SAR TEST REPORT

Test Report No.: 33CE0266-SH-01-R04

Applicant	:	**Toshiba Corporation**
Type of Equipment	:	**Laptop Computer**
Model No.	:	**Satellite U930**
FCC ID	:	**CJ6UPSU7FPC2**
Test Standard	:	**FCC 47CFR §2.1093, Supplement C (Edition 01-01) to OET Bulletin 65**
Test Result	:	**Complied**

The highest reported SAR(1g) Value for the device is 0.70 W/kg

Simultaneous transmission test was excluded
The highest sum of SAR(1g) for the simultaneous transmitting antennas Value for the device is 0.76 W/kg

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by any agency of the Federal Government.
6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.

Date of test: November 19-December 4, 2012

Test engineer:
Tomochika Sato
Engineer of WiSE Japan, UL Verification Service

Approved by:
Toyokazu Imamura
Leader of WiSE Japan, UL Verification Service

☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
☒ There is no testing item of "Non-accreditation".

JAB Testing RTL02610

CONTENTS PAGE

Contents of appendixes

REVISION HISTORY

Revision	Test report No.	Date	Page revised	Contents
Original	33CE0266-SH-01	December 17, 2012	-	-
1	33CE0266-SH-01-R01	December 21, 2012	2, 4, 9, 15, 16, 18, 19	2.1 Correction of errors / 3.1 Correction of errors / 6.1.1 Correction of errors 7.1 Add reason of exclusion test / 7.2 Correction of errors and add reason of exclusion test
2	33CE0266-SH-01-R02	December 25, 2012	1, 15, 16, 19, 20	Add highest sum of SAR(1g) value 7.1 Correction of errors / 7.1 and 7.3 Fromatting changes and Correction of errors Add section 7.2 and 7.4
3	33CE0266-SH-01-R03	December 26, 2012	19, 20	7.1 Correction of errors
4	33CE0266-SH-01-R04	December 27, 2012	1, 19	Highest sum of SAR(1g) value: Correction of errors 7.1 Correction of errors

***. By issue of new revision report, the report of an old revision becomes invalid.**

SECTION 1: Customer information

Company Name	Toshiba Corporation
Brand Name	TOSHIBA
Address	2-9, Suehiro-Cho, Ome, Tokyo 198-8710 JAPAN
Telephone Number	+81-428-34-2403
Facsimile Number	+81-428-30-7906
Contact Person	Kazuya Fukushima

SECTION 2: Equipment under test (EUT)

2.1 Identification of EUT (*.Main unit including antenna and RF module)

Type of Equipment	Laptop Computer
Model Number	Satellite U930
Serial Number	XC134402H
Condition of EUT	Production prototype (*. Not for sale: This sample is equivalent to mass-produced items.)
Receipt Date of Sample	November 14, 2012 (*. No modification by the Lab.)
Country of Mass-production	China
Rating	DC19V
Category Identified	Portable device
Feature of EUT	The EUT is a laptop computer installed Wireless LAN and Bluetooth module.
Simultaneous transmission	Wireless LAN can not transmit simultaneously with Bluetooth
Size of EUT	W:316 mm * D:207 mm * H:17.8 mm

2.2 Product Description (*.Antenna and RF module)

Bluetooth

Equipment type	Transceiver
Frequency of operation channel	2402-2480 MHz
Channel spacing	1MHz for BDR and EDR, 2MHz for Low energy
Bandwidth	79MHz
Type of modulation	FHSS, DSSS
Q'ty of Antenna	1 pc.
Antenna type	PIFA
Antenna gain (peak)	3.24dBi for 2.4GHz band
Transmit power	Refer to section 6 in this report.
Power supply	DC3.3V (*. with constantly voltage circuit operation.)

