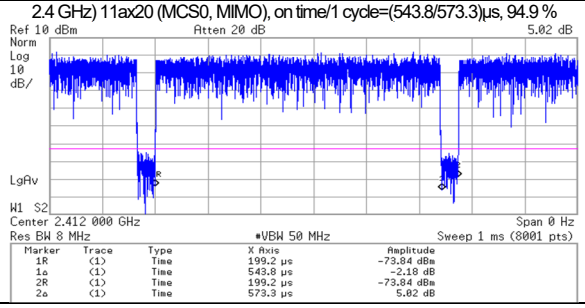
2.4 GHz) 11n20 (MCS8, MIMO), on time/1 cycle=(676.8/707.9)µs, 95.6 %



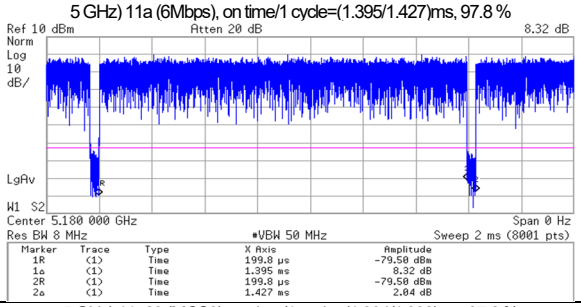
2.4 GHz) 11ax20 (MCS0, SISO), on time/1 cycle=(1.02/1.051)ms, 97.1 %



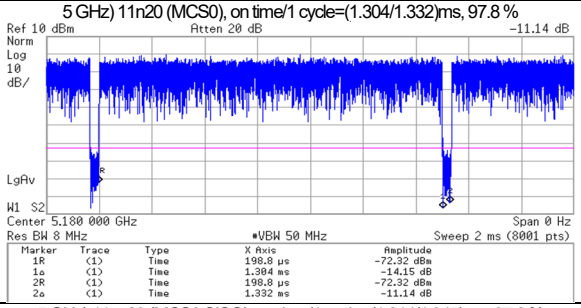
2.4 GHz) 11ax20 (MCS0, MIMO), on time/1 cycle=(543.8/573.3)µs, 94.9 %



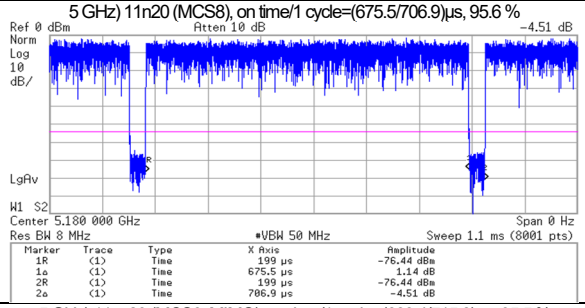
5 GHz) 11a (6Mbps), on time/1 cycle=(1.395/1.427)ms, 97.8 %



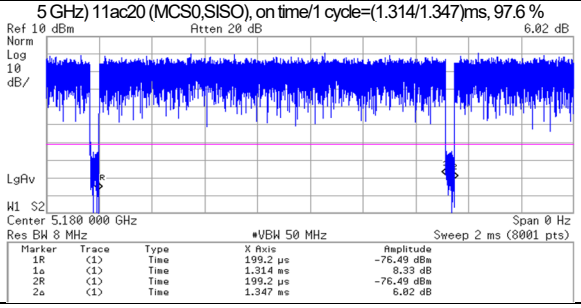
5 GHz) 11n20 (MCS0), on time/1 cycle=(1.304/1.332)ms, 97.8 %



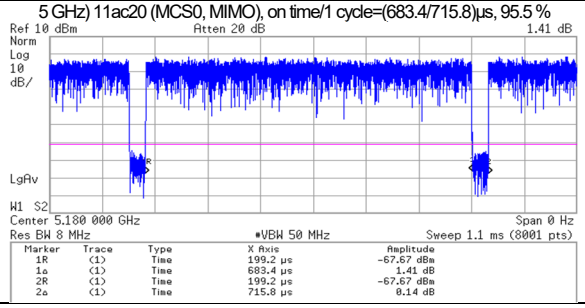
5 GHz) 11n20 (MCS8), on time/1 cycle=(675.5/706.9)µs, 95.6 %



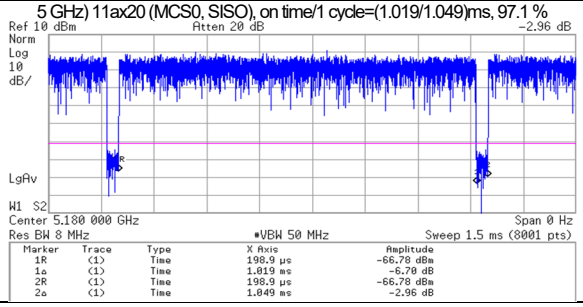
5 GHz) 11ac20 (MCS0,SISO), on time/1 cycle=(1.314/1.347)ms, 97.6 %



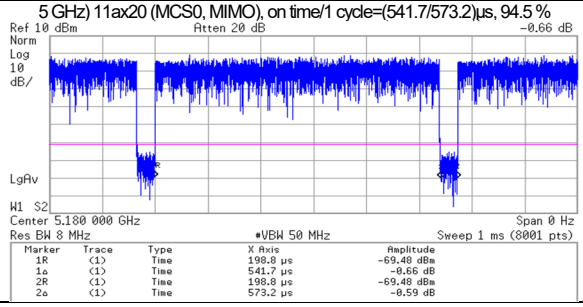
5 GHz) 11ac20 (MCS0, MIMO), on time/1 cycle=(683.4/715.8)µs, 95.5 %



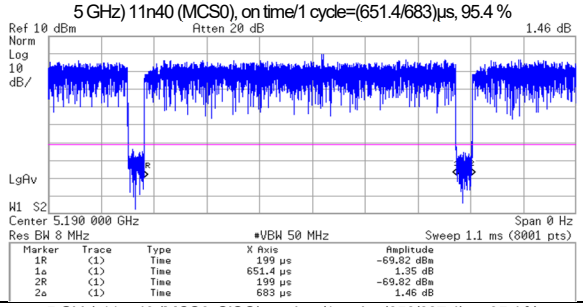
5 GHz) 11ax20 (MCS0, SISO), on time/1 cycle=(1.019/1.049)ms, 97.1 %



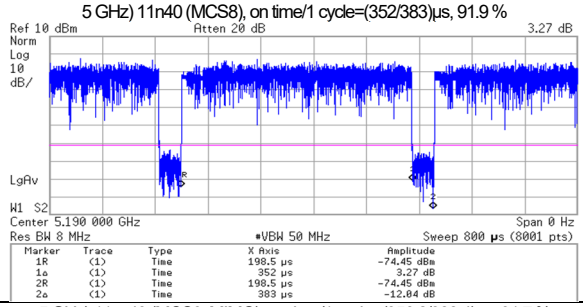
5 GHz) 11ax20 (MCS0, MIMO), on time/1 cycle=(541.7/573.2)µs, 94.5 %



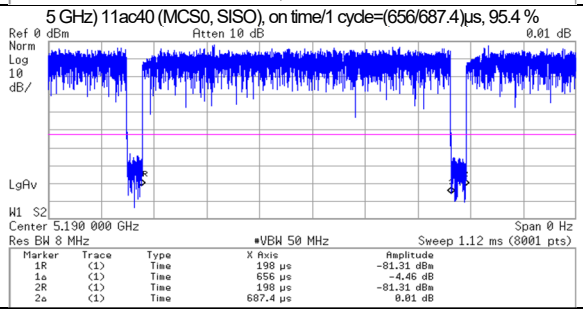
5 GHz) 11n40 (MCS0), on time/1 cycle=(651.4/683)µs, 95.4 %



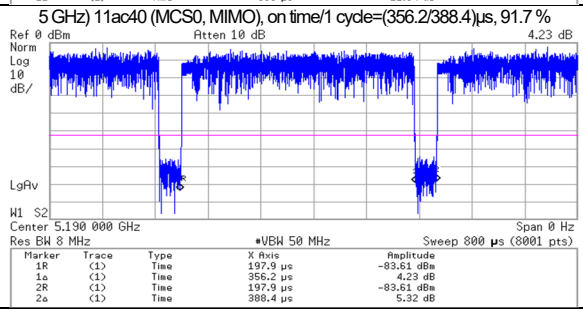
5 GHz) 11n40 (MCS8), on time/1 cycle=(352/383)µs, 91.9 %



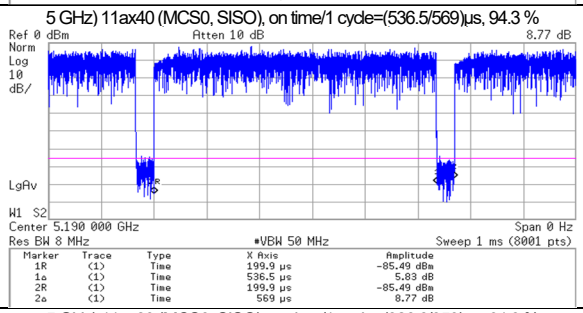
5 GHz) 11ac40 (MCS0, SISO), on time/1 cycle=(656/687.4)µs, 95.4 %



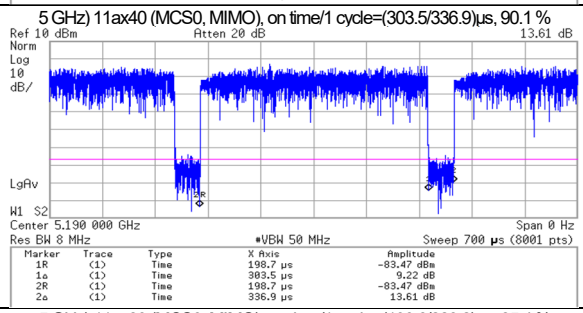
5 GHz) 11ac40 (MCS0, MIMO), on time/1 cycle=(356.2/388.4)µs, 91.7 %



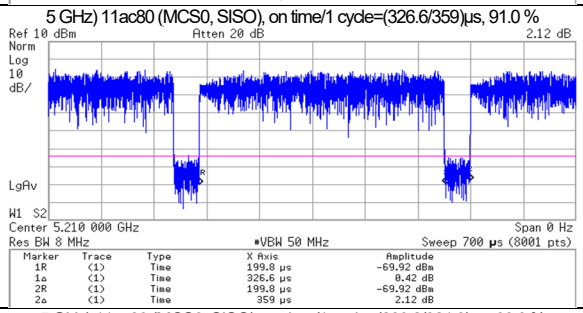
5 GHz) 11ax40 (MCS0, SISO), on time/1 cycle=(536.5/569)µs, 94.3 %



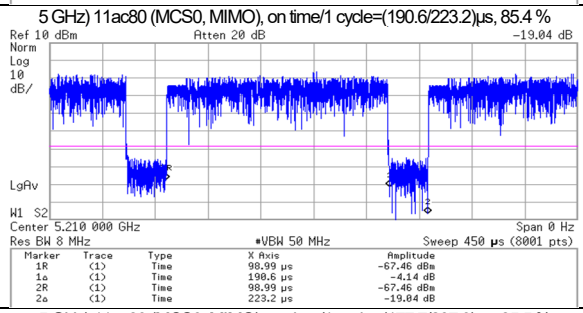
5 GHz) 11ax40 (MCS0, MIMO), on time/1 cycle=(303.5/336.9)µs, 90.1 %



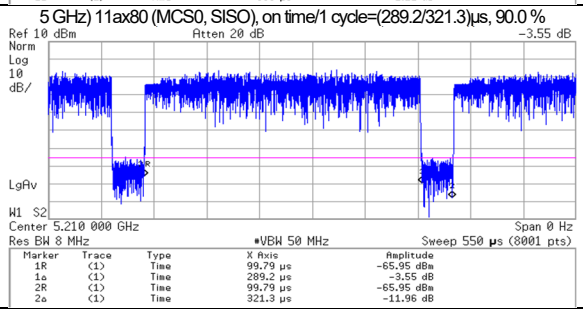
5 GHz) 11ac80 (MCS0, SISO), on time/1 cycle=(326.6/359)µs, 91.0 %



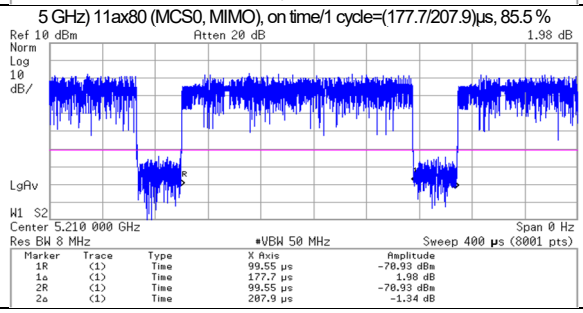
5 GHz) 11ac80 (MCS0, MIMO), on time/1 cycle=(190.6/223.2)µs, 85.4 %



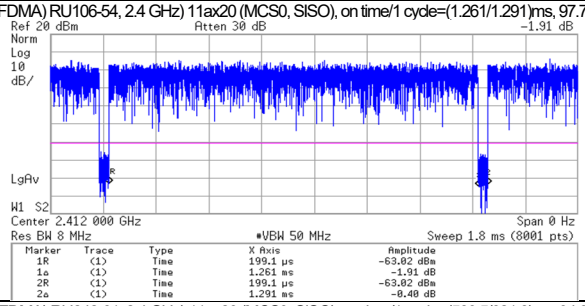
5 GHz) 11ax80 (MCS0, SISO), on time/1 cycle=(289.2/321.3)µs, 90.0 %



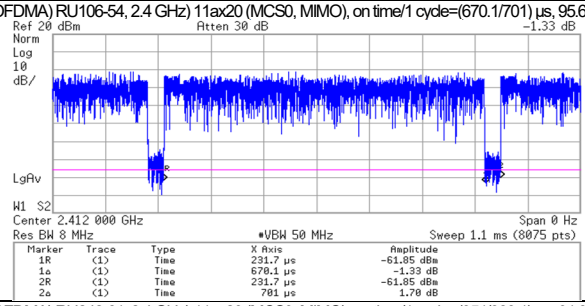
5 GHz) 11ax80 (MCS0, MIMO), on time/1 cycle=(177.7/207.9)µs, 85.5 %



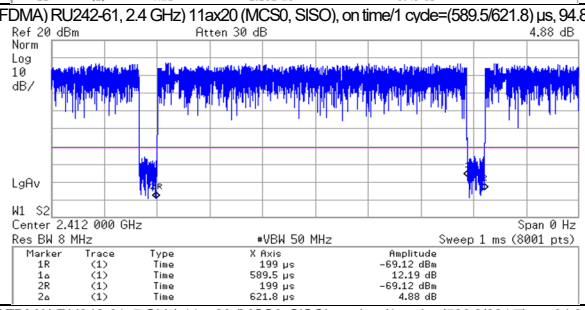
OFDMA) RU106-54, 2.4 GHz) 11ax20 (MCS0, SISO), on time/1 cycle=(1.261/1.291)ms, 97.7 %



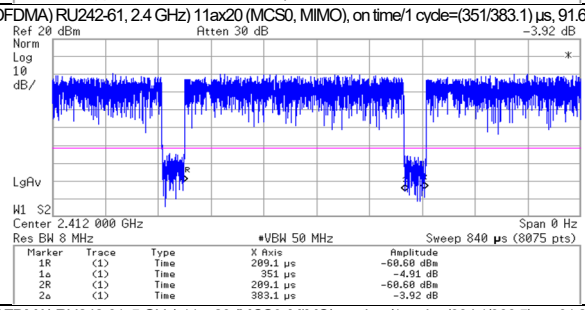
OFDMA) RU106-54, 2.4 GHz) 11ax20 (MCS0, MIMO), on time/1 cycle=(670.1/701) µs, 95.6 %



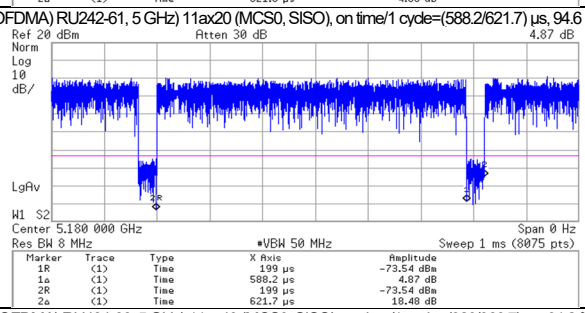
OFDMA) RU242-61, 2.4 GHz) 11ax20 (MCS0, SISO), on time/1 cycle=(589.5/621.8) µs, 94.8 %



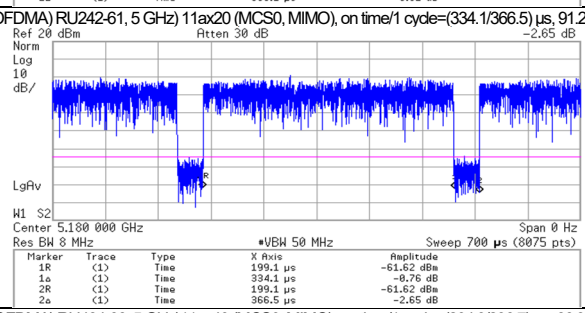
OFDMA) RU242-61, 2.4 GHz) 11ax20 (MCS0, MIMO), on time/1 cycle=(351/383.1) µs, 91.6 %