Wireless LAN(IEEE 802.11b/g/n20HT/n40HT)

Equipment type	Transceiver
Frequency of operation channel	2412-2462 MHz for IEEE 802.11b, 11g and n20HT 2422-2452 MHz for IEEE 802.11n40HT, 5180-5240 MHz for IEEE 802.11a, n20HT, 5190-5230 MHz for IEEE 802.11n40HT, 5260-5320 MHz for IEEE 802.11a, n20HT, 5270-5310 MHz for IEEE 802.11n40HT, 5500-5700 MHz for IEEE 802.11a, n20HT, 5510-5690 MHz for IEEE 802.11n40HT, 5745-5825 MHz for IEEE 802.11a, n20HT, 5755-5795 MHz for IEEE 802.11n40HT,
Channel spacing	5MHz for 2.4GHz band, 20MHz for 5GHz band
Bandwidth	20MHz for a, b, g and n20HT, 40MHz for n40HT
Type of modulation	DSSS, OFDM
Q'ty of Antenna	2 pc.
Antenna type	PIFA
Antenna gain (peak)	3.24dBi
Transmit power	Refer to section 6 in this report.
Power supply	DC3.3V (*. with constantly voltage circuit operation.)

SECTION 3: Test specification, procedures and results

3.1 Requirements for compliance testing defined by the FCC / Test specification

The US Federal Communications Commission has released the report and order "Guidelines for Evaluating the Environmental Effects of RF Radiation", ET Docket No. 93-62 in August 1996. The order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 mW/g for an uncontrolled environment and 8.0 mW/g for an occupational/controlled environment as recommended by the ANSI/IEEE standard C95.1-1992. According to the Supplement C of OET Bulletin 65 "Evaluating Compliance with FCC Guide-lines for Human Exposure to Radio frequency Electromagnetic Fields", released on Jun 29, 2001 by the FCC, the device should be evaluated at maximum output power (radiated from the antenna) under "worst-case" conditions for normal or intended use, incorporating normal antenna operating positions, device peak performance frequencies and positions for maximum RF energy coupling.

1. Specific Absorption Rate (SAR) is a measure of the rate of energy absorption due to exposure to an RF transmitting source (wireless portable device).
2. IEEE/ANSI Std. C95.1-1992 limits are used to determine compliance with FCC ET Docket 93-62.

Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01):

Supplement C (Edition 01-01) - Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions

OET Bulletin 65 (Edition 97-01) - Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

IEEE Std. 1528-2003:

IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques Supplement C

In additions;

☒ **KDB 447498 D01 (v04) (11/13/2009):**	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
☒ **KDB 248227 (rev.1.2) (5/29/2007):**	SAR Measurement Procedures for 802.11a/b/g Transmitters
☒ **KDB 450824 D01 (v01r01) (Jan.2007):**	SAR Probe Calibration and System Verification Considerations for Measurements at 150MHz-3GHz
☒ **KDB 450824 D02 (v01) (11/13/2009):**	Dipole Requirements for SAR System Validation and Verification
☒ **KDB 616217 D01 (v01) (11/13/2009):**	SAR for laptop with Screen Ant

3.2 Exposure limit

Environments of exposure limit	Whole-Body (averaged over the entire body)	Partial-Body (averaged over any 1g of tissue)	Hands, Wrists, Feet and Ankles (averaged over any 10g of tissue)
(A) Limits for Occupational /Controlled Exposure (W/kg)	0.4	8.0	20.0
(B) Limits for General population /Uncontrolled Exposure (W/kg)	0.08	**1.6**	4.0

***.Occupational/Controlled Environments:** are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

***.General Population/Uncontrolled Environments:** are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

The limit applied in this test report is;

General population / uncontrolled exposure, Partial-Body (averaged over any 1g of tissue) limit: 1.6 W/kg

3.3 Procedures

Transmitter	Wireless LAN	Bluetooth
Test Procedure	FCC OET Bulletin 65, Supplement C	Exemption (Power <12mW)*1
	SAR	
Category	FCC 47CFR §2.1093	FCC 47CFR §2.1093

Note: UL Japan's SAR Work Procedures No.13-EM-W0429 and 13-EM-W0430. No addition, deviation nor exclusion has been made from standards

***1:** Bluetooth mode is excluded from SAR test since power was lower than 1/2*60/f(GHz) [mW].

3.4 Test Location

No.7 shielded room (2.76(Width) × 3.76m(Depth) × 2.4m(Height)) for SAR testing.

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

3.5 Confirmation before SAR testing

3.5.1 Data rate

*. The power corresponding with the data rate was measured. The following table is reference of modulation.

11b		11g	
Modulation	Data rate	Modulation	Data rate
DBPSK/DSSS	1 Mbps	BPSK/OFDM	6 Mbps
DQPSK/DSSS	2 Mbps	BPSK/OFDM	9 Mbps
CCK/DSSS	5.5 Mbps	QPSK/OFDM	12 Mbps
CCK/DSSS	11 Mbps	QPSK/OFDM	18 Mbps
		16QAM/OFDM	24 Mbps
		16QAM/OFDM	36 Mbps
		64QAM/OFDM	48 Mbps
		64QAM/OFDM	54 Mbps

11n(20HT)					11n(40HT)				
Modulation	Data rate	Stream	Data rate	Stream	Modulation	Data rate	Stream	Data rate	Stream
BPSK/OFDM	MCS0	1	MCS8	2	BPSK/OFDM	MCS0	1	MCS8	2
QPSK/OFDM	MCS1	1	MCS9	2	QPSK/OFDM	MCS1	1	MCS9	2
QPSK/OFDM	MCS2	1	MCS10	2	QPSK/OFDM	MCS2	1	MCS10	2
16QAM/OFDM	MCS3	1	MCS11	2	16QAM/OFDM	MCS3	1	MCS11	2
16QAM/OFDM	MCS4	1	MCS12	2	16QAM/OFDM	MCS4	1	MCS12	2
64QAM/OFDM	MCS5	1	MCS13	2	64QAM/OFDM	MCS5	1	MCS13	2
64QAM/OFDM	MCS6	1	MCS14	2	64QAM/OFDM	MCS6	1	MCS14	2
64QAM/OFDM	MCS7	1	MCS15	2	64QAM/OFDM	MCS7	1	MCS15	2

3.5.2 Decision of SAR test channel

Decision of SAR test channel

The operating mode for SAR testing was decided by the output power

The average output power for 802.11a was measured on all channels in each frequency band.

Mode		GHz	Channel	"Default Test Channel"			
				FCC 15.247		UNII	
				802.11b	802.11g		
802.11 b/g		2.412	1	√	Δ		
		2.437	6	√	Δ		
		2.462	11	√	Δ		
802.11a	UNII	5.18	36			√	
		5.20	40				*
		5.22	44				*
		5.24	48			√	
		5.26	52			√	
		5.28	56				*
		5.30	60				*
		5.32	64			√	
		5.500	100				*
		5.520	104			√	
		5.540	108				*
		5.560	112				*
		5.580	116			√	
		5.600	120				*
		5.620	124			√	
		5.640	128				*
		5.660	132				*
		5.680	136			√	
		5.700	140				*
	UNII or FCC 15.247	5.745	149	√		√	
		5.765	153		*		*
		5.785	157	√			*
		5.805	161		*	√	
	FCC 15.247	5.825	165	√			

√ = "default test channels"

* = Possible 802.11a channels with maximum average output > the "default test channels"

Δ = Possible 802.11g channels with maximum average output ¼ dB ≥ the "default test channels"

3.6 Confirmation after SAR testing

It was checked that the power drift [W] is within ±5% in the evaluation procedure of SAR testing. The verification of power drift during the SAR test is that DASY system calculates the power drift by measuring the e-filed at the same location at beginning and the end of the scan measurement for each test position. The result is shown in APPENDIX 2.

*. DASY system calculation Power drift value[dB] =20log(Ea)/(Eb) (where, Before SAR testing: Eb[V/m] / After SAR testing: Ea[V/m])

Limit of power drift[W] = ±5%

Power drift limit (X) [dB] = 10log(P_drift)=10log(1.05/1)=10log(1.05)-10log(1)=0.212dB

from E-filed relations with power.

S=E×H=E^2/η=P/(4×π×r^2) (η: Space impedance) → P=(E^2×4×π×r^2)/η

Therefore, The correlation of power and the E-filed

Power drift limit (X) dB=10log(P_drift)=10log(E_drift)^2=20log(E_drift)

From the above mentioned, the calculated power drift of DASY system must be the less than ±0.212dB.

3.7 Test setup of EUT and SAR measurement procedure

After considering the outline of EUT, the SAR test was carried out on the following setup conditions.
*. Refer to Appendix 1 for test setup photographs.