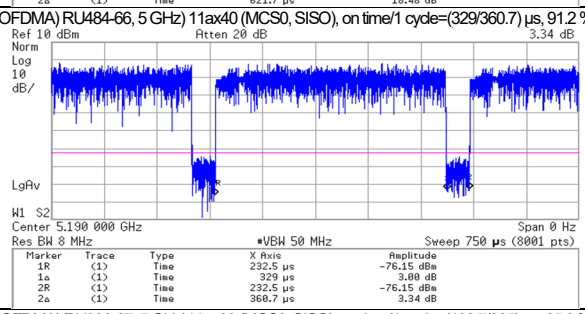
OFDMA) RU242-61, 5 GHz) 11ax20 (MCS0, SISO), on time/1 cycle=(588.2/621.7) µs, 94.6 %



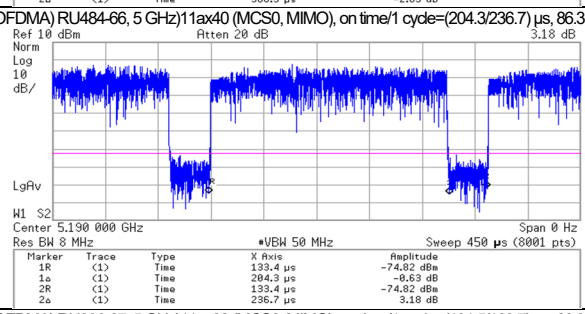
OFDMA) RU242-61, 5 GHz) 11ax20 (MCS0, MIMO), on time/1 cycle=(334.1/366.5) µs, 91.2 %



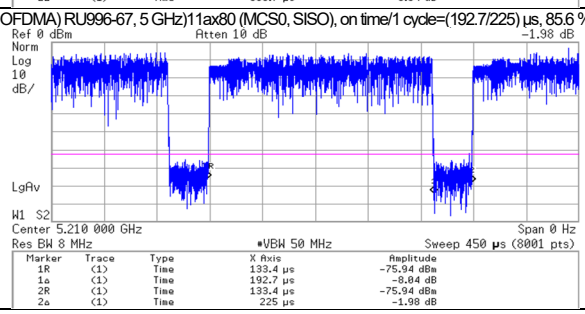
OFDMA) RU484-66, 5 GHz) 11ax40 (MCS0, SISO), on time/1 cycle=(329/360.7) µs, 91.2 %



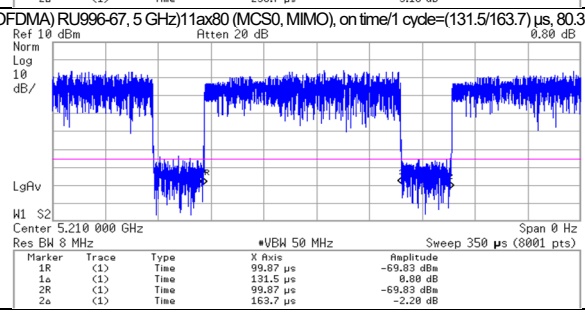
OFDMA) RU484-66, 5 GHz)11ax40 (MCS0, MIMO), on time/1 cycle=(204.3/236.7) µs, 86.3 %



OFDMA) RU996-67, 5 GHz)11ax80 (MCS0, SISO), on time/1 cycle=(192.7/225) µs, 85.6 %



OFDMA) RU996-67, 5 GHz)11ax80 (MCS0, MIMO), on time/1 cycle=(131.5/163.7) µs, 80.3 %



SECTION 6: Tissue simulating liquid

6.1 Liquid measurement

<SPC: System performance check>

Date measured	Freq.	Liq. type	Target	Permittivity (*.measured)				Target	Conductivity (*.measured)					ΔSAR		ΔSAR correct required ?	e',e'' Lerp ?	Liq. Temp.	Liq. depth	Liquid usage conditions
			e'	e'	Δe'	Limit	Δend	σ_tgt	σ	Δσ	Limit	Δend		1g	10g					
(YYYY-MM-DD)	[MHz]		[-]	[-]	[%]	[%](*2)	[%](*1)	[S/m]	[S/m]	[%]	[%](*2)	[%](*1)		[%]	[%]			[deg.C.]	[mm]	
2024-01-17	2450	Head	39.20	39.61	1.0	±10	begin	1.800	1.859	3.3	±10	begin		1.4	0.7	No	No	22.0	150	Measured before SAR test. (Used ~1/19, >48 hrs.)
2024-01-17	5250	Head	35.93	34.88	-2.9	±10	begin	4.706	4.571	-2.9	±10	begin		0.7	0.9	No	No	22.0	150	
2024-01-19	2450	Head	39.20	39.46	0.7	±10	-0.4%	1.800	1.863	3.5	±10	0.2%		1.5	0.8	No	No	22.0	150	+48 hrs.(1/17~)
2024-01-19	5250	Head	35.93	34.80	-3.1	±10	-0.2%	4.706	4.559	-3.1	±10	-0.3%		0.7	1.0	No	No	22.0	150	
2024-01-19	2450	Head	39.20	39.49	0.7	±10	-0.3%	1.800	1.857	3.2	±10	-0.1%		1.4	0.7	No	No	22.0	150	end of test, (1/17~)
2024-01-19	5250	Head	35.93	34.87	-2.9	±10	0.0%	4.706	4.537	-3.6	±10	-0.7%		0.7	0.9	No	No	22.0	150	
2024-01-22	2450	Head	39.20	39.26	0.2	±10	begin	1.800	1.848	2.7	±10	begin		1.3	0.7	No	No	22.0	150	Measured before SAR test. (Used ~1/26, >48 hrs.)
2024-01-22	5250	Head	35.93	34.71	-3.4	±10	begin	4.706	4.534	-3.7	±10	begin		0.8	1.1	No	No	22.0	150	
2024-01-24	2450	Head	39.20	39.36	0.4	±10	0.3%	1.800	1.836	2.0	±10	-0.6%		0.9	0.5	No	No	22.0	150	+48 hrs.(1/24~)
2024-01-24	5250	Head	35.93	34.72	-3.4	±10	0.0%	4.706	4.540	-3.5	±10	0.1%		0.8	1.1	No	No	22.0	150	
2024-01-26	2450	Head	39.20	39.27	0.2	±10	0.0%	1.800	1.857	3.2	±10	0.5%		1.5	0.8	No	No	22.0	150	+96 hrs.(1/24~)
2024-01-26	5250	Head	35.93	34.59	-3.7	±10	-0.3%	4.706	4.565	-3.0	±10	0.7%		0.8	1.1	No	No	22.0	150	
2024-01-26	2450	Head	39.20	39.16	-0.1	±10	-0.5%	1.800	1.842	2.3	±10	0.3%		1.1	0.6	No	No	22.0	150	end of test.(1/24~)
2024-01-26	5250	Head	35.93	34.52	-3.9	±10	-0.6%	4.706	4.518	-4.0	±10	-0.5%		0.9	1.2	No	No	22.0	150	
2024-01-29	2450	Head	39.20	39.37	0.4	±10	begin	1.800	1.862	3.4	±10	begin		1.5	0.8	No	No	22.0	150	Measured before SAR test. (Used ~1/30, <48 hrs.)
2024-01-29	5250	Head	35.93	34.62	-3.6	±10	begin	4.706	4.534	-3.7	±10	begin		0.8	1.1	No	No	22.0	150	

<SAR test>

Date measured	Freq.	Liq. type	Target	Permittivity (*.measured)				Target	Conductivity (*.measured)					ΔSAR		ΔSAR correct required ?	e',e'' Lerp ?	Liq. Temp.	Liq. depth	Liquid usage conditions
			e'	e'	Δe'	Limit	Δend	σ_tgt	σ	Δσ	Limit	Δend		1g	10g					
(YYYY-MM-DD)	[MHz]		[-]	[-]	[%]	[%](*2)	[%](*1)	[S/m]	[S/m]	[%]	[%](*2)	[%](*1)		[%]	[%]			[deg.C.]	[mm]	
2024-01-17	5180	Head	36.01	35.02	-2.8	±10	>48 hrs.	4.635	4.492	-3.1	±10	>48 hrs.		0.6	0.9	No	No	22.0	150	Measured before SAR test. (Used ~1/19 (>48 hrs.), Re-monitored every 48 hrs.) (The deviation from the first mersured was less than 2 %)
2024-01-17	5190	Head	36.00	34.99	-2.8	±10	>48 hrs.	4.645	4.502	-3.1	±10	>48 hrs.		0.6	0.9	No	No	22.0	150	
2024-01-17	5200	Head	35.99	34.97	-2.8	±10	>48 hrs.	4.655	4.513	-3.1	±10	>48 hrs.		0.6	0.9	No	No	22.0	150	
2024-01-17	5210	Head	35.97	34.95	-2.8	±10	>48 hrs.	4.665	4.525	-3.0	±10	>48 hrs.		0.6	0.9	No	No	22.0	150	
2024-01-17	5220	Head	35.96	34.93	-2.9	±10	>48 hrs.	4.676	4.536	-3.0	±10	>48 hrs.		0.7	0.9	No	No	22.0	150	
2024-01-17	5230	Head	35.95	34.92	-2.9	±10	>48 hrs.	4.686	4.548	-2.9	±10	>48 hrs.		0.7	0.9	No	No	22.0	150	
2024-01-17	5240	Head	35.94	34.90	-2.9	±10	>48 hrs.	4.696	4.559	-2.9	±10	>48 hrs.		0.7	0.9	No	No	22.0	150	
2024-01-17	5260	Head	35.92	34.86	-2.9	±10	>48 hrs.	4.717	4.581	-2.9	±10	>48 hrs.		0.7	0.9	No	No	22.0	150	
2024-01-17	5270	Head	35.91	34.84	-3.0	±10	>48 hrs.	4.727	4.591	-2.9	±10	>48 hrs.		0.7	0.9	No	No	22.0	150	
2024-01-17	5280	Head	35.89	34.82	-3.0	±10	>48 hrs.	4.737	4.601	-2.9	±10	>48 hrs.		0.7	0.9	No	No	22.0	150	
2024-01-17	5290	Head	35.88	34.79	-3.0	±10	>48 hrs.	4.747	4.612	-2.8	±10	>48 hrs.		0.7	0.9	No	No	22.0	150	
2024-01-17	5300	Head	35.87	34.78	-3.1	±10	>48 hrs.	4.758	4.624	-2.8	±10	>48 hrs.		0.7	0.9	No	No	22.0	150	
2024-01-17	5310	Head	35.86	34.76	-3.1	±10	>48 hrs.	4.768	4.636	-2.8	±10	>48 hrs.		0.7	0.9	No	No	22.0	150	
2024-01-17	5320	Head	35.85	34.74	-3.1	±10	>48 hrs.	4.778	4.648	-2.7	±10	>48 hrs.		0.7	0.9	No	No	22.0	150	
2024-01-22	2412	Head	39.27	39.31	0.1	±10	>48 hrs.	1.766	1.817	2.9	±10	>48 hrs.		1.4	0.8	No	No	22.0	150	Measured before SAR test. (Used ~1/26 (> 48 hrs.), Re-monitored every 48 hrs.) (The deviation from the first mersured was less than 2 %)
2024-01-22	2437	Head	39.22	39.28	0.1	±10	>48 hrs.	1.788	1.839	2.9	±10	>48 hrs.		1.4	0.7	No	No	22.0	150	
2024-01-22	2442	Head	39.21	39.27	0.1	±10	>48 hrs.	1.793	1.843	2.8	±10	>48 hrs.		1.3	0.7	No	No	22.0	150	
2024-01-22	2462	Head	39.19	39.23	0.1	±10	>48 hrs.	1.813	1.856	2.4	±10	>48 hrs.		1.1	0.6	No	No	22.0	150	
2024-01-22	2472	Head	39.17	39.22	0.1	±10	>48 hrs.	1.824	1.863	2.1	±10	>48 hrs.		1.0	0.5	No	No	22.0	150	
2024-01-22	2480	Head	39.16	39.19	0.1	±10	>48 hrs.	1.833	1.870	2.0	±10	>48 hrs.		0.9	0.5	No	No	22.0	150	
2024-01-22	5180	Head	36.01	34.82	-3.3	±10	>48 hrs.	4.635	4.458	-3.8	±10	>48 hrs.		0.8	1.0	No	No	22.0	150	
2024-01-22	5190	Head	36.00	34.80	-3.3	±10	>48 hrs.	4.645	4.470	-3.8	±10	>48 hrs.		0.8	1.0	No	No	22.0	150	
2024-01-22	5200	Head	35.99	34.79	-3.3	±10	>48 hrs.	4.655	4.480	-3.8	±10	>48 hrs.		0.8	1.0	No	No	22.0	150	
2024-01-22	5210	Head	35.97	34.77	-3.3	±10	>48 hrs.	4.665	4.491	-3.7	±10	>48 hrs.		0.8	1.0	No	No	22.0	150	
2024-01-22	5220	Head	35.96	34.76	-3.4	±10	>48 hrs.	4.676	4.502	-3.7	±10	>48 hrs.		0.8	1.1	No	No	22.0	150	
2024-01-22	5230	Head	35.95	34.74	-3.4	±10	>48 hrs.	4.686	4.513	-3.7	±10	>48 hrs.		0.8	1.1	No	No	22.0	150	
2024-01-22	5240	Head	35.94	34.73	-3.4	±10	>48 hrs.	4.696	4.523	-3.7	±10	>48 hrs.		0.8	1.1	No	No	22.0	150	
2024-01-22	5260	Head	35.92	34.69	-3.4	±10	>48 hrs.	4.717	4.545	-3.6	±10	>48 hrs.		0.8	1.1	No	No	22.0	150	
2024-01-22	5270	Head	35.91	34.67	-3.4	±10	>48 hrs.	4.727	4.556	-3.6	±10	>48 hrs.		0.8	1.1	No	No	22.0	150	
2024-01-22	5280	Head	35.89	34.65	-3.5	±10	>48 hrs.	4.737	4.567	-3.6	±10	>48 hrs.		0.8	1.1	No	No	22.0	150	
2024-01-22	5290	Head	35.88	34.64	-3.5	±10	>48 hrs.	4.747	4.579	-3.5	±10	>48 hrs.		0.8	1.1	No	No	22.0	150	
2024-01-22	5300	Head	35.87	34.62	-3.5	±10	>48 hrs.	4.758	4.590	-3.5	±10	>48 hrs.		0.8	1.1	No	No	22.0	150	
2024-01-22	5310	Head	35.86	34.60	-3.5	±10	>48 hrs.	4.768	4.602	-3.5	±10	>48 hrs.		0.8	1.1	No	No	22.0	150	
2024-01-22	5320	Head	35.85	34.59	-3.5	±10	>48 hrs.	4.778	4.613	-3.5	±10	>48 hrs.		0.8	1.1	No	No	22.0	150	
2024-01-29	2402	Head	39.29	39.46	0.4	±10	<48 hrs.	1.757	1.825	3.9	±10	>48 hrs.		1.8	1.0	No	No	22.0	150	Measured before SAR test. (Used ~1/30, <48 hrs.)
2024-01-29	2412	Head	39.27	39.44	0.4	±10	<48 hrs.	1.766	1.833	3.8	±10	<48 hrs.		1.8	1.0	No	No	22.0	150	
2024-01-29	2437	Head	39.22	39.40	0.4	±10	<48 hrs.	1.788	1.853	3.6	±10	<48 hrs.		1.6	0.9	No	No	22.0	150	
2024-01-29	2440	Head	39.22	39.39	0.4	±10	<48 hrs.	1.791	1.855	3.6	±10	<48 hrs.		1.6	0.9	No	No	22.0	150	
2024-01-29	2442	Head	39.21	39.39	0.4	±10	<48 hrs.	1.793	1.857	3.6	±10	<48 hrs.		1.6	0.9	No	No	22.0	150	
2024-01-29	2462	Head	39.19	39.34	0.4	±10	<48 hrs.	1.813	1.870	3.1	±10	<48 hrs.		1.4	0.7	No	No	22.0	150	
2024-01-29	2472	Head	39.17	39.33	0.4	±10	<48 hrs.	1.824	1.878	3.0	±10	<48 hrs.		1.3	0.7	No	No	22.0	150	
2024-01-29	2480	Head	39.16	39.30	0.4	±10	<48 hrs.	1.833	1.885	2.8	±10	<48 hrs.		1.2	0.6	No	No	22.0	150	
2024-01-29	5210	Head	35.97	34.69	-3.6	±10	<48 hrs.	4.665	4.492	-3.7	±10	<48 hrs.		0.8	1.1	No	No	22.0	150	
2024-01-29	5290	Head	35.88	34.54	-3.7	±10	<48 hrs.	4.747	4.576	-3.6	±10	<48 hrs.		0.9	1.1	No	No	22.0	150	

*1. Definition of Δend.) "begin": there are measured before SAR test; "< 24 hrs.": SAR test has ended within 24 hours from the liquid parameter measured; "< 48 hrs.": Since SAR test has ended within 48 hours from the liquid parameter measured and a change in the liquid temperature was within 1 degree, liquid parameters measured on first day were used on next day continuously; "> 48 hrs.": Since the SAR test series took longer than 48 hours, the liquid parameters were measured on every 48 hours period and on the date which was end of test series. Since the difference of liquid parameters between the beginning and next measurement was smaller than 5%, the liquid parameters measured in beginning were used until end of each test series.
Calculating formula: "Δend(>48 hrs.) (%)"" = {(dielectric properties, end of test series) / (dielectric properties, beginning of test series) -1} × 100

*2. The electrical properties of the liquid at <6 GHz were controlled to within 5% even with a limit of 10%.