Configuration	Antenna to user distance	Explanation of EUT setup position	SAR test	SAR type
Lap held(Bottom face)	**7.5 mm**	The bottom surface of EUT was touched to the Flat phantom. **This section is the closest to an antenna.**	applied	Body-touch
Right side	**53 mm**	The right surface of EUT was touched to the Flat phantom.	applied	Body-touch
Left side	**53 mm**	The left surface of EUT was touched to the Flat phantom.	applied	Body-touch
LCD back side(Nearby person)	**12 mm**	The LCD back side of EUT was touched to the Flat phantom.	applied	Body-touch

By the determined test setup shown above, the SAR test was applied in the following procedures.

Operation modes: IEEE 802.11a/b/g/n(20HT)/n(40HT)

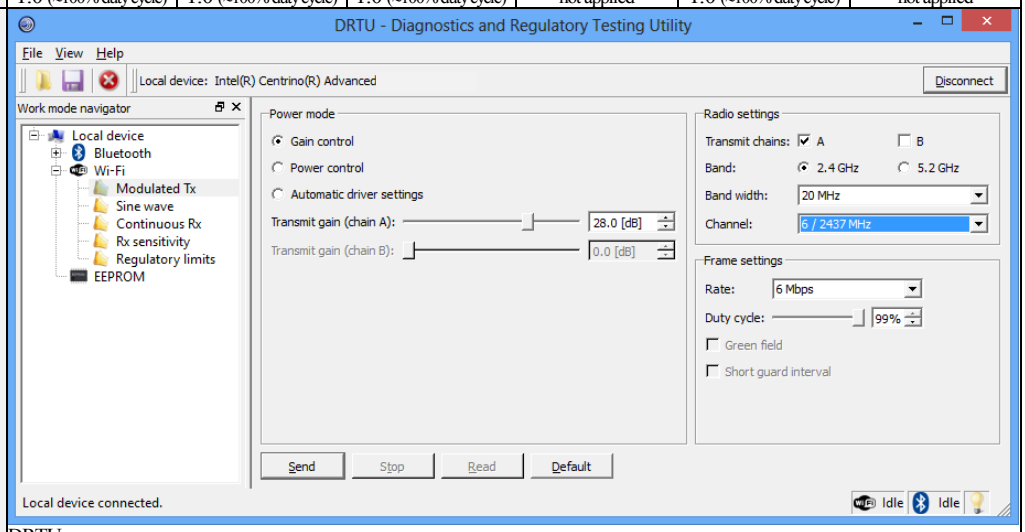
Step 1	Worst position search.
Step 2	Change the channel (at the worst SAR position in step 1.)
Step 3	Change the operation modes. (at the worst SAR position in step1.)

*. Radiated spectrum is monitored by spectrum analyzer during SAR test.

SECTION 4: Operation of EUT during testing

This EUT has IEEE.802.11a, b, 11g 11n(20HT) and 11n(40HT) continuous transmitting modes.
The frequency and the modulation used in the SAR testing are shown as a following.

Operation mode	11a	11n(20HT) siso	11n(20HT) mimo	11n(40HT) siso	11n(40HT) mimo
Tx frequency band	5180-5320MHz 5500-5700MHz 5745-5825MHz			5190-5310MHz 5510-5690MHz 5755-5795MHz	
Modulation	BPSK/OFDM(*1)				
Data rate	1Mbps (*2)	MCS0 (*2)	MCS8 (*2)	MCS0 (*2)	MCS8 (*2)
Crest factor	1.0 (≈100% duty cycle)				

Operation mode	11b	11g	11n(20HT) siso	11n(40HT) siso	11n(20HT) mimo	11n(40HT) mimo
Tx frequency band	2412-2462MHz			2422-2452MHz	2412-2462MHz	2422-2452MHz
Modulation	DBPSK/DSSS(*2)	BPSK/OFDM(*1)	BPSK/OFDM(*1)	not applied	BPSK/OFDM	not applied
Data rate	1Mbps (*2)	6Mbps (*2)	MCS0 (*2)	not applied	MCS0 (*2)	not applied
Crest factor	1.0 (≈100% duty cycle)	1.0 (≈100% duty cycle)	1.0 (≈100% duty cycle)	not applied	1.0 (≈100% duty cycle)	not applied
Controlled software	 DRTU Version: 1.5.7-0432 *. The sample photograph of setting parameters and setting window is in above.					