*. The electrical characteristics of the SAR test frequencies were measured using DAK software, DAK-3.5/DAKS-3.5 and a network analyzer with the 2.4 GHz band swept at 1 MHz and the 5 GHz and 6 GHz bands swept at 5 MHz. In this way, the electrical characteristics of all test frequencies were measured directly at the individual frequencies without interpolation.

*. The target values refers to clause 6.2 of this report.

*. The coefficients in below are parameters defined in IEEE Std.1528-2013.

(Calculating formula,4 MHz~6 GHz): $\Delta SAR(1g) = C\varepsilon r \times \Delta\varepsilon r + C\sigma \times \Delta\sigma$, $C\varepsilon r = 7.854E\text{-}4 \times f^3 + 9.402E\text{-}3 \times f^2 - 2.742E\text{-}2 \times f - 0.2026$ / $C\sigma = 9.804E\text{-}3 \times f^3 - 8.661E\text{-}2 \times f^2 + 2.981E\text{-}2 \times f + 0.7829$

$\Delta SAR(10g) = C\varepsilon r \times \Delta\varepsilon r + C\sigma \times \Delta\sigma$, $C\varepsilon r = 3.456 \times 10^{-3} \times f^3 - 3.531 \times 10^{-2} \times f^2 + 7.675 \times 10^{-2} \times f - 0.1860$ / $C\sigma = 4.479 \times 10^{-3} \times f^3 - 1.586 \times 10^{-2} \times f^2 - 0.1972 \times f + 0.7717$

(Calculating formula, above 6GHz): $\Delta SAR(1g) = C\varepsilon r \times \Delta\varepsilon r + C\sigma \times \Delta\sigma$, $C\varepsilon r = -0.198$ / $C\sigma = 0$, $\Delta SAR(10g) = C\varepsilon r \times \Delta\varepsilon r + C\sigma \times \Delta\sigma$, $C\varepsilon r = -0.250$ / $C\sigma = 0$

(Calculating formula): ΔSAR corrected SAR (W/kg) = (Measured SAR (W/kg)) × (100 - (ΔSAR(%)) / 100

Since the calculated ΔSAR values of the tested liquid had shown positive correction, the measured SAR was not converted by ΔSAR correction conservatively.

6.2 Target of tissue simulating liquid

Nominal dielectric values of the tissue simulating liquids in the phantom are listed in the following table. (Appendix A, KDB 865664 v01r04)

Target Frequency	Head		Body	
(MHz)	ε_r	σ(S/m)	ε_r	σ(S/m)
1800~2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95

Target Frequency	Head		Body	
(MHz)	ε_r	σ(S/m)	ε_r	σ(S/m)
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

*. For other frequencies, the target nominal dielectric values shall be obtained by linear interpolation between the higher and lower tabulated figures. Above 5800MHz were obtained using linear extrapolation.

6.3 Simulated tissue composition

Liquid type	Head	Control No.	SSLHV6-01	Model No. / Product No.	HBBL600-10000V6 / SL AAH U16 BC
Ingredient: Mixture [%]	Water: >77, Ethanediol: <5.2, Sodium petroleum sulfonate:<2.9, Hexylene Glycol: <2.9, alkoxylated alcohol (>C_{16}):<2.0				
Tolerance specification	± 10%				
Temperature gradients [% / deg.C]	permittivity: -0.19 / conductivity: -0.57 (at 2.6 GHz), permittivity: +0.31 / conductivity: -1.43 (at 5.5 GHz) (*)				
Manufacture	Schmid & Partner Engineering AG	Note: *. speag_920-SLAAxyy-E_1.12.15CL (Maintenance of tissue simulating liquid)			

SECTION 7: Measurement results

7.1 Measurement results

7.1.1 SAR measurement results (2.4 GHz band)

Ant. No.	Dist. b/w ant. [mm]	RF Exposure conditon	Setup position	Gap [mm]	Source power	Tx mode mode	Tx	Stream	D/R [Mbps]	RU	index	Freq. [MHz]	CH	Duty [%]	Duty S/F [-]	Pmax [dBm]	Pmeas [dBm]	Pwr. S/F [-]	SAR1g [W/kg] (*b) Meas.	Δsar(*a)	Report	(*c) SUM SAR1g (SPLSR)	Limit [W/kg]	Setup photo#, Appx.1-3	Data plot#, Appx.2	Memo
1	-	Body	Back	0	USB	BT LE(1M)	-	-	1	-	-	2402	0	85.6	1.17	6	4.83	1.31	0.075	N/A	**0.115**	-	1.6	P1	1-4	-
1	-	Body	Back	0	USB	BT LE(1M)	-	-	1	-	-	2440	19	85.6	1.17	6	4.69	1.35	0.067	N/A	**0.106**	-	1.6	P1	-	-
1	-	Body	Back	0	USB	BT LE(1M)	-	-	1	-	-	2480	39	85.6	1.17	6	4.66	1.36	0.057	N/A	**0.091**	-	1.6	P1	-	-
1	-	Body	Front(LCD)	0	USB	BT LE(1M)	-	-	1	-	-	2402	0	85.6	1.17	6	4.83	1.31	0.021	N/A	**0.032**	-	1.6	P2	-	-
1	-	Body	Top	0	Battery	BT LE(1M)	-	-	1	-	-	2402	0	85.6	1.17	6	4.83	1.31	0.016	N/A	**0.025**	-	1.6	P4	-	-
1	-	Body	Right	0	USB	BT LE(1M)	-	-	1	-	-	2402	0	85.6	1.17	6	4.83	1.31	exempt	N/A	**N/A**	-	1.6	-	-	Exempt(See 4.2)
1	-	Body	Bottom	0	USB	BT LE(1M)	-	-	1	-	-	2402	0	85.6	1.17	6	4.83	1.31	exempt	N/A	**N/A**	-	1.6	-	-	Exempt(See 4.2)
1	-	Body	Left	0	USB	BT LE(1M)	-	-	1	-	-	2402	0	85.6	1.17	6	4.83	1.31	exempt	N/A	**N/A**	-	1.6	-	-	Exempt(See 4.2)
0	-	Body	Back	0	USB	BT LE(125k)	-	-	125k	-	-	2402	0	97.5	1.03	6	5.63	1.09	0.108	N/A	**0.121**	-	1.6	P1	1-3	-
0	-	Body	Back	0	USB	BT LE(125k)	-	-	125k	-	-	2440	19	97.5	1.03	6	5.42	1.14	0.098	N/A	**0.115**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	BT LE(125k)	-	-	125k	-	-	2480	39	97.5	1.03	6	5.32	1.17	0.088	N/A	**0.106**	-	1.6	P1	-	-
0	-	Body	Top	0	Battery	BT LE(125k)	-	-	125k	-	-	2402	0	97.5	1.03	6	5.63	1.09	0.015	N/A	**0.017**	-	1.6	P5	-	-
0	-	Body	Front(LCD)	0	USB	BT LE(125k)	-	-	125k	-	-	2402	0	97.5	1.03	6	5.63	1.09	0.021	N/A	**0.024**	-	1.6	P2	-	-
0	-	Body	Right	0	USB	BT LE(125k)	-	-	125k	-	-	2402	0	97.5	1.03	6	5.63	1.09	exempt	N/A	**N/A**	-	1.6	-	-	Exempt(See 4.2)
0	-	Body	Bottom	0	USB	BT LE(125k)	-	-	125k	-	-	2402	0	97.5	1.03	6	5.63	1.09	exempt	N/A	**N/A**	-	1.6	-	-	Exempt(See 4.2)
0	-	Body	Left	0	USB	BT LE(125k)	-	-	125k	-	-	2402	0	97.5	1.03	6	5.63	1.09	exempt	N/A	**N/A**	-	1.6	-	-	Exempt(See 4.2)
0	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2412	1	99.6	1	14	13.04	1.25	0.535	N/A	**0.669**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	14	13.3	1.17	0.558	N/A	**0.653**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2462	11	99.6	1	14	13.29	1.18	0.571	N/A	**0.674**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2412	1	99.6	1	10	8.78	1.32	0.209	N/A	**0.276**	-	1.6	P1	-	*.low power.
0	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	10	8.89	1.29	0.218	N/A	**0.281**	-	1.6	P1	-	*.low power.
0	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2462	11	99.6	1	10	9.19	1.21	0.229	N/A	**0.277**	-	1.6	P1	-	*.low power.
0	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2472	13	99.6	1	5	3.95	1.27	0.094	N/A	**0.119**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	2412	1	97.1	1.03	14	13.02	1.25	0.508	N/A	**0.654**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	2437	6	97.1	1.03	14	13.1	1.23	0.537	N/A	**0.680**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	2462	11	97.1	1.03	14	13.15	1.22	0.584	N/A	**0.734**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	106	57	2412	1	97.7	1.02	14	13.56	1.11	0.557	N/A	**0.631**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	106	57	2437	6	97.7	1.02	14	13.8	1.05	0.629	N/A	**0.674**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	106	57	2462	11	97.7	1.02	14	13.88	1.03	0.702	N/A	**0.738**	-	1.6	P1	1-2	-
0	-	Body	Front(LCD)	0	USB	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	14	13.3	1.17	0.024	N/A	**0.028**	-	1.6	P2	-	-
0	-	Body	Left	0	USB	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	14	13.3	1.17	0.043	N/A	**0.050**	-	1.6	P3	-	-
0	-	Body	Top	0	Battery	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	14	13.3	1.17	0.079	N/A	**0.092**	-	1.6	P4	-	-
0	-	Body	Bottom	0	Battery	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	14	13.3	1.17	exempt	N/A	**N/A**	-	1.6	-	-	Exempt(See 4.2)
0	-	Body	Right	0	USB	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	14	13.3	1.17	exempt	N/A	**N/A**	-	1.6	-	-	Exempt(See 4.2)
2	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2412	1	99.6	1	14	12.23	1.5	0.674	N/A	**1.011**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	14	12.43	1.44	0.732	N/A	**1.054**	-	1.6	P1	1-1	-
2	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2462	11	99.6	1	14	12.43	1.44	0.701	N/A	**1.009**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2412	1	99.6	1	10	8.16	1.53	0.253	N/A	**0.387**	-	1.6	P1	-	*.low power.
2	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	10	8.09	1.55	0.273	N/A	**0.423**	-	1.6	P1	-	*.low power.
2	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2462	11	99.6	1	10	8.36	1.46	0.271	N/A	**0.396**	-	1.6	P1	-	*.low power.
2	-	Body	Back	0	USB	11b	1Tx	1ST	1	-	-	2472	13	99.6	1	5	3.4	1.45	0.101	N/A	**0.146**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	2412	1	97.1	1.03	14	12.42	1.44	0.624	N/A	**0.926**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	2437	6	97.1	1.03	14	12.44	1.43	0.664	N/A	**0.978**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	2462	11	97.1	1.03	14	12.38	1.45	0.698	N/A	**1.042**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	106	57	2412	1	97.7	1.02	14	12.91	1.29	0.703	N/A	**0.925**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	106	57	2437	6	97.7	1.02	14	13.11	1.23	0.791	N/A	**0.992**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	106	57	2462	11	97.7	1.02	14	13.32	1.17	0.851	N/A	**1.016**	-	1.6	P1	1-5	See §7.3.
2	-	Body	Front(LCD)	0	USB	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	14	12.43	1.44	0.053	N/A	**0.076**	-	1.6	P2	-	-
2	-	Body	Bottom	0	Battery	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	14	12.43	1.44	0.081	N/A	**0.117**	-	1.6	P5	-	-
2	-	Body	Right	0	USB	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	14	12.43	1.44	0.072	N/A	**0.104**	-	1.6	P6	-	-
2	-	Body	Top	0	Battery	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	14	12.43	1.44	exempt	N/A	**N/A**	-	1.6	-	-	Exempt(See 4.2)
2	-	Body	Left	0	USB	11b	1Tx	1ST	1	-	-	2437	6	99.6	1	14	12.43	1.44	exempt	N/A	**N/A**	-	1.6	-	-	Exempt(See 4.2)
2	153	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	2437	6	95.6	1.05	7	5.63	1.37	0.139	N/A	**0.200**	0.360	1.6	P1	-	-
0	-	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	2437	6	95.6	1.05	7	6.16	1.21	0.126	N/A	**0.160**	(< limit)	1.6	P1	-	-

*. Low power: The WLAN 2.4 GHz power is reduced by firmware to a maximum power of 10 dBm, when the simultaneous transmission of 6 GHz is executed.
*. BT LE (1 Mbps) is representative mode for BT(1) (antenna 1). BT LE (125 kbps) is representative mode for BT(0) (antenna 0).
*. The highest Reported (scaled) IPD on each antenna are marked with yellow marker (x.xxx), respectively.
*. Exempt: SAR test is exempted by evaluated SAR test exclusion threshold power. See section 4.; Ant.: Antenna; D/R: Data rate; Freq.: Frequency; Duty: Duty cycle; D.S/F: Duty Scaling Factor; Pmax: Max power (Tune-up tolerance power); Pmeas.: Measurement conducted power; P.S/F Power Scaling Factor; Meas.: Measurement; Appx: Appendix; Gap: It is separation distance between the device surface and the bottom outer surface of phantom; Dist. b/w ant.: Minimum distance between two antennas on a drawing basis (Refer to Appendix 1-1). During SAR test, the radiated power is always monitored by Spectrum Analyzer or/and MAIA.
*. All SAR tests were conservatively performed with test separation distance 0 mm.
*. SUM SAR: (KDB 248227 D01v02r02, Clause 6.1: Antenna Spatial Configurations) The SAR1g distribution of antenna 0 and antenna 2 wasn't overlapped in this setup condition because the distance between the antenna 0 and antenna 2 was away sufficiently (153 mm). Therefore, SAR from an antenna (either antenna 0 or antenna 2) was the result which indicates the higher SAR value.
*. (KDB 248227 D01) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR test of OFDM mode was reduced.

OFDM mode (SISO)	Maximum tune-up tolerance limit DSSS [dBm]	DSSS [mW] (a)	OFDM [dBm]	OFDM [mW] (b)	OFDM scaled factor [-] (b)/(a)×100	DSSS worst reported SAR(1g) value [W/kg] Setup	Antenna 0	Antenna 2	**Estimated SAR value: OFDM [W/kg]** Antenna 0	Antenna 2	Exclusion limit [W/kg]	Standalone SAR test of OFDM mode require?
11g	14	25	14	25	1.00	Back	0.674	1.054	**0.674**	**1.054**	**≤ 1.2**	**No**
11n20	14	25	14	25	1.00	Back	0.674	1.054	**0.674**	**1.054**	**≤ 1.2**	**No**
11ax20	14	25	14	25	1.00	Back	0.674	1.054	**0.674**	**1.054**	**≤ 1.2**	**No**

*a. Since the calculated ΔSAR values of the tested liquid had shown positive correction, the measured SAR was not converted by ΔSAR correction.
Calculating formula: ΔSAR corrected SAR (W/kg) = (Measured SAR (W/kg)) × (100 - (ΔSAR(%)) / 100
*b. Calculating formula: Reported (Scaled) SAR (W/kg) = (Measured SAR (W/kg)) × (Duty scaled factor) × (Power scaled factor)
where, Duty scaled factor [-] = 100(%) / (measured duty cycle, %), Power scaled factor [-] = 10 ^ (((Max.tune-up limit power, dBm) - (Measured conducted power, dBm)) / 10)
*c. Calculating formula: ΣSAR1g (W/kg) = Reported SAR1g (antenna 0) + Reported SAR1g (antenna 2), SPLSR = (ΣSAR1g)^1.5 / (antenna separation distance, mm)
*. Calibration frequency of the SAR measurement probe (and used conversion factors for each frequency.)
The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

Liquid	SAR test frequency	Probe calibration frequency	Validity
Head	(2402, 2412, 2437, 2440, 2462, 2472, 2480) MHz	2450 MHz	within ± 50 MHz of calibration frequency

7.1.2a SAR measurement results (WLAN 5.2 GHz band)

Ant. No.	Dist. b/w ant. [mm]	RF Exposure conditon	Setup position	Gap [mm]	Source power	Tx mode mode	Tx	Stream	D/R [Mbps]	RU	index	Freq. [MHz]	CH	Duty [%]	Duty S/F [-]	Pmax [dBm]	Pmeas [dBm]	Pwr. S/F [-]	SAR1g [W/kg] (*b) Meas.	Δsar(*a)	Report	(*c) SUM SAR1g (SPLSR)	Limit [W/kg]	Setup photo#, Appx.1-3	Data plot#, Appx.2	Memo
2	153	Body	Back	0	USB	11ac80	2Tx	2ST	MCS0	-	-	5210	42	85.4	1.17	8.5	7.37	1.3	0.851	N/A	**1.294**	2.232	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac80	2Tx	2ST	MCS0	-	-	5210	42	85.4	1.17	8.5	6.7	1.51	0.531	N/A	**0.938**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5210	42	85.5	1.17	8.5	7.58	1.24	0.89	N/A	**1.291**	2.221	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5210	42	85.5	1.17	8.5	6.93	1.44	0.552	N/A	**0.930**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax80	2Tx	2ST	MCS0	996	67	5210	42	80.3	1.25	8.5	7.59	1.23	0.838	N/A	**1.288**	2.211	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax80	2Tx	2ST	MCS0	996	67	5210	42	80.3	1.25	8.5	6.98	1.42	0.52	N/A	**0.923**	(0.021)	1.6	P1	-	-
2	153	Body	Back	0	USB	11n40	2Tx	2ST	MCS8	-	-	5190	38	91.9	1.09	8.5	7.79	1.18	0.951	N/A	**1.223**	2.176	1.6	P1	-	-
0	-	Body	Back	0	USB	11n40	2Tx	2ST	MCS8	-	-	5190	38	91.9	1.09	8.5	6.81	1.48	0.591	N/A	**0.953**	(0.021)	1.6	P1	2a-2	-
2	153	Body	Back	0	USB	11n40	2Tx	2ST	MCS8	-	-	5230	46	91.9	1.09	8.5	7.72	1.2	1.06	N/A	**1.386**	2.281	1.6	P1	-	-
0	-	Body	Back	0	USB	11n40	2Tx	2ST	MCS8	-	-	5230	46	91.9	1.09	8.5	6.99	1.42	0.578	N/A	**0.895**	(0.023)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ac40	2Tx	2ST	MCS0	-	-	5190	38	91.7	1.09	8.5	7.79	1.18	0.982	N/A	**1.263**	2.186	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac40	2Tx	2ST	MCS0	-	-	5190	38	91.7	1.09	8.5	6.79	1.48	0.572	N/A	**0.923**	(0.021)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ac40	2Tx	2ST	MCS0	-	-	5230	46	91.7	1.09	8.5	7.74	1.19	1.06	N/A	**1.375**	2.268	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac40	2Tx	2ST	MCS0	-	-	5230	46	91.7	1.09	8.5	6.95	1.43	0.573	N/A	**0.893**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	-	-	5190	38	90.1	1.11	8.5	8.01	1.12	0.989	N/A	**1.230**	2.125	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	-	-	5190	38	90.1	1.11	8.5	7.02	1.41	0.572	N/A	**0.895**	(0.020)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	-	-	5230	46	90.1	1.11	8.5	8	1.12	1.07	N/A	**1.330**	2.190	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	-	-	5230	46	90.1	1.11	8.5	7.15	1.36	0.57	N/A	**0.860**	(0.021)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	484	65	5190	38	86.3	1.16	8.5	7.95	1.14	0.836	N/A	**1.106**	1.914	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	484	65	5190	38	86.3	1.16	8.5	6.96	1.43	0.487	N/A	**0.808**	(0.017)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	484	65	5230	46	86.3	1.16	8.5	7.84	1.16	0.898	N/A	**1.208**	1.999	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	484	65	5230	46	86.3	1.16	8.5	7.03	1.4	0.487	N/A	**0.791**	(0.018)	1.6	P1	-	-
2	153	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	5180	36	95.6	1.05	8.5	7.64	1.22	0.946	N/A	**1.212**	2.137	1.6	P1	-	-
0	-	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	5180	36	95.6	1.05	8.5	7.12	1.37	0.643	N/A	**0.925**	(0.020)	1.6	P1	-	-
2	153	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	5220	44	95.6	1.05	8.5	7.59	1.23	1.02	N/A	**1.317**	2.201	1.6	P1	-	-
0	-	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	5220	44	95.6	1.05	8.5	7.29	1.32	0.638	N/A	**0.884**	(0.021)	1.6	P1	-	-
2	153	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	5240	48	95.6	1.05	8.5	7.52	1.25	1.05	N/A	**1.378**	2.236	1.6	P1	-	-
0	-	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	5240	48	95.6	1.05	8.5	7.22	1.34	0.61	N/A	**0.858**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ac20	2Tx	2ST	MCS0	-	-	5180	36	95.5	1.05	8.5	7.71	1.2	0.95	N/A	**1.197**	2.128	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac20	2Tx	2ST	MCS0	-	-	5180	36	95.5	1.05	8.5	7.07	1.39	0.638	N/A	**0.931**	(0.020)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ac20	2Tx	2ST	MCS0	-	-	5220	44	95.5	1.05	8.5	7.63	1.22	1.03	N/A	**1.319**	2.212	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac20	2Tx	2ST	MCS0	-	-	5220	44	95.5	1.05	8.5	7.31	1.32	0.644	N/A	**0.893**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ac20	2Tx	2ST	MCS0	-	-	5240	48	95.5	1.05	8.5	7.52	1.25	1.06	N/A	**1.391**	2.277	1.6	P1	2a-1	-
0	-	Body	Back	0	USB	11ac20	2Tx	2ST	MCS0	-	-	5240	48	95.5	1.05	8.5	7.23	1.34	0.63	N/A	**0.886**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	Battery	11ac20	2Tx	2ST	MCS0	-	-	5240	48	95.5	1.05	8.5	7.52	1.25	1.03	N/A	**1.352**	2.171	1.6	P7	-	*.no I/F cable.
0	-	Body	Back	0	Battery	11ac20	2Tx	2ST	MCS0	-	-	5240	48	95.5	1.05	8.5	7.23	1.34	0.582	N/A	**0.819**	(0.021)	1.6	P7	-	*.no I/F cable.
2	153	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5180	36	94.5	1.06	8.5	7.87	1.16	0.982	N/A	**1.207**	2.144	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5180	36	94.5	1.06	8.5	7.18	1.36	0.65	N/A	**0.937**	(0.021)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5220	44	94.5	1.06	8.5	7.78	1.18	1.06	N/A	**1.326**	2.207	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5220	44	94.5	1.06	8.5	7.51	1.26	0.66	N/A	**0.881**	(0.021)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5240	48	94.5	1.06	8.5	7.73	1.19	1.1	N/A	**1.388**	2.256	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5240	48	94.5	1.06	8.5	7.41	1.29	0.635	N/A	**0.868**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	242	61	5180	36	91.2	1.1	8.5	7.83	1.17	0.948	N/A	**1.220**	2.155	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	242	61	5180	36	91.2	1.1	8.5	7.27	1.33	0.639	N/A	**0.935**	(0.021)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	242	61	5220	44	91.2	1.1	8.5	7.71	1.2	1.02	N/A	**1.346**	2.241	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	242	61	5220	44	91.2	1.1	8.5	7.46	1.27	0.641	N/A	**0.895**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	242	61	5240	48	91.2	1.1	8.5	7.73	1.19	1.06	N/A	**1.388**	2.255	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	242	61	5240	48	91.2	1.1	8.5	7.41	1.29	0.611	N/A	**0.867**	(0.022)	1.6	P1	-	-
2	153	Body	Front(LCD)	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5210	42	85.5	1.17	8.5	7.58	1.24	exempt	N/A	**N/A**	N/A	1.6	-	-	See WLAN 5.3 GHz.
0	-	Body	Front(LCD)	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5210	42	85.5	1.17	8.5	6.93	1.44	exempt	N/A	**N/A**	-	1.6	-	-	See WLAN 5.3 GHz.
2	153	Body	Left	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5210	42	85.5	1.17	8.5	7.58	1.24	exempt	N/A	**N/A**	N/A	1.6	-	-	See WLAN 5.3 GHz.
0	-	Body	Left	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5210	42	85.5	1.17	8.5	6.93	1.44	exempt	N/A	**N/A**	-	1.6	-	-	See WLAN 5.3 GHz.
2	153	Body	Top	0	Battery	11ax80	2Tx	2ST	MCS0	-	-	5210	42	85.5	1.17	8.5	7.58	1.24	exempt	N/A	**N/A**	N/A	1.6	-	-	See WLAN 5.3 GHz.
0	-	Body	Top	0	Battery	11ax80	2Tx	2ST	MCS0	-	-	5210	42	85.5	1.17	8.5	6.93	1.44	exempt	N/A	**N/A**	-	1.6	-	-	See WLAN 5.3 GHz.
0	153	Body	Bottom	0	Battery	11ax80	2Tx	2ST	MCS0	-	-	5210	42	85.5	1.17	8.5	6.93	1.44	exempt	N/A	**N/A**	N/A	1.6	-	-	See WLAN 5.3 GHz.
2	-	Body	Bottom	0	Battery	11ax80	2Tx	2ST	MCS0	-	-	5210	42	85.5	1.17	8.5	7.58	1.24	exempt	N/A	**N/A**	-	1.6	-	-	See WLAN 5.3 GHz.
2	153	Body	Right	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5210	42	85.5	1.17	8.5	7.58	1.24	exempt	N/A	**N/A**	N/A	1.6	-	-	See WLAN 5.3 GHz.
0	-	Body	Right	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5210	42	85.5	1.17	8.5	6.93	1.44	exempt	N/A	**N/A**	-	1.6	-	-	See WLAN 5.3 GHz.

*. The highest Reported (scaled) IPD on each antenna are marked with yellow marker (x.xxx), respectively.

Ant.	Dist. b/w ant.	RF Exposure	Setup	Gap	Source	Tx mode						Freq.		Duty	Duty S/F	Pmax	Pmeas	Pwr. S/F	SAR1g [W/kg] (*b)			(*c) SUM SAR1g	Limit	Setup photo#, Appx.1-3	Data plot#, Appx.2	Memo
No.	[mm]	conditon	position	[mm]	power	mode	Tx	Stream	D/R [Mbps]	RU	index	[MHz]	CH	[%]	[-]	[dBm]	[dBm]	[-]	Meas.	Δsar(*a)	Report	(SPLSR)	[W/kg]			
0	-	Body	Back	0	USB	11ac80	1Tx	1ST	MCS0	-	-	5210	42	91	1.1	8.5	6.92	1.44	0.574	N/A	**0.909**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax80	1Tx	1ST	MCS0	-	-	5210	42	90	1.11	8.5	7.25	1.33	0.603	N/A	**0.890**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax80	1Tx	1ST	MCS0	996	67	5210	42	85.6	1.17	8.5	7.21	1.35	0.566	N/A	**0.894**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11n40	1Tx	1ST	MCS0	-	-	5190	38	95.4	1.05	8.5	7	1.41	0.621	N/A	**0.919**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11n40	1Tx	1ST	MCS0	-	-	5230	46	95.4	1.05	8.5	7.12	1.37	0.613	N/A	**0.882**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac40	1Tx	1ST	MCS0	-	-	5190	38	95.4	1.05	8.5	6.98	1.42	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac40	1Tx	1ST	MCS0	-	-	5230	46	95.4	1.05	8.5	7.16	1.36	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	-	-	5190	38	94.3	1.06	8.5	7.29	1.32	0.638	N/A	**0.893**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	-	-	5230	46	94.3	1.06	8.5	7.35	1.3	0.634	N/A	**0.874**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	484	65	5190	38	91.2	1.1	8.5	7.15	1.36	0.615	N/A	**0.920**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	484	65	5230	46	91.2	1.1	8.5	7.26	1.33	0.609	N/A	**0.891**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11a	1Tx	1ST	6	-	-	5180	36	97.8	1.02	8.5	7.23	1.34	0.678	N/A	**0.927**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11a	1Tx	1ST	6	-	-	5220	44	97.8	1.02	8.5	7.45	1.27	0.685	N/A	**0.887**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11a	1Tx	1ST	6	-	-	5240	48	97.8	1.02	8.5	7.41	1.29	0.662	N/A	**0.871**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11n20	1Tx	1ST	MCS0	-	-	5180	36	97.9	1.02	8.5	7.2	1.35	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11n20	1Tx	1ST	MCS0	-	-	5220	44	97.9	1.02	8.5	7.47	1.27	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11n20	1Tx	1ST	MCS0	-	-	5240	48	97.9	1.02	8.5	7.36	1.3	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac20	1Tx	1ST	MCS0	-	-	5180	36	97.6	1.02	8.5	7.28	1.32	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac20	1Tx	1ST	MCS0	-	-	5220	44	97.6	1.02	8.5	7.44	1.28	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac20	1Tx	1ST	MCS0	-	-	5240	48	97.6	1.02	8.5	7.41	1.29	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	5180	36	97.1	1.03	8.5	7.4	1.29	0.69	N/A	**0.917**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	5220	44	97.1	1.03	8.5	7.65	1.22	0.694	N/A	**0.872**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	5240	48	97.1	1.03	8.5	7.62	1.22	0.675	N/A	**0.848**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	242	61	5180	36	94.6	1.06	8.5	7.4	1.29	0.675	N/A	**0.923**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	242	61	5220	44	94.6	1.06	8.5	7.53	1.25	0.68	N/A	**0.901**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	242	61	5240	48	94.6	1.06	8.5	7.58	1.24	0.664	N/A	**0.873**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ac80	1Tx	1ST	MCS0	-	-	5210	42	91	1.1	8.5	7.4	1.29	0.917	N/A	**1.301**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax80	1Tx	1ST	MCS0	-	-	5210	42	90	1.11	8.5	7.7	1.2	0.955	N/A	**1.272**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax80	1Tx	1ST	MCS0	996	67	5210	42	85.6	1.17	8.5	7.68	1.21	0.912	N/A	**1.291**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11n40	1Tx	1ST	MCS0	-	-	5190	38	95.4	1.05	8.5	7.91	1.15	0.992	N/A	**1.198**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11n40	1Tx	1ST	MCS0	-	-	5230	46	95.4	1.05	8.5	7.89	1.15	1.06	N/A	**1.280**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ac40	1Tx	1ST	MCS0	-	-	5190	38	95.4	1.05	8.5	7.95	1.14	0.994	N/A	**1.190**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ac40	1Tx	1ST	MCS0	-	-	5230	46	95.4	1.05	8.5	7.84	1.16	1.07	N/A	**1.303**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	-	-	5190	38	94.3	1.06	8.5	8.17	1.08	1.04	N/A	**1.191**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	-	-	5230	46	94.3	1.06	8.5	8.05	1.11	1.11	N/A	**1.306**	-	1.6	P1	2a-3	See §7.3.
2	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	484	65	5190	38	91.2	1.1	8.5	8.15	1.08	0.995	N/A	**1.182**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	484	65	5230	46	91.2	1.1	8.5	8.01	1.12	1.08	N/A	**1.331**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11a	1Tx	1ST	6	-	-	5180	36	97.8	1.02	8.5	7.7	1.2	0.975	N/A	**1.193**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11a	1Tx	1ST	6	-	-	5220	44	97.8	1.02	8.5	7.69	1.21	1.05	N/A	**1.296**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11a	1Tx	1ST	6	-	-	5240	48	97.8	1.02	8.5	7.57	1.24	1.09	N/A	**1.379**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11n20	1Tx	1ST	MCS0	-	-	5180	36	97.9	1.02	8.5	7.65	1.22	0.954	N/A	**1.187**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11n20	1Tx	1ST	MCS0	-	-	5220	44	97.9	1.02	8.5	7.56	1.24	1.03	N/A	**1.303**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11n20	1Tx	1ST	MCS0	-	-	5240	48	97.9	1.02	8.5	7.47	1.27	1.06	N/A	**1.373**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ac20	1Tx	1ST	MCS0	-	-	5180	36	97.6	1.02	8.5	7.73	1.19	0.956	N/A	**1.160**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ac20	1Tx	1ST	MCS0	-	-	5220	44	97.6	1.02	8.5	7.67	1.21	1.03	N/A	**1.271**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ac20	1Tx	1ST	MCS0	-	-	5240	48	97.6	1.02	8.5	7.53	1.25	1.05	N/A	**1.339**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	5180	36	97.1	1.03	8.5	7.94	1.14	0.995	N/A	**1.168**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	5220	44	97.1	1.03	8.5	7.81	1.17	1.09	N/A	**1.314**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	5240	48	97.1	1.03	8.5	7.82	1.17	1.1	N/A	**1.326**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	242	61	5180	36	94.6	1.06	8.5	7.93	1.14	0.975	N/A	**1.178**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	242	61	5220	44	94.6	1.06	8.5	7.75	1.19	1.05	N/A	**1.324**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	242	61	5240	48	94.6	1.06	8.5	7.77	1.18	1.09	N/A	**1.363**	-	1.6	P1	-	-

*. The highest Reported (scaled) IPD on each antenna are marked with yellow marker (x.xxx), respectively.
*. Exempt: SAR test is exempted by evaluated SAR test exclusion threshold power. See section 4.; Ant.: Antenna; D/R: Data rate; Freq.: Frequency; Duty: Duty cycle; D.S/F: Duty Scaling Factor; Pmax: Max power (Tune-up tolerance power); Pmeas.: Measurement conducted power; P.S/F Power Scaling Factor; Meas.: Measurement; Appx: Appendix; Gap: It is separation distance between the device surface and the bottom outer surface of phantom; Dist. b/w ant.: Minimum distance between two antennas on a drawing basis (Refer to Appendix 1-1). During SAR test, the radiated power is always monitored by Spectrum Analyzer or/and MAIA.
*. All SAR tests were conservatively performed with test separation distance 0 mm.
*. SUM SAR: (KDB 248227 D01v02r02, Clause 6.1: Antenna Spatial Configurations) The SAR1g distribution of antenna 0 and antenna 2 wasn't overlapped in this setup condition because the distance between the antenna 0 and antenna 2 was away sufficiently (153 mm). Therefore, SAR from an antenna (either antenna 0 or antenna 2) was the result which indicates the higher SAR value.