*1. SAR test was applied since average output power is higher than 11b or 11a.
*2. Since the average power of higher data rate was less than 0.25dB higher than the lowest data rate, the SAR test was only applied to the lowest data rate.

SECTION 5: Uncertainty Assessment (SAR measurement)

Uncertainty of SAR measurement system (Body tissue, conductivity& permittivity tolerance: ≤ ± 5%, 100% duty cycle) (v06)	Under 3 GHz	
	1g SAR	10g SAR
combined measurement uncertainty of the measurement system (k=1)	± 12.5%	± 12.2%
expanded uncertainty (k=2)	± 25.0%	± 24.4%

	Error Description (Under 3GHz)	Uncertainty	Probability	Divisor	ci	ci	ui	ui	Vi, veff
A	**Measurement System** (DASY5)						(std.uncertainty)	(std.uncertainty)	
1	Probe Calibration Error	±6.0 %	Normal	1	1	1	±6.0 %	±6.0 %	∞
2	Axial isotropy Error	±4.7 %	Rectangular	√3	0.7	0.7	±1.9 %	±1.9 %	∞
3	Hemispherical isotropy Error (<5deg. flat phantom)	±9.6 %	Rectangular	√3	0.7	0.7	±3.9 %	±3.9 %	∞
4	Boundary effects Error	±1.4 %	Rectangular	√3	1	1	±0.8 %	±0.8 %	∞
5	Linearity Error	±4.7 %	Rectangular	√3	1	1	±2.7 %	±2.7 %	∞
6	Probe modulation response (CW)	±0.0 %	Rectangular	√3	1	1	±0.0 %	±0.0 %	∞
7	Sensitivity Error (detection limit)	±1.0 %	Rectangular	√3	1	1	±0.6 %	±0.6 %	∞
8	Response Time Error (<5ms/100ms wait)	±0.0 %	Normal	1	1	1	±0.0 %	±0.0 %	∞
9	Integration Time Error(100% duty cycle)	±0.0 %	Rectangular	√3	1	1	±0.0 %	±0.0 %	∞
10	Readout Electronics Error(DAE)	±0.3 %	Rectangular	√3	1	1	±0.3 %	±0.3 %	∞
11	RF ambient conditions-noise	±3.0 %	Rectangular	√3	1	1	±1.7 %	±1.7 %	∞
12	RF ambient conditions-reflections	±3.0 %	Rectangular	√3	1	1	±1.7 %	±1.7 %	∞
13	Probe positioner mechanical tolerance	±1.1 %	Rectangular	√3	1	1	±0.6 %	±0.6 %	∞
14	Probe Positioning with respect to phantom shell	±2.9 %	Rectangular	√3	1	1	±1.7 %	±1.7 %	∞
15	Errors: Extrapol., Interpol. & Integration Algorithms	±1.0 %	Rectangular	√3	1	1	±0.6 %	±0.6 %	∞
B	**Test Sample Related**								
16	Test Sample Positioning Error	±5.0 %	Normal	1	1	1	±5.0 %	±5.0 %	145
17	Device Holder or Positioner Tolerance	±3.6 %	Normal	1	1	1	±3.6 %	±3.6 %	5
18	Test Sample Output Power Drift Error	±5.0 %	Rectangular	√3	1	1	±2.9 %	±2.9 %	∞
C	**Phantom and Setup**								
19	Phantom uncertainty (shape, thickness tolerances)	±7.5 %	Rectangular	√3	1	1	±4.3 %	±4.3 %	∞
20	Target Liquid Conductivity Tolerance	±5.0 %	Rectangular	√3	0.64	0.43	±1.8 %	±1.2 %	∞
21	Measurement Liquid Conductivity Error	±2.9 %	Normal	1	0.64	0.43	±1.9 %	±1.2 %	3
22	Target Liquid Permittivity Tolerance	±5.0 %	Rectangular	√3	0.6	0.49	±1.7 %	±1.4 %	∞
23	Measurement Liquid Permittivity Error	±2.9 %	Normal	1	0.6	0.49	±1.7 %	±1.4 %	3
24	Liquid Conductivity-temp.uncertainty (≤2deg.C.)	±5.2 %	Rectangular	√3	0.78	0.71	±2.3 %	±2.1 %	∞
25	Liquid Permittivity-temp.uncertainty (≤2deg.C.)	±0.8 %	Rectangular	√3	0.23	0.26	±0.1 %	±0.1 %	∞
	Combined Standard Uncertainty						**±12.5 %**	**±12.2 %**	479
	Expanded Uncertainty (k=2)						**±25.0 %**	**±24.4 %**	