*a. Since the calculated ΔSAR values of the tested liquid had shown positive correction, the measured SAR was not converted by ΔSAR correction.
Calculating formula: ΔSAR corrected SAR (W/kg) = (Measured SAR (W/kg)) × (100 - (ΔSAR(%)) / 100
*b. Calculating formula: Reported (Scaled) SAR (W/kg) = (Measured SAR (W/kg)) × (Duty scaled factor) × (Power scaled factor)
where, Duty scaled factor [-] = 100(%) / (measured duty cycle, %), Power scaled factor [-] = 10 ^ (((Max.tune-up limit power, dBm) - (Measured conducted power, dBm)) / 10)
*c. Calculating formula: ΣSAR1g (W/kg) = Reported SAR1g (antenna 0) + Reported SAR1g (antenna 2), SPLSR = (ΣSAR1g)^1.5 / (antenna separation distance, mm)
*. Calibration frequency of the SAR measurement probe (and used conversion factors for each frequency.)
The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

Liquid	SAR test frequency	Probe calibration frequency	Validity
Head	(5180, 5190, 5210, 5220, 5230, 5240) MHz	5250 MHz	within ± 110 MHz of calibration frequency

7.1.2b SAR measurement results (WLAN 5.3 GHz band)

Ant. No.	Dist. b/w ant. [mm]	RF Exposure conditon	Setup position	Gap [mm]	Source power	Tx mode mode	Tx	Stream	D/R [Mbps]	RU	index	Freq. [MHz]	CH	Duty [%]	Duty S/F [-]	Pmax [dBm]	Pmeas [dBm]	Pwr. S/F [-]	SAR1g [W/kg] (*b) Meas.	Δsar(*a)	Report	(*c) SUM SAR1g (SPLSR)	Limit [W/kg]	Setup photo#, Appx.1-3	Data plot#, Appx.2	Memo
2	153	Body	Back	0	USB	11ac80	2Tx	2ST	MCS0	-	-	5290	58	85.4	1.17	8.5	7.17	1.36	0.879	N/A	**1.399**	2.309	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac80	2Tx	2ST	MCS0	-	-	5290	58	85.4	1.17	8.5	7.2	1.35	0.576	N/A	**0.910**	(0.023)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5290	58	85.5	1.17	8.5	7.44	1.28	0.911	N/A	**1.364**	2.245	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5290	58	85.5	1.17	8.5	7.42	1.28	0.588	N/A	**0.881**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax80	2Tx	2ST	MCS0	996	67	5290	58	80.3	1.25	8.5	7.46	1.27	0.86	N/A	**1.365**	2.267	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax80	2Tx	2ST	MCS0	996	67	5290	58	80.3	1.25	8.5	7.37	1.3	0.555	N/A	**0.902**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11n40	2Tx	2ST	MCS8	-	-	5270	54	91.9	1.09	8.5	7.48	1.26	1.04	N/A	**1.428**	2.311	1.6	P1	-	-
0	-	Body	Back	0	USB	11n40	2Tx	2ST	MCS8	-	-	5270	54	91.9	1.09	8.5	7.38	1.29	0.628	N/A	**0.883**	(0.023)	1.6	P1	-	-
2	153	Body	Back	0	USB	11n40	2Tx	2ST	MCS8	-	-	5310	62	91.9	1.09	8.5	7.65	1.22	1	N/A	**1.330**	2.210	1.6	P1	-	-
0	-	Body	Back	0	USB	11n40	2Tx	2ST	MCS8	-	-	5310	62	91.9	1.09	8.5	7.36	1.3	0.621	N/A	**0.880**	(0.021)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ac40	2Tx	2ST	MCS0	-	-	5270	54	91.7	1.09	8.5	7.49	1.26	1.04	N/A	**1.428**	2.341	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac40	2Tx	2ST	MCS0	-	-	5270	54	91.7	1.09	8.5	7.38	1.29	0.649	N/A	**0.913**	(0.023)	1.6	P1	2b-2	-
2	153	Body	Back	0	USB	11ac40	2Tx	2ST	MCS0	-	-	5310	62	91.7	1.09	8.5	7.66	1.21	0.999	N/A	**1.318**	2.211	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac40	2Tx	2ST	MCS0	-	-	5310	62	91.7	1.09	8.5	7.3	1.32	0.621	N/A	**0.893**	(0.021)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	-	-	5270	54	90.1	1.11	8.5	7.73	1.19	1.07	N/A	**1.413**	2.302	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	-	-	5270	54	90.1	1.11	8.5	7.61	1.23	0.651	N/A	**0.889**	(0.023)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	-	-	5310	62	90.1	1.11	8.5	7.91	1.15	1.04	N/A	**1.328**	2.213	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	-	-	5310	62	90.1	1.11	8.5	7.54	1.25	0.638	N/A	**0.885**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	484	65	5270	54	86.3	1.16	8.5	7.64	1.22	0.905	N/A	**1.281**	2.080	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	484	65	5270	54	86.3	1.16	8.5	7.48	1.26	0.547	N/A	**0.799**	(0.020)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	484	65	5310	62	86.3	1.16	8.5	7.8	1.17	0.874	N/A	**1.186**	1.991	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	2Tx	2ST	MCS0	484	65	5310	62	86.3	1.16	8.5	7.44	1.28	0.542	N/A	**0.805**	(0.018)	1.6	P1	-	-
2	153	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	5260	52	95.6	1.05	8.5	7.34	1.31	1.07	N/A	**1.472**	2.379	1.6	P1	2b-1	-
0	-	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	5260	52	95.6	1.05	8.5	7.67	1.21	0.714	N/A	**0.907**	(0.024)	1.6	P1	-	-
2	153	Body	Back	0	Battery	11n20	2Tx	2ST	MCS8	-	-	5260	52	95.6	1.05	8.5	7.34	1.31	1.01	N/A	**1.389**	2.216	1.6	P7	-	*.no I/F cable.
0	-	Body	Back	0	Battery	11n20	2Tx	2ST	MCS8	-	-	5260	52	95.6	1.05	8.5	7.67	1.21	0.651	N/A	**0.827**	(0.022)	1.6	P7	-	*.no I/F cable.
2	153	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	5300	60	95.6	1.05	8.5	7.44	1.28	1.04	N/A	**1.398**	2.279	1.6	P1	-	-
0	-	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	5300	60	95.6	1.05	8.5	7.65	1.22	0.688	N/A	**0.881**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	5320	64	95.6	1.05	8.5	7.62	1.22	0.996	N/A	**1.276**	2.160	1.6	P1	-	-
0	-	Body	Back	0	USB	11n20	2Tx	2ST	MCS8	-	-	5320	64	95.6	1.05	8.5	7.66	1.21	0.696	N/A	**0.884**	(0.021)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ac20	2Tx	2ST	MCS0	-	-	5260	52	95.5	1.05	8.5	7.41	1.29	1.05	N/A	**1.422**	2.297	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac20	2Tx	2ST	MCS0	-	-	5260	52	95.5	1.05	8.5	7.79	1.18	0.706	N/A	**0.875**	(0.023)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ac20	2Tx	2ST	MCS0	-	-	5300	60	95.5	1.05	8.5	7.58	1.24	1.03	N/A	**1.341**	2.208	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac20	2Tx	2ST	MCS0	-	-	5300	60	95.5	1.05	8.5	7.72	1.2	0.688	N/A	**0.867**	(0.021)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ac20	2Tx	2ST	MCS0	-	-	5320	64	95.5	1.05	8.5	7.6	1.23	0.988	N/A	**1.276**	2.155	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac20	2Tx	2ST	MCS0	-	-	5320	64	95.5	1.05	8.5	7.68	1.21	0.692	N/A	**0.879**	(0.021)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5260	52	94.5	1.06	8.5	7.47	1.27	1.06	N/A	**1.427**	2.297	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5260	52	94.5	1.06	8.5	7.98	1.13	0.726	N/A	**0.870**	(0.023)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5300	60	94.5	1.06	8.5	7.63	1.22	1.05	N/A	**1.358**	2.230	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5300	60	94.5	1.06	8.5	7.89	1.15	0.715	N/A	**0.872**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5320	64	94.5	1.06	8.5	7.74	1.19	1	N/A	**1.261**	2.136	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5320	64	94.5	1.06	8.5	7.85	1.16	0.712	N/A	**0.875**	(0.020)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5260	52	94.5	1.06	8.5	7.47	1.27	1.04	N/A	**1.400**	2.222	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5260	52	94.5	1.06	8.5	7.98	1.13	0.686	N/A	**0.822**	(0.022)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5300	60	94.5	1.06	8.5	7.63	1.22	1.02	N/A	**1.319**	2.138	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5300	60	94.5	1.06	8.5	7.89	1.15	0.672	N/A	**0.819**	(0.020)	1.6	P1	-	-
2	153	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5320	64	94.5	1.06	8.5	7.74	1.19	0.978	N/A	**1.234**	2.082	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	2Tx	2ST	MCS0	-	-	5320	64	94.5	1.06	8.5	7.85	1.16	0.69	N/A	**0.848**	(0.020)	1.6	P1	-	-
2	153	Body	Front(LCD)	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5290	58	85.5	1.17	8.5	7.44	1.28	0.065	N/A	**0.097**	N/A	1.6	P2	-	-
0	-	Body	Front(LCD)	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5290	58	85.5	1.17	8.5	7.42	1.28	N/D	N/A	**N/A**	-	1.6	P2	-	-
2	153	Body	Right	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5290	58	85.5	1.17	8.5	7.44	1.28	0.024	N/A	**0.036**	N/A	1.6	P6	-	-
0	-	Body	Right	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5290	58	85.5	1.17	8.5	7.42	1.28	N/D	N/A	**N/A**	-	1.6	P6	-	-
2	153	Body	Left	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5290	58	85.5	1.17	8.5	7.44	1.28	N/D	N/A	**N/A**	N/A	1.6	P3	-	-
0	-	Body	Left	0	USB	11ax80	2Tx	2ST	MCS0	-	-	5290	58	85.5	1.17	8.5	7.42	1.28	0.016	N/A	**0.024**	-	1.6	P3	-	-
2	153	Body	Top	0	Battery	11ax80	2Tx	2ST	MCS0	-	-	5290	58	85.5	1.17	8.5	7.44	1.28	N/D	N/A	**N/A**	N/A	1.6	P4	-	-
0	-	Body	Top	0	Battery	11ax80	2Tx	2ST	MCS0	-	-	5290	58	85.5	1.17	8.5	7.42	1.28	0.021	N/A	**0.031**	-	1.6	P4	-	-
0	153	Body	Bottom	0	Battery	11ax80	2Tx	2ST	MCS0	-	-	5290	58	85.5	1.17	8.5	7.42	1.28	0.047	N/A	**0.070**	N/A	1.6	P5	-	-
2	-	Body	Bottom	0	Battery	11ax80	2Tx	2ST	MCS0	-	-	5290	58	85.5	1.17	8.5	7.44	1.28	N/D	N/A	**N/A**	-	1.6	P5	-	-

*. The highest Reported (scaled) IPD on each antenna are marked with yellow marker (x.xxx), respectively.
*. N/D: No SAR peak was detected in the area scan.

Ant.	Dist. b/w ant.	RF Exposure	Setup	Gap	Source	Tx mode						Freq.		Duty	Duty S/F	Pmax	Pmeas	Pwr. S/F	SAR1g [W/kg] (*b)			(*c) SUM SAR1g	Limit	Setup photo#, Appx.1-3	Data plot#, Appx.2	Memo
No.	[mm]	conditon	position	[mm]	power	mode	Tx	Stream	D/R [Mbps]	RU	index	[MHz]	CH	[%]	[-]	[dBm]	[dBm]	[-]	Meas.	Δsar(*a)	Report	(SPLSR)	[W/kg]			
0	-	Body	Back	0	USB	11ac80	1Tx	1ST	MCS0	-	-	5290	58	91	1.1	8.5	7.38	1.29	0.607	N/A	**0.861**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax80	1Tx	1ST	MCS0	-	-	5290	58	90	1.11	8.5	7.68	1.21	0.623	N/A	**0.837**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax80	1Tx	1ST	MCS0	996	67	5290	58	85.6	1.17	8.5	7.63	1.22	0.593	N/A	**0.846**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11n40	1Tx	1ST	MCS0	-	-	5270	54	95.4	1.05	8.5	7.56	1.24	0.657	N/A	**0.855**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11n40	1Tx	1ST	MCS0	-	-	5310	62	95.4	1.05	8.5	7.43	1.28	0.646	N/A	**0.868**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac40	1Tx	1ST	MCS0	-	-	5270	54	95.4	1.05	8.5	7.52	1.25	0.646	N/A	**0.848**	-	1.6	P1	-	<1.2 W/kg
0	-	Body	Back	0	USB	11ac40	1Tx	1ST	MCS0	-	-	5310	62	95.4	1.05	8.5	7.51	1.26	0.646	N/A	**0.855**	-	1.6	P1	-	<1.2 W/kg
0	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	-	-	5270	54	94.3	1.06	8.5	7.74	1.19	0.683	N/A	**0.862**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	-	-	5310	62	94.3	1.06	8.5	7.69	1.21	0.669	N/A	**0.858**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	484	65	5270	54	91.2	1.1	8.5	7.71	1.2	0.655	N/A	**0.865**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	484	65	5310	62	91.2	1.1	8.5	7.66	1.21	0.643	N/A	**0.856**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11a	1Tx	1ST	6	-	-	5260	52	97.8	1.02	8.5	7.91	1.15	0.74	N/A	**0.868**	-	1.6	P1	-	<1.2 W/kg
0	-	Body	Back	0	USB	11a	1Tx	1ST	6	-	-	5300	60	97.8	1.02	8.5	7.86	1.16	0.725	N/A	**0.858**	-	1.6	P1	-	<1.2 W/kg
0	-	Body	Back	0	USB	11a	1Tx	1ST	6	-	-	5320	64	97.8	1.02	8.5	7.86	1.16	0.731	N/A	**0.865**	-	1.6	P1	-	<1.2 W/kg
0	-	Body	Back	0	USB	11n20	1Tx	1ST	MCS0	-	-	5260	52	97.9	1.02	8.5	7.87	1.16	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11n20	1Tx	1ST	MCS0	-	-	5300	60	97.9	1.02	8.5	7.8	1.17	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11n20	1Tx	1ST	MCS0	-	-	5320	64	97.9	1.02	8.5	7.79	1.18	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac20	1Tx	1ST	MCS0	-	-	5260	52	97.6	1.02	8.5	7.88	1.15	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac20	1Tx	1ST	MCS0	-	-	5300	60	97.6	1.02	8.5	7.86	1.16	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ac20	1Tx	1ST	MCS0	-	-	5320	64	97.6	1.02	8.5	7.82	1.17	exempt	N/A	**N/A**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	5260	52	97.1	1.03	8.5	8.09	1.1	0.757	N/A	**0.858**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	5300	60	97.1	1.03	8.5	7.96	1.13	0.74	N/A	**0.861**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	5320	64	97.1	1.03	8.5	7.98	1.13	0.744	N/A	**0.866**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	242	61	5260	52	94.6	1.06	8.5	8	1.12	0.738	N/A	**0.876**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	242	61	5300	60	94.6	1.06	8.5	7.97	1.13	0.742	N/A	**0.889**	-	1.6	P1	-	-
0	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	242	61	5320	64	94.6	1.06	8.5	8	1.12	0.719	N/A	**0.854**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ac80	1Tx	1ST	MCS0	-	-	5290	58	91	1.1	8.5	7.29	1.32	0.916	N/A	**1.330**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax80	1Tx	1ST	MCS0	-	-	5290	58	90	1.11	8.5	7.5	1.26	0.964	N/A	**1.348**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax80	1Tx	1ST	MCS0	996	67	5290	58	85.6	1.17	8.5	7.52	1.25	0.903	N/A	**1.321**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11n40	1Tx	1ST	MCS0	-	-	5270	54	95.4	1.05	8.5	7.55	1.24	1.08	N/A	**1.406**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11n40	1Tx	1ST	MCS0	-	-	5310	62	95.4	1.05	8.5	7.72	1.2	1.04	N/A	**1.310**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ac40	1Tx	1ST	MCS0	-	-	5270	54	95.4	1.05	8.5	7.6	1.23	1.08	N/A	**1.395**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ac40	1Tx	1ST	MCS0	-	-	5310	62	95.4	1.05	8.5	7.75	1.19	1.04	N/A	**1.299**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	-	-	5270	54	94.3	1.06	8.5	7.81	1.17	1.12	N/A	**1.389**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	-	-	5310	62	94.3	1.06	8.5	7.95	1.14	1.08	N/A	**1.305**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	484	65	5270	54	91.2	1.1	8.5	7.74	1.19	1.11	N/A	**1.453**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax40	1Tx	1ST	MCS0	484	65	5310	62	91.2	1.1	8.5	7.91	1.15	1.02	N/A	**1.290**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11a	1Tx	1ST	6	-	-	5260	52	97.8	1.02	8.5	7.47	1.27	1.1	N/A	**1.425**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11a	1Tx	1ST	6	-	-	5300	60	97.8	1.02	8.5	7.57	1.24	1.07	N/A	**1.353**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11a	1Tx	1ST	6	-	-	5320	64	97.8	1.02	8.5	7.71	1.2	1.03	N/A	**1.261**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11n20	1Tx	1ST	MCS0	-	-	5260	52	97.9	1.02	8.5	7.4	1.29	1.07	N/A	**1.408**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11n20	1Tx	1ST	MCS0	-	-	5300	60	97.9	1.02	8.5	7.4	1.29	1.06	N/A	**1.395**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11n20	1Tx	1ST	MCS0	-	-	5320	64	97.9	1.02	8.5	7.54	1.25	1.01	N/A	**1.288**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ac20	1Tx	1ST	MCS0	-	-	5260	52	97.6	1.02	8.5	7.41	1.29	1.07	N/A	**1.408**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ac20	1Tx	1ST	MCS0	-	-	5300	60	97.6	1.02	8.5	7.51	1.26	1.06	N/A	**1.362**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ac20	1Tx	1ST	MCS0	-	-	5320	64	97.6	1.02	8.5	7.62	1.22	1.01	N/A	**1.257**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	5260	52	97.1	1.03	8.5	7.62	1.22	1.07	N/A	**1.345**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	5300	60	97.1	1.03	8.5	7.76	1.19	1.05	N/A	**1.287**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	-	-	5320	64	97.1	1.03	8.5	7.81	1.17	1	N/A	**1.205**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	242	61	5260	52	94.6	1.06	8.5	7.6	1.23	1.04	N/A	**1.356**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	242	61	5300	60	94.6	1.06	8.5	7.68	1.21	1.02	N/A	**1.308**	-	1.6	P1	-	-
2	-	Body	Back	0	USB	11ax20	1Tx	1ST	MCS0	242	61	5320	64	94.6	1.06	8.5	7.8	1.17	0.984	N/A	**1.220**	-	1.6	P1	-	-

*. The highest Reported (scaled) IPD on each antenna are marked with yellow marker (x.xxx), respectively.
*. Exempt: SAR test is exempted by evaluated SAR test exclusion threshold power. See section 4.; Ant.: Antenna; D/R: Data rate; Freq.: Frequency; Duty: Duty cycle; D.S/F: Duty Scaling Factor; Pmax: Max power (Tune-up tolerance power); Pmeas.: Measurement conducted power; P.S/F Power Scaling Factor; Meas.: Measurement; Appx: Appendix; Gap: It is separation distance between the device surface and the bottom outer surface of phantom; Dist. b/w ant.: Minimum distance between two antennas on a drawing basis (Refer to Appendix 1-1). During SAR test, the radiated power is always monitored by Spectrum Analyzer or/and MAIA.
*. All SAR tests were conservatively performed with test separation distance 0 mm.
*. SUM SAR: (KDB 248227 D01v02r02, Clause 6.1: Antenna Spatial Configurations) The SAR1g distribution of antenna 0 and antenna 2 wasn't overlapped in this setup condition because the distance between the antenna 0 and antenna 2 was away sufficiently (153 mm). Therefore, SAR from an antenna (either antenna 0 or antenna 2) was the result which indicates the higher SAR value.

*a. Since the calculated ΔSAR values of the tested liquid had shown positive correction, the measured SAR was not converted by ΔSAR correction.
Calculating formula: ΔSAR corrected SAR (W/kg) = (Measured SAR (W/kg)) × (100 - (ΔSAR(%)) / 100
*b. Calculating formula: Reported (Scaled) SAR (W/kg) = (Measured SAR (W/kg)) × (Duty scaled factor) × (Power scaled factor)
where, Duty scaled factor [-] = 100(%) / (measured duty cycle, %), Power scaled factor [-] = 10 ^ (((Max.tune-up limit power, dBm) - (Measured conducted power, dBm)) / 10)
*c. Calculating formula: ΣSAR1g (W/kg) = Reported SAR1g (antenna 0) + Reported SAR1g (antenna 2), SPLSR = (ΣSAR1g)^1.5 / (antenna separation distance, mm)
*. Calibration frequency of the SAR measurement probe (and used conversion factors for each frequency.)
The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

Liquid	SAR test frequency	Probe calibration frequency	Validity
Head	(5260 5270, 5290, 5300, 5310, 5320) MHz	5250 MHz	within ± 110 MHz of calibration frequency

7.2 Simultaneous transmission evaluation

Result: Simultaneous transmission SAR on pair of antennas complied either sum of the SAR(1g) is < 1.6 W/kg, or the SPLSR is < 0.04.

The table below shows the combinations of transmissions (as "use case") that can be sent simultaneously from three antennas.

No.	Simultaneous transmission scenarios	Ant.#	1	0							2						SUM SAR1g [W/kg] Antenna pair (SPLSR)				Ant.All	TER: SAR +IPD
		Mode	BT(1)	BT(0)	WLAN						WLAN						0	0+1	0+2	1+2	0+1+2	
		Band (GHz)	2.4	2.4	2.4 (Low)	2.4 (NML)	5	6	6	6	2.4 (Low)	2.4 (NML)	5	6	6	6	(2.4,5,6GHz) (Figure in parentheses shows SPLSR) Limit SAR1g: 1.6 W/kg, SPLSR: 0.04					(2.4,5,6GHz)
		Exp.type (SAR[W/kg], PD[w/m2])	1g	1g	1g	1g	1g	1g	IPD	APD	1g	1g	1g	1g	IPD	APD	Antenna separation distance [mm] 1	117	153	62	-	Limit: 1.0
1	W2.4(0)+BT(1)		0.115			0.738											0.738 (<limit)	0.853 (<limit)	0.738 (<limit)	0.115 (<limit)	0.853 (<limit)	
2	W2.4(2)+BT(0)			0.121								1.054					0.121 (<limit)	0.121 (<limit)	1.175 (<limit)	1.054 (<limit)	1.175 (<limit)	
3	W2.4(2)+BT(1)		0.115									1.054					0 (<limit)	0.115 (<limit)	1.054 (<limit)	1.169 (<limit)	1.169 (<limit)	
4	W2.4(2)+BT(0/1)		0.115	0.121								1.054					0.121 (<limit)	0.236 (<limit)	1.175 (<limit)	1.169 (<limit)	1.290 (<limit)	
5	W2.4(0/1)+BT(1)		0.115			0.16						0.2					0.16 (<limit)	0.275 (<limit)	0.36 (<limit)	0.315 (<limit)	0.475 (<limit)	
6	W5(0)+W2.4(2)						0.927					1.054					0.927 (<limit)	0.927 (<limit)	1.981 (0.018)	1.054 (<limit)	**1.981** (0.018)	
7	W5(2)+W2.4(0)					0.738							1.453				0.738 (<limit)	0.738 (<limit)	2.191 (0.021)	1.453 (<limit)	**2.191** (0.021)	
8	W5(0)+W2.4(2)+BT(0)			0.121			0.927					1.054					1.048 (<limit)	1.048 (<limit)	2.102 (0.020)	1.054 (<limit)	**2.102** (0.020)	
9	W5(0)+W2.4(2)+BT(1)		0.115				0.927					1.054					0.927 (<limit)	1.042 (<limit)	1.981 (0.018)	1.169 (<limit)	**2.096** (0.018)	
10	W5(0)+W2.4(2)+BT(0/1)		0.115	0.121			0.927					1.054					1.048 (<limit)	1.163 (<limit)	2.102 (0.020)	1.169 (<limit)	**2.217** (0.020)	
11	W5(0)+BT(0)			0.121			0.927										1.048 (<limit)	1.048 (<limit)	1.048 (<limit)	0 (<limit)	1.048 (<limit)	
12	W5(0)+BT(1)		0.115				0.927										0.927 (<limit)	1.042 (<limit)	0.927 (<limit)	0.115 (<limit)	1.042 (<limit)	
13	W5(2)+BT(0)			0.121									1.453				0.121 (<limit)	0.121 (<limit)	1.574 (<limit)	1.453 (<limit)	1.574 (<limit)	
14	W5(2)+BT(1)		0.115										1.453				0 (<limit)	0.115 (<limit)	1.453 (<limit)	1.568 (<limit)	1.568 (<limit)	
15	W5(0)+BT(0/1)		0.115	0.121			0.927										1.048 (<limit)	1.163 (<limit)	1.048 (<limit)	0.115 (<limit)	1.163 (<limit)	
16	W5(2)+BT(0/1)		0.115	0.121									1.453				0.121 (<limit)	0.236 (<limit)	1.574 (0.013)	1.568 (<limit)	**1.689** (0.013)	
17	W5(0/2)+BT(0)			0.121			0.907						1.472				1.028 (<limit)	1.028 (<limit)	2.5 (0.026)	1.472 (<limit)	**2.500** (0.026)	
18	W5(0/2)+BT(1)		0.115				0.907						1.472				0.907 (<limit)	1.022 (<limit)	2.379 (0.024)	1.587 (<limit)	**2.494** (0.024)	
19	W5(0/2)+BT(0/1)		0.115	0.121			0.907						1.472				1.028 (<limit)	1.143 (<limit)	2.5 (0.026)	1.587 (<limit)	**2.615** (0.026)	

*. W2.4: WLAN 2.4GHz band, W2.4L: WLAN 2.4GHz band with lower power operation, W5: WLAN 5GHz band, (0): Antenna 0, (1): Antenna (1), (2): Antenna 2, (0/1): Antenna 0+1 (dual), (0/2): Antenna 0+2 (MIMO), NML: Normal power operation.
The WLAN 2.4 GHz power is reduced by firmware to a maximum power of 10 dBm, when the simultaneous transmission is executed. (Not included in the table above)

*. The highest SUM SAR and TER are marked with yellow marker (x.xxx).
The value of IPD/APD, TER SAR+IPD and TER SAR+APD are reference purpose only. The human exposure at < 6 GHz and > 6 GHz was evaluated by SAR1g.

*. According to KDB 447498, when the sum of SAR is greater than the limit, SAR test exclusion is determined by the SAR to peak location separation ratio (SPLSR), and the simultaneously transmitting antennas must be considered one pair at a time. The ratio is determined by {(SAR1+SAR2)^1.5} / (separation distance between the peak SAR locations for the antenna pair, mm), round to two decimal digits, and must be s 0.04 for all antenna pairs in the configuration to qualify for 1g SAR test exclusion.

*. The SAR1g distribution of antenna 0 and antenna 2 wasn't overlapped in this setup condition because the distance between the antenna 0 and antenna 2 was away sufficiently (153 mm). The number of antenna separation distance is the design based. Refer to Appendix 1-1.

*. Antenna 1 supports Bluetooth (1) alone. Antenna 0 supports WLAN and Bluetooth (0). An antenna 2 is only supported WLAN. WLAN 2.4 GHz and Bluetooth (0) cannot transmit simultaneously on an antenna 0.

*. For SAR measurement, simultaneous transmission SAR measurement (Volume Scan) is not required for antenna pair because the either sum of the SAR(1g) is < 1.6 W/kg or the SPLSR is < 0.04 (when sum of the SAR(1g) is over 1.6 W/kg) for all circumstances that require SPLSR calculation.

*. Calculating formula: SPLSR = (SAR1 + SAR2)^1.5 / (minimum antenna separation distance, mm)

Ratio: (SAR) Ratio = (SAR) / (Max. SAR limit), (PD) Ratio = (PD) / (Max. PD limit), $TER = \sum_{i=0}^{N_S}\left(\frac{SAR_i}{SAR_{limi,i}}\right) + \sum_{j=0}^{N_{PD}}\left(\frac{PD_j}{PD_{lim,j}}\right)$

7.3 SAR Measurement Variability (Repeated measurement requirement)

Result: Pass ("Largest to Smallest SAR Ratio" is smaller than KDB 865664 D01 requirement.)

*. In accordance with published RF Exposure KDB 865664 D01: SAR measurement 100 MHz to 6 GHz. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR(1g) is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

EUT setup		Band [GHz]	Mode	Frequency [MHz]	SAR Measurement Variability Result												SAR plot # in Appendix 2 (Setup photo# in Appendix 1-3)		
Ant.	Position				Type	Unit	Original		1st Repeated				2nd Repeated				Original	1st Repeated	2nd Repeated
							Highest	Judge	Measured	Judge	Ratio	Judge	Measured	Judge	Ratio	Judge			
1	Back	BT (0)	BT LE (1Mbps)	2402	1g	W/kg	**0.075**	< 0.8	**n/a**	-	-	-	**n/a**	-	-	-	-	-	-
0	Back	BT (1)	BT LE (125kbps)	2402	1g	W/kg	**0.108**	< 0.8	**n/a**	-	-	-	**n/a**	-	-	-	-	-	-
0	Back	WLAN 2.4	11ax20 (MCS0) (RU106,OFDMA)	2462	1g	W/kg	**0.702**	< 0.8	**n/a**	-	-	-	**n/a**	-	-	-	-	-	-
0	Back	WLAN 5.2	11ax20 (MCS0)	5240	1g	W/kg	**0.694**	< 0.8	**n/a**	-	-	-	**n/a**	-	-	-	-	-	-
0	Back	WLAN 5.3	11ax20 (MCS0)	5260	1g	W/kg	**0.757**	< 0.8	**n/a**	-	-	-	**n/a**	-	-	-	-	-	-
2	Back	WLAN 2.4	11ax20 (MCS0) (RU106,OFDMA)	2462	1g	W/kg	**0.851**	≥ 0.8	**0.846**	< 1.45	**1.01**	< 1.20	**n/a**	-	-	-	1-5 (P1)	5-1 (P8)	-
2	Back	WLAN 5.2	11ax40 (MCS0)	5230	1g	W/kg	**1.11**	≥ 0.8	**1.11**	< 1.45	**1.00**	< 1.20	**n/a**	-	-	-	2a-3 (P1)	5-2 (P8)	-
2	Back	WLAN 5.3	11ax40 (MCS0)	5270	1g	W/kg	**1.12**	≥ 0.8	**1.12**	< 1.45	**1.00**	< 1.20	**n/a**	-	-	-	2b-3 (P1)	5-3 (P8)	-

*. Calculating formula: "Ratio": Largest to Smallest SAR Ratio (%) = (Largest SAR (W/kg)) / Smallest SAR (W/kg)
*1 It was smaller than 5.0 % of uncertainty of the "Dxyz: Test Sample positioning."

7.4 Device holder perturbation verification (SAR)

Result: Since all the reported (scaled) SAR were less than 1.2 W/kg (SAR(1g)), the additional "device holder perturbation verification" measurement was not considered.

When the highest reported SAR of an antenna is > 1.2 W/kg, holder perturbation verification (by Urethane form alone) is required by using the highest SAR configuration among all applicable frequency bands.

EUT setup		Mode	Frequency [MHz]	Measured SAR [W/kg]			Device holder perturbation SAR Ratio	Remarks
Ant.	Position			SAR type	Device holder			
					Exist	None		
2	Back	11n20 (MCS8)	5260	1g	**1.07** (Reported: 1.472)	**1.02** (Reported: 1.403)	**-4.7 %**	*. It was enough smaller than SAR uncertainty, so influence of a device holder was judged to be no problem.
				SAR plot #	Plot 2b-1	Plot 6-1		
				Setup photo	Photo. P1	Photo. P9		

*. During SAR measurement the EUT was not placed on the device holder directly. The EUT was mounted in the device holder using Urethane form (low-permittivity and low-loss foam) to avoid changes of EUT performance by the holder material (Refer to Appendix 1-3, photographs of test setup). However, the "Device holder perturbation" was confirmed by the setup for which device holder was not used in highest SAR configuration.
*. Calculating formula: Device holder perturbation SAR Ratio (%) = {{((Measured SAR-none (W/kg)) / Measured SAR-exist (W/kg))} - 1}*100

7.5 Requirements on the Uncertainty Evaluation (SAR)

Decision Rule ☑ Uncertainty is not included.
☐ Uncertainty is included.