*. This measurement uncertainty budget is suggested by IEEE 1528, IEC 62209-2 and determined by Schmid & Partner Engineering AG (DASY5 Uncertainty Budget).

Uncertainty of SAR measurement system	5~6 GHz	
	1g SAR	10g SAR
combined measurement uncertainty of the measurement system (k=1)	**± 15.1%**	± 14.6%
expanded uncertainty (k=2)	**± 30.2%**	± 29.2%

	Error Description	Uncertainty	Probability	Divisor	ci	ci	ui	ui	vi, veff
A	**Measurement System**						(std.uncertainty)	(std.uncertainty)	
1	Probe calibration	±6.8 %	Normal	1	1	1	±6.8 %	±6.8 %	∞
2	Axial isotropy	±4.7 %	Rectangular	√3	0.7	0.7	±1.9 %	±1.9 %	∞
3	Hemispherical isotropy (*flat phantom, <5°)	±2.6 %	Rectangular	√3	0.7	0.7	±1.1 %	±1.1 %	∞
4	Boundary effects	±2.0 %	Rectangular	√3	1	1	±1.2 %	±1.2 %	∞
5	Probe linearity	±4.7 %	Rectangular	√3	1	1	±2.7 %	±2.7 %	∞
6	System detection limit	±1.0 %	Rectangular	√3	1	1	±0.6 %	±0.6 %	∞
7	System readout electronics	±0.3 %	Normal	1	1	1	±0.3 %	±0.3 %	∞
8	Response time	±0.8 %	Rectangular	√3	1	1	±0.5 %	±0.5 %	∞
9	Integration time	±2.6 %	Rectangular	√3	1	1	±1.5 %	±1.5 %	∞
10	RF ambient - noise	±3.0 %	Rectangular	√3	1	1	±1.7 %	±1.7 %	∞
11	RF ambient - reflections	±3.0 %	Rectangular	√3	1	1	±1.7 %	±1.7 %	∞
12	Probe positioner mechanical tolerance	±0.8 %	Rectangular	√3	1	1	±0.5 %	±0.5 %	∞
13	Probe positioning with respect to phantom shell	±9.9 %	Rectangular	√3	1	1	±5.7 %	±5.7 %	∞
14	Max.SAR evaluation	±4.0 %	Rectangular	√3	1	1	±2.3 %	±2.3 %	∞
B	**Test Sample Related**								
15	Device positioning	±5.0 %	Normal	1	1	1	±5.0 %	±5.0 %	∞
16	Device holder uncertainty	±5.0 %	Normal	1	1	1	±5.0 %	±5.0 %	∞
17	Power drift	±5.0 %	Rectangular	√3	1	1	±5.0 %	±2.9 %	∞
C	**Phantom and Setup**								
18	Phantom uncertainty	±4.0 %	Rectangular	√3	1	1	±2.3 %	±2.3 %	∞
19	Liquid conductivity (target)	±5.0 %	Rectangular	√3	0.64	0.43	±1.8 %	±1.2 %	∞
20	Liquid conductivity (meas.)	±3.0 %	Normal	1	0.64	0.43	±1.9 %	±1.3 %	∞
21	Liquid permittivity (target)	±5.0 %	Rectangular	√3	0.6	0.49	±1.7 %	±1.4 %	∞
22	Liquid permittivity (meas.)	±3.2 %	Normal	1	0.6	0.49	±1.9 %	±1.6 %	∞
23	Liquid Conductivity-temp.uncertainty(≦2°C)	±3.0 %	Rectangular	√3	0.78	0.71	±1.4 %	±1.2 %	∞
24	Liquid Permittivity-temp.uncertainty(≦2°C)	±0.8 %	Rectangular	√3	0.78	0.26	±0.1 %	±0.1 %	∞
	Combined Standard Uncertainty						**±15.1 %**	**±14.6 %**	∞
	Expanded Uncertainty (k=2)						**±30.2 %**	**±29.2 %**	