*. The highest measured SAR(1g) is less than 1.5 W/kg. Therefore, per KDB 865664 D01, the extended measurement uncertainty analysis described in IEEE 1528-2013 is not required.

APPENDIX 2: Measurement data

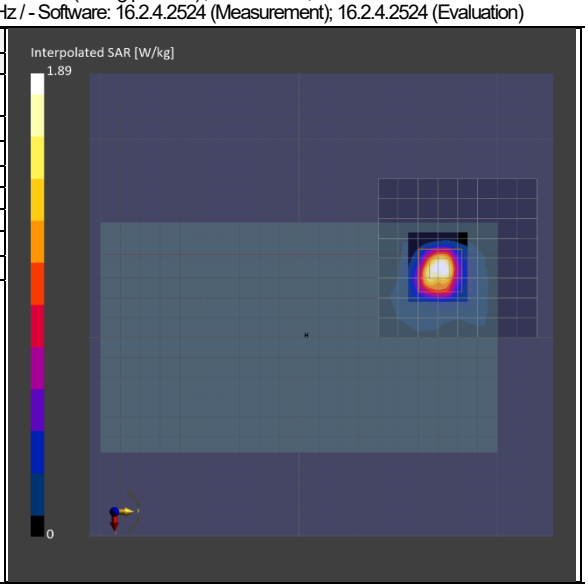
Appendix 2-1: Plot(s) of Worst Reported Value (in each operation band, on each antenna)

Plot 1-1: (2.4GHz band) Antenna 2, Back & touch, 11b(1Mbps), 2437 MHz

EUT: Development tool; Model: BEE-056; Serial: HAL00110048756
Mode: 11b (1Mbps)(UID: 0 (CW)) ; Frequency: 2437 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 2437 MHz; Conductivity: 1.839 S/m; Permittivity: 39.28

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (6.89, 6.89, 6.89)@2437 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup			Measurement Results		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	30.0× 30.0 ×30.0	psSAR 1g [W/kg]	0.651	**0.732**
Grid Steps [mm]	10.0×10.0	5.0× 5.0 ×1.5	psSAR 10g [W/kg]	0.277	**0.283**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.02	0.01
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.5	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	75.3
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	6.8



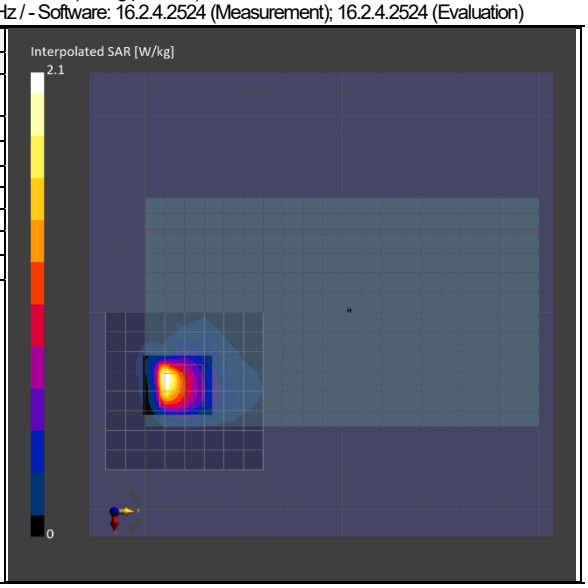
Remarks: *. Date tested: 2024-01-25;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: (22~23) deg.C. / (70~80) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/25-9,24h2,at2,b(p14),back,2437

Plot 1-2: (2.4GHz band) Antenna 0, Back & touch, 11ax20(MCS0,SISO)/OFDMA (RU106-54), 2462 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: 11ax20(MCS0, SISO)/OFDMA(RU106-54)(UID: 0 (CW)) ; Frequency: 2462 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 2462 MHz; Conductivity: 1.856 S/m; Permittivity: 39.23

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (6.89, 6.89, 6.89)@2462 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup			Measurement Results		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	30.0× 30.0 ×30.0	psSAR 1g [W/kg]	0.653	**0.702**
Grid Steps [mm]	10.0×10.0	5.0× 5.0 ×1.5	psSAR 10g [W/kg]	0.303	**0.304**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.01	0.00
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.5	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	All points	All points	M2/M1 [%]	N/A	57.4
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	5.1



Remarks: *. Date tested: 2024-01-26;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: (22~23) deg.C. / (70~80) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/26-21,24h39,at0,ax20a106,back,2462

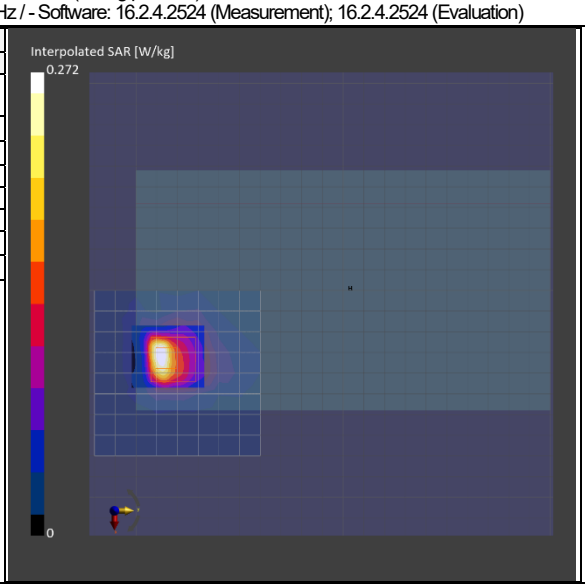
APPENDIX 2: Measurement data / Appendix 2-1: Plot(s) of Worst Reported Value (in each operation band, on each antenna) (cont'd)

Plot 1-3: (2.4GHz band) Antenna 0, Back & touch, Bluetooth (BT LE) (125kbps), 2402 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: BT LE (125kbps)(UID: 0 (CW)) ; Frequency: 2402 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 2402 MHz; Conductivity: 1.825 S/m; Permittivity: 39.46

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (6.89, 6.89, 6.89)@2402 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup			Measurement Results		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	30.0× 30.0 ×30.0	psSAR 1g [W/kg]	0.105	**0.108**
Grid Steps [mm]	10.0×10.0	5.0× 5.0 ×1.5	psSAR 10g [W/kg]	0.050	**0.055**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	0.02	-0.00
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.5	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	72.3
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	7.1



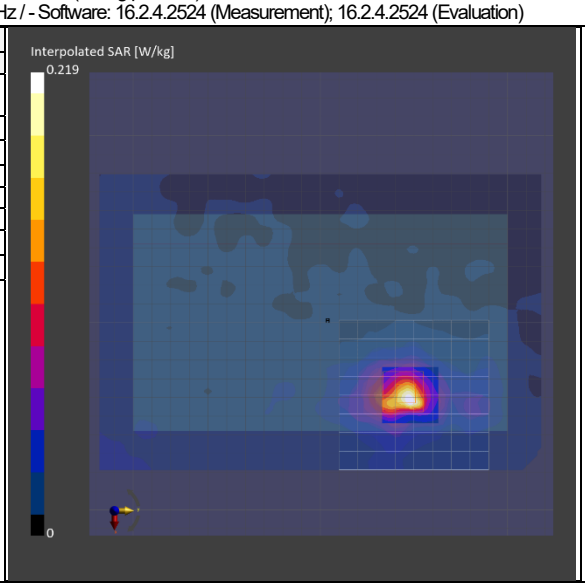
Remarks: *. Date tested: 2024-01-29;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: (22~24) deg.C. / (70~75) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/29-12,24h52,at.bt0,ble(125k),back,2402

Plot 1-4: (2.4GHz band) Antenna 1, Back & touch, Bluetooth (BT LE) (1Mbps), 2402 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: BT LE(1Mbps)(UID: 0 (CW)) ; Frequency: 2402 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 2402 MHz; Conductivity: 1.825 S/m; Permittivity: 39.46

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (6.89, 6.89, 6.89)@2402 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup			Measurement Results		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	30.0× 30.0 ×30.0	psSAR 1g [W/kg]	0.069	**0.075**
Grid Steps [mm]	10.0×10.0	5.0× 5.0 ×1.5	psSAR 10g [W/kg]	0.034	**0.039**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.02	0.02
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.5	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	67.6
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	5.0



Remarks: *. Date tested: 2024-01-29;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: (22~24) deg.C. / (70~75) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/29-9,24h49,at.bt1,ble(1m),back,2402

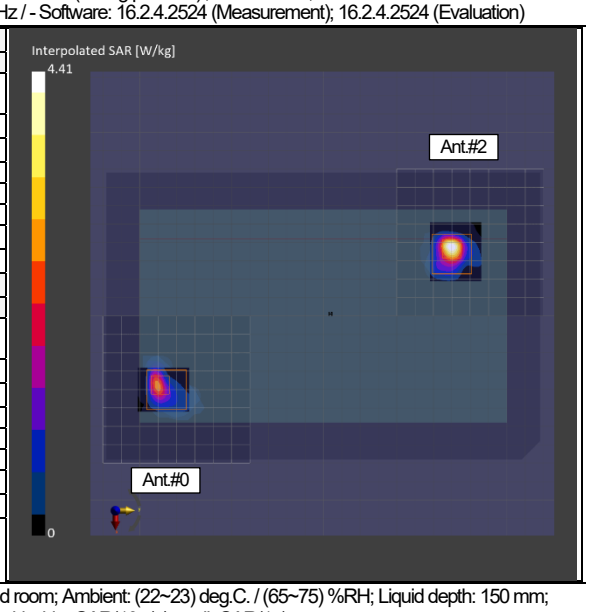
APPENDIX 2: Measurement data / Appendix 2-1: Plot(s) of Worst Reported Value (in each operation band, on each antenna) (cont'd)

Plot 2a-1: (5.2 GHz band) Antenna 2 side (MIMO), Back & touch, 11ac20(MCS0,MIMO), 5240 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: 11ac20(MCS0, MIMO)(UID: 0 (CW)) ; Frequency: 5240 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 5240 MHz; Conductivity: 4.523 S/m; Permittivity: 34.73

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (4.75, 4.75, 4.75)@5240 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup (Ant.#2)			Measurement Results (Ant.#2)		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	0.984	**1.06**
Grid Steps [mm]	10.0×10.0	4.0× 4.0 ×1.4	psSAR 10g [W/kg]	0.263	**0.284**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	0.03	0.02
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	66.5
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	5.1
Scan Setup (Ant.#0)			Measurement Results (Ant.#0)		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	0.607	**0.630**
Grid Steps [mm]	10.0×10.0	4.0× 4.0 ×1.4	psSAR 10g [W/kg]	0.164	**0.206**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	0.07	0.16
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	61.8
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	4.1



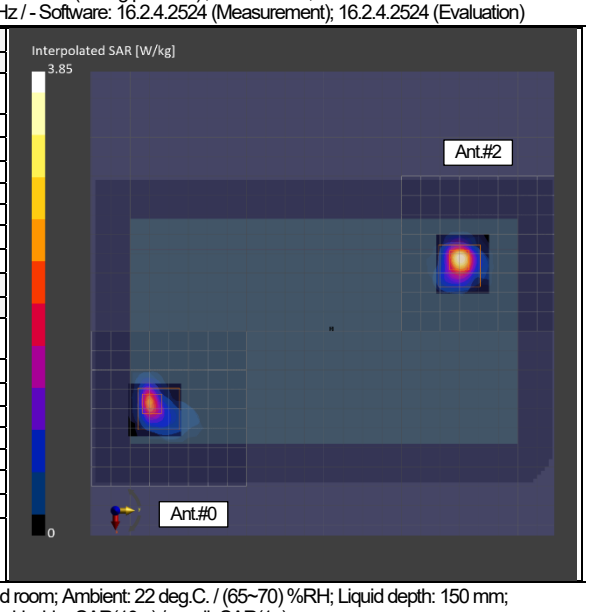
Remarks: *. Date tested: 2024-01-23;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: (22~23) deg.C. / (65~75) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/23-10,5h87,ac20-2tx,back,5240

Plot 2a-2: (5.2 GHz band) Antenna 0 side (MIMO), Back & touch, 11n40(MCS8,MIMO), 5190 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: 11n40(MCS8,MIMO)(UID: 0 (CW)) ; Frequency: 5190 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 5190 MHz; Conductivity: 4.470 S/m; Permittivity: 34.80

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (4.75, 4.75, 4.75)@5190 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup (Ant.#2)			Measurement Results (Ant.#2)		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	0.890	**0.951**
Grid Steps [mm]	10.0×10.0	3.4× 3.4 ×1.4	psSAR 10g [W/kg]	0.237	**0.255**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	0.01	-0.02
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	64.9
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	5.0
Scan Setup (Ant.#0)			Measurement Results (Ant.#0)		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	0.567	**0.591**
Grid Steps [mm]	10.0×10.0	3.4× 3.4 ×1.4	psSAR 10g [W/kg]	0.156	**0.186**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.03	-0.01
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	61.2
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	3.5



Remarks: *. Date tested: 2024-01-22;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: 22 deg.C. / (65~70) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/22-13,5h74,n40-2tx,back,5190

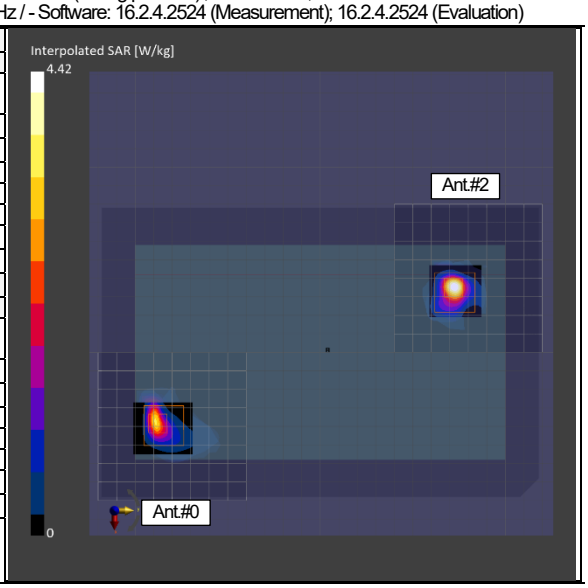
APPENDIX 2: Measurement data / Appendix 2-1: Plot(s) of Worst Reported Value (in each operation band, on each antenna) (cont'd)

Plot 2b-1: (5.3 GHz band) Antenna 2 side (MIMO), Back & touch, 11n20(MCS8, MIMO), 5260 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: 11n20(MCS8,MIMO) (UID: 0 (CW)) ; Frequency: 5260 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 5260 MHz; Conductivity: 4.581 S/m; Permittivity: 34.86

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (4.75, 4.75, 4.75)@5260 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup (Ant.#2)			Measurement Results (Ant.#2)		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	0.859	**1.07**
Grid Steps [mm]	10.0×10.0	4.0× 4.0 ×1.4	psSAR 10g [W/kg]	0.242	**0.280**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.09	-0.05
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	67.7
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	4.9
Scan Setup (Ant.#0)			Measurement Results (Ant.#0)		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	0.663	**0.714**
Grid Steps [mm]	10.0×10.0	4.0× 4.0 ×1.4	psSAR 10g [W/kg]	0.191	**0.220**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	0.02	0.02
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	All points	All points	M2/M1 [%]	N/A	61.6
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	4.1



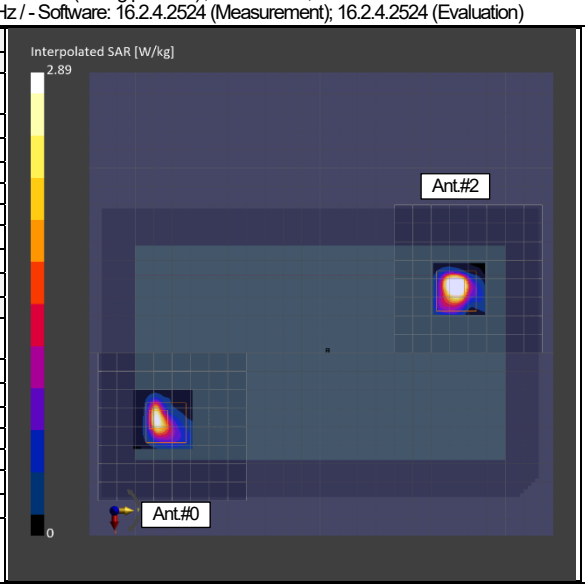
Remarks: *. Date tested: 2024-01-18;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: 22 deg.C. / (70~80) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/18-1,5h12,n20-2tx,back,5260