*. This measurement uncertainty budget is suggested by Schmid & Partner Engineering AG. [6]

SECTION 6: Confirmation before testing

6.1 Assessment for the conducted power of EUT

6.1.1 Worst data rate & worst channel determination of SAR

Mode	Antenna	Freq. [MHz]	Ch.	Data rate	Loss[dB] Cable	Loss[dB] Attn	Duty cycle / factor [%]	Duty cycle / factor [dB]	Average output power Reading[dBm]	Average output power Result[dBm]	Average output power Result[mW]	Remarks
Bluetooth BDR	Chain B(Aux)	2402	low	DH5	0.74	10	78.696	1.0405	-4.71	7.07	5.09	
		2441	mid	DH5	0.75	10	78.696	1.0405	-3.85	**7.94**	**6.22**	
		2480	high	DH5	0.75	10	78.696	1.0405	-3.91	7.88	6.14	
Bluetooth EDR	Chain B(Aux)	2402	low	3DH5	0.74	10	78.696	1.0405	-8.66	3.12	2.05	
		2441	mid	3DH5	0.75	10	78.696	1.0405	-7.66	4.13	2.59	
		2480	high	3DH5	0.75	10	78.696	1.0405	-7.00	**4.79**	**3.01**	
Bluetooth Low Energy	Chain B(Aux)	2402	low	-	0.74	10	78.696	1.0405	-6.56	5.22	3.33	
		2442	mid	-	0.75	10	78.696	1.0405	-6.00	5.79	3.79	
		2480	high	-	0.75	10	78.696	1.0405	-5.49	**6.30**	**4.27**	

Bluetooth mode is excluded from SAR test since power was lower than 1/2*60/f(GHz) [mW].

Mode	Antenna	Freq. [MHz]	Ch.	Data rate	Loss[dB] Cable	Loss[dB] Attn	Duty cycle / factor [%]	Duty cycle / factor [dB]	Average output power Reading[dBm]	Average output power Result[dBm]	Average output power Result[mW]	Remarks
802.11b	Data rate check at main antenna	2437	6	1Mbps	0.75	10.00	99.03	0.04	6.37	17.16	52.03	Worst data rate of 11b
		2437	6	2Mbps	0.75	10.00	98.97	0.04	6.27	17.06	50.87	
		2437	6	5.5Mbps	0.75	10.00	98.96	0.05	6.27	17.07	50.88	
		2437	6	11Mbps	0.75	10.00	97.84	0.09	6.30	17.14	51.82	
	Chain A(Main)	2412	1	1Mbps	0.74	10.00	99.03	0.04	6.23	17.01	50.26	
		2437	6	1Mbps	0.75	10.00	99.03	0.04	6.37	**17.16**	**52.03**	
		2462	11	1Mbps	0.75	10.00	99.03	0.04	6.18	16.97	49.80	
	Chain B(Aux)	2412	1	1Mbps	0.74	10.00	99.03	0.04	6.34	**17.12**	**51.55**	
		2437	6	1Mbps	0.75	10.00	99.03	0.04	4.89	15.68	37.00	
		2462	11	1Mbps	0.75	10.00	99.03	0.04	5.46	16.25	42.19	
802.11g	Data rate check at main antenna	2437	6	6Mbps	0.75	10.00	98.86	0.05	6.23	17.03	50.47	Worst data rate of 11g
		2437	6	9Mbps	0.75	10.00	97.93	0.09	6.08	16.92	49.21	
		2437	6	12Mbps	0.75	10.00	97.67	0.10	5.97	16.82	48.11	
		2437	6	18Mbps	0.75	10.00	96.71	0.15	5.94	16.84	48.25	
		2437	6	24Mbps	0.75	10.00	95.55	0.20	5.75	16.70	46.75	
		2437	6	36Mbps	0.75	10.00	93.51	0.29	5.72	16.76	47.44	
		2437	6	48Mbps	0.75	10.00	91.47	0.39	5.72	16.86	48.50	
		2437	6	54Mbps	0.75	10.00	90.51	0.43	5.66	16.84	48.34	
	Chain A(Main)	2412	1	6Mbps	0.74	10.00	98.86	0.05	3.45	14.24	26.55	
		2437	6	6Mbps	0.75	10.00	98.86	0.05	6.23	**17.03**	**50.47**	
		2462	11	6Mbps	0.75	10.00	98.86	0.05	3.31	14.11	25.76	
	Chain B(Aux)	2412	1	6Mbps	0.74	10.00	98.86	0.05	3.26	14.05	25.41	
		2437	6	6Mbps	0.75	10.00	98.86	0.05	5.71	**16.51**	**44.77**	
		2462	11	6Mbps	0.75	10.00	98.86	0.05	2.84	13.64	23.12	
802.11n 20HT SISO	Data rate check at main antenna	2437	6	mcs0	0.75	10.00	98.77	0.05	5.99	16.79	47.79	Worst data rate of 11n20HT SISO
		2437	6	mcs1	0.75	10.00	97.43	0.11	5.67	16.53	45.01	
		2437	6	mcs2	0.75	10.00	96.40	0.16	5.67	16.58	45.49	
		2437	6	mcs3	0.75	10.00	95.53	0.20	5.57	16.52	44.86	
		2437	6	mcs4	0.75	10.00	93.40	0.30	5.55	16.60	45.67	
		2437	6	mcs5	0.75	10.00	91.53	0.38	5.54	16.67	46.50	
		2437	6	mcs6	0.75	10.00	91.24	0.40	5.48	16.63	46.01	
		2437	6	mcs7	0.75	10.00	90.55	0.43	5.47	16.65	46.25	
	Chain A(Main)	2412	1	mcs0	0.74	10.00	98.77	0.05	2.51	13.30	21.40	
		2437	6	mcs0	0.75	10.00	98.77	0.05	5.99	**16.79**	**47.79**	
		2462	11	mcs0	0.75	10.00	98.77	0.05	1.99	12.79	19.03	
	Chain B(Aux)	2412	1	mcs0	0.74	10.00	98.77	0.05	2.32	13.11	20.48	
		2437	6	mcs0	0.75	10.00	98.77	0.05	5.65	**16.45**	**44.19**	
		2462	11	mcs0	0.75	10.00	98.77	0.05	1.81	12.61	18.25	
802.11n 40HT SISO	Data rate check at main antenna	2437	6	mcs0	0.75	10.00	97.38	0.12	3.31	14.18	26.15	Worst data rate of 11n40HT SISO
		2437	6	mcs1	0.75	10.00	95.12	0.22	3.06	14.03	25.28	
		2437	6	mcs2	0.75	10.00	93.46	0.29	2.96	14.00	25.14	
		2437	6	mcs3	0.75	10.00	88.95	0.51	2.75	14.01	25.17	
		2437	6	mcs4	0.75	10.00	87.25	0.59	2.63	13.97	24.96	
		2437	6	mcs5	0.75	10.00	85.84	0.66	2.58	13.99	25.08	
		2437	6	mcs6	0.75	10.00	85.46	0.68	2.55	13.98	25.02	
		2437	6	mcs7	0.75	10.00	84.31	0.74	2.52	14.01	25.18	
	Chain A(Main)	2422	3	mcs0	0.74	10.00	97.38	0.12	0.67	11.53	14.21	
		2437	6	mcs0	0.75	10.00	97.38	0.12	3.31	**14.18**	**26.15**	
		2452	9	mcs0	0.75	10.00	97.38	0.12	0.01	10.88	12.23	
	Chain B(Aux)	2422	3	mcs0	0.74	10.00	97.38	0.12	-0.83	10.03	10.06	
		2437	6	mcs0	0.75	10.00	97.38	0.12	2.03	**12.90**	**19.48**	
		2452	9	mcs0	0.75	10.00	97.38	0.12	0.00	10.87	12.20	

Mode	Antenna	Freq. [MHz]	Ch.	Data rate	Loss[dB] Cable	Loss[dB] Attn	Duty cycle / factor [%] / [dB]	Average output power Reading[dBm]	Average output power Result[dBm]	Average output power Result