Plot 2b-2: (5.3 GHz band) Antenna 0 side (MIMO), Back & touch, 11ac40(MCS0,MIMO), 5270 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: 11ac40(MCS0,MIMO)(UID: 0 (CW)) ; Frequency: 5270 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 5270 MHz; Conductivity: 4.59 S/m; Permittivity: 34.8

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (4.75, 4.75, 4.75)@5270 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup (Ant.#2)			Measurement Results (Ant.#2)		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	0.840	**1.04**
Grid Steps [mm]	10.0×10.0	4.0× 4.0 ×1.4	psSAR 10g [W/kg]	0.243	**0.277**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.16	-0.11
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	66.0
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	5.4
Scan Setup (Ant.#0)			Measurement Results (Ant.#0)		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	0.542	**0.649**
Grid Steps [mm]	10.0×10.0	4.0× 4.0 ×1.4	psSAR 10g [W/kg]	0.167	**0.225**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.16	-0.17
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	62.6
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	4.1



Remarks: *. Date tested: 2024-01-17;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: (22~23) deg.C. / (70~80) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/17-4,5h4,ac40-2tx,back,5270

APPENDIX 2: SAR Measurement data (cont'd)

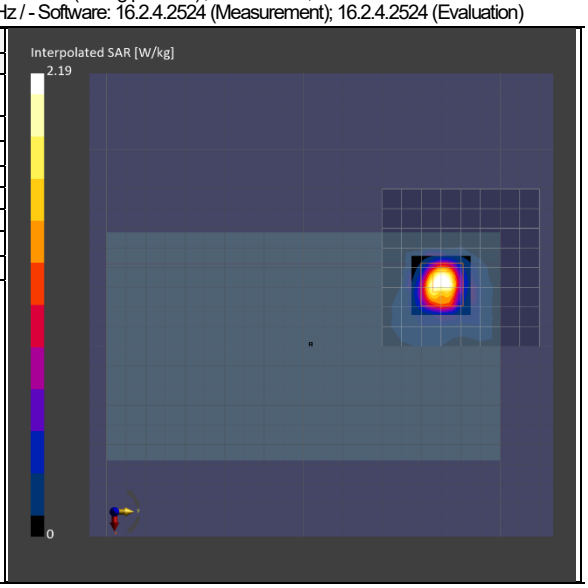
Appendix 2-2: SAR Plot for SAR Measurement Variability (Repeated measurement requirement)

Plot 1-5: (2.4 GHz band) Antenna 2, Back & touch, 11ax20(MCS0)/OFDMA(RU106-54), 2462 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: 11ax20(MCS0,SISO)/OFDMA(RU106-54)(UID: 0 (CW)) ; Frequency: 2462 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 2462 MHz; Conductivity: 1.856 S/m; Permittivity: 39.23

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (6.89, 6.89, 6.89)@2462 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup			Measurement Results		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	30.0× 30.0 ×30.0	psSAR 1g [W/kg]	0.760	**0.851**
Grid Steps [mm]	10.0×10.0	5.0× 5.0 ×1.5	psSAR 10g [W/kg]	0.317	**0.324**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.03	-0.02
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.5	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	All points	M2/M1 [%]	N/A	74.0
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	7.3



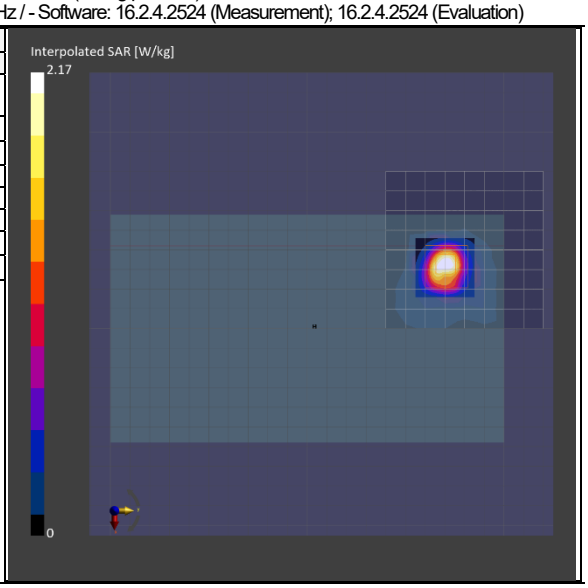
Remarks: *. Date tested: 2024-01-26;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: (22~23) deg.C. / (60~70) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/26-9,24h27,at2,ax20a106,back,2462

Plot 5-1: Repeat; (2.4 GHz band) Antenna 2, Back & touch, 11ax20(MCS0)/OFDMA(RU106-54), 2462 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: 11ax20(MCS0,SISO)/OFDMA(RU106-54)(UID: 0 (CW)) ; Frequency: 2462 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 2462 MHz; Conductivity: 1.856 S/m; Permittivity: 39.23

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (6.89, 6.89, 6.89)@2462 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup			Measurement Results		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	30.0× 30.0 ×30.0	psSAR 1g [W/kg]	0.762	**0.846**
Grid Steps [mm]	10.0×10.0	5.0× 5.0 ×1.5	psSAR 10g [W/kg]	0.317	**0.321**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.01	-0.05
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.5	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	71.5
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	7.3



Remarks: *. Date tested: 2024-01-26;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: 22 deg.C. / (70~75) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/26-22,24h40(re27),at2,ax20a106,back,2462

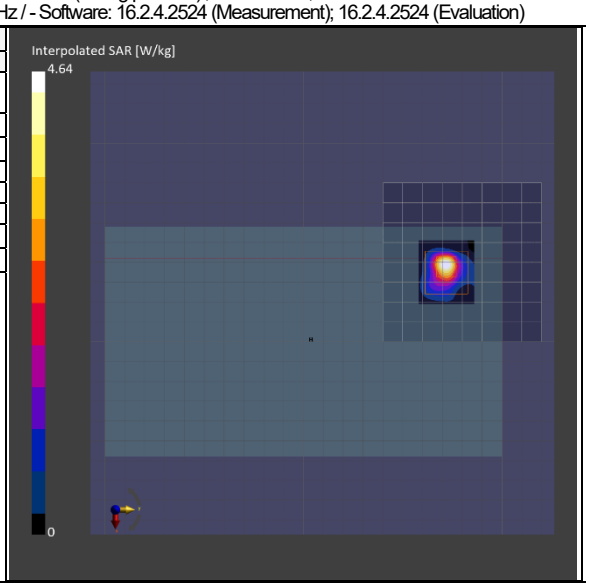
Appendix 2-2: SAR Plot for SAR Measurement Variability (Repeated measurement requirement) (cont'd)

Plot 2a-3: (5.2 GHz band) Antenna 2, Back & touch, 11ax40(MCS0,SISO), 5230 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: 11ax40(MCS0,SISO)(UID: 0 (CW)) ; Frequency: 5230 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 5230 MHz; Conductivity: 4.513 S/m; Permittivity: 34.74

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (4.75, 4.75, 4.75)@5230 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup			Measurement Results		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	1.09	**1.11**
Grid Steps [mm]	10.0×10.0	4.0× 4.0 ×1.4	psSAR 10g [W/kg]	0.282	**0.296**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.07	-0.03
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	66.8
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	5.6



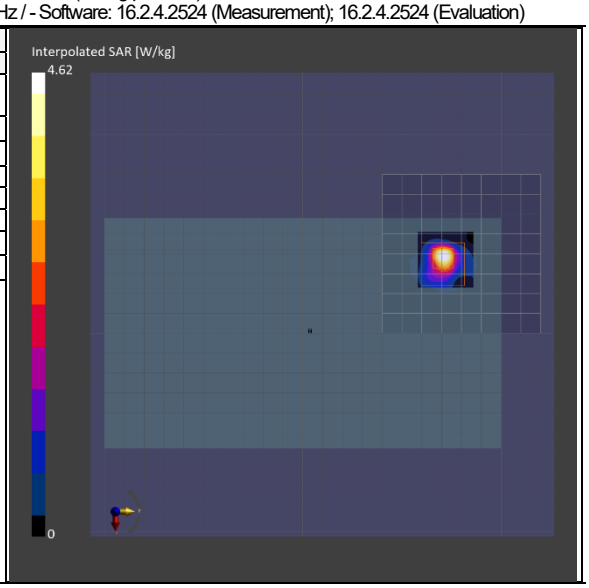
Remarks: *. Date tested: 2024-01-24;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: 23 deg.C. / (70~75) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/24-6,5h102,at2,ax40,back,5230

Plot 5-2: Repeat; (5.2 GHz band) Antenna 2, Back & touch, 11ax40(MCS0,SISO), 5230 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: 11ax40(MCS0,SISO)(UID: 0 (CW)) ; Frequency: 5230 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 5230 MHz; Conductivity: 4.513 S/m; Permittivity: 34.74

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (4.75, 4.75, 4.75)@5230 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup			Measurement Results		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	1.11	**1.11**
Grid Steps [mm]	10.0×10.0	4.0× 4.0 ×1.4	psSAR 10g [W/kg]	0.284	**0.298**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	0.00	0.01
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	66.4
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	5.7



Remarks: *. Date tested: 2024-01-25;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: 23 deg.C. / (65~70) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/25-26,5h138(re102),at2,ax40,back,5230

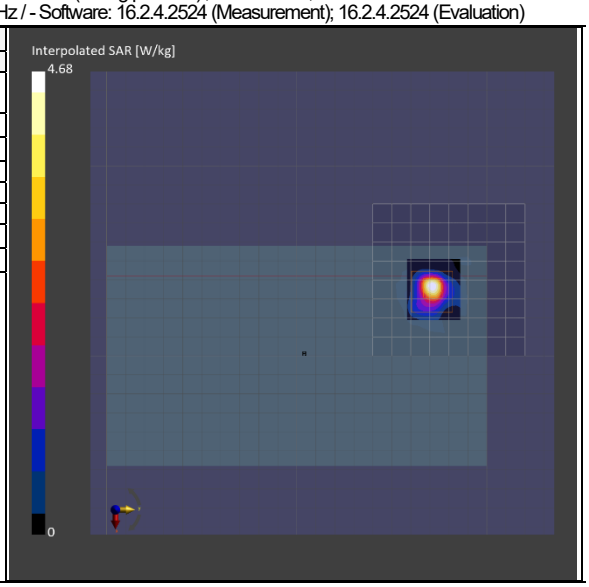
Appendix 2-2: SAR Plot for SAR Measurement Variability (Repeated measurement requirement) (cont'd)

Plot 2b-3: (5.3 GHz band) Antenna 2, Back & touch, 11ax40(MCS0,SISO), 5270 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: 11ax40(MCS0,SISO) (UID: 0 (CW)) ; Frequency: 5270 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 5270 MHz; Conductivity: 4.591 S/m; Permittivity: 34.84

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (4.75, 4.75, 4.75)@5270 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup			Measurement Results		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	0.991	**1.12**
Grid Steps [mm]	10.0×10.0	4.0× 4.0 ×1.4	psSAR 10g [W/kg]	0.269	**0.296**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.02	-0.00
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	N/A	N/A	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	67.2
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	4.7



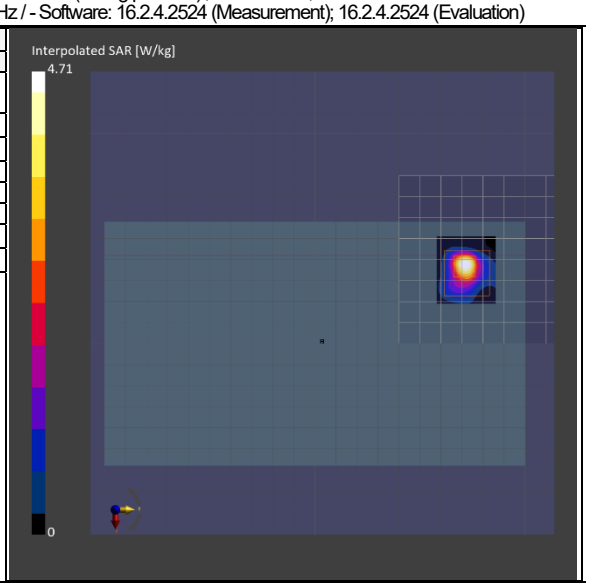
Remarks: *. Date tested: 2024-01-19;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: 22 deg.C. / (75~80) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/19-14,5h45,at2,ax40,back,5270

Plot 5-3: Repeat; (5.3 GHz band) Antenna 2, Back & touch, 11ax40(MCS0,SISO), 5270 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: 11ax40(MCS0,SISO) (UID: 0 (CW)) ; Frequency: 5270 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 5270 MHz; Conductivity: 4.591 S/m; Permittivity: 34.84

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (4.75, 4.75, 4.75)@5270 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup			Measurement Results		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	1.05	**1.12**
Grid Steps [mm]	10.0×10.0	4.0× 4.0 ×1.4	psSAR 10g [W/kg]	0.280	**0.298**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.05	-0.01
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	67.3
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	5.4



Remarks: *. Date tested: 2024-01-19;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: 23 deg.C. / (75~80) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/19-18,5h49(re45),at2,ax40,back,5270

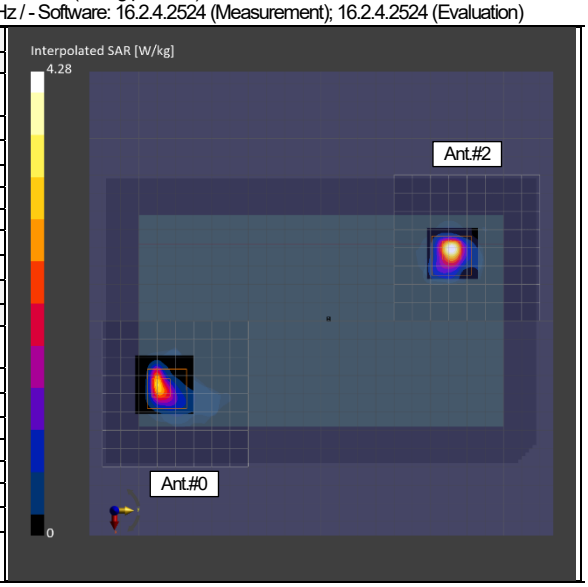
Appendix 2-3: SAR Plot for Device holder perturbation verification

Plot 6-1: No Device Holder; Antenna 2 side (MIMO), Back & touch, 11n20(MCS8, MIMO), 5260 MHz

EUT: Development tool; Model: BEE-056; Serial:HAL00110048756
Mode: 11n20(MCS8,MIMO)(UID: 0 (CW)) ; Frequency: 5260 MHz ; Test Distance: 0.00 mm
TSL parameters used: Head(v6) ; f= 5260 MHz; Conductivity: 4.545 S/m; Permittivity: 34.69

DASY8 Configuration: - Electronics: DAE4 - SN518 (Calibrated: 2023-04-19) / - Phantom: ELI V8.0 (20deg probe tilt) ; Serial: 2161 ; Phantom section: Flat
- Probe: EX3DV4 - SN3745(Calibrated: 2023-04-18); ConvF: (4.75, 4.75, 4.75)@5260 MHz / - Software: 16.2.4.2524 (Measurement); 16.2.4.2524 (Evaluation)

Scan Setup (Ant.#2)			Measurement Results (Ant.#2)		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	1.02	**1.02**
Grid Steps [mm]	10.0×10.0	4.0× 4.0 ×1.4	psSAR 10g [W/kg]	0.258	**0.272**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	-0.06	0.09
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	VMS + 6p	VMS + 6p	M2/M1 [%]	N/A	66.1
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	5.6
Scan Setup (Ant.#0)			Measurement Results (Ant.#0)		
Setup items	Area Scan	Zoom Scan	Meas. Items	Area Scan	Zoom Scan
Grid Extents [mm]	80.0×80.0	24.0× 24.0 ×22.0	psSAR 1g [W/kg]	0.645	**0.698**
Grid Steps [mm]	10.0×10.0	4.0× 4.0 ×1.4	psSAR 10g [W/kg]	0.193	**0.223**
Sensor Surface [mm]	3.0	1.4	Power Drift [dB]	0.02	0.00
Graded Grid	N/A	Yes	Power Scaling	Disabled	Disabled
Grading Ratio	N/A	1.4	Scaling Factor [dB]	N/A	N/A
MAIA monitored	Y	Y	TSL Correction	No correction	No correction
Surface Detection	All points	All points	M2/M1 [%]	N/A	60.8
Scan Method	Measured	Measured	Dist 3dB Peak [mm]	N/A	4.1



Remarks: *. Date tested: 2024-01-25;Tested by: Hiroshi Naka; Tested place:No.7 shielded room; Ambient: 23 deg.C. / (60~75) %RH; Liquid depth: 150 mm;
*. Liquid temperature: 22.0 deg.C. ± 0.5 deg.C. (22.0 deg.C., in check); *. Red cubic: big=SAR(10g) / small=SAR(1g)
*. Project file name-Measurement Group: 240117_15032644_bee056.d8sar- 1/25-28,no-DH,5h140(re12),n20-2tx,back,5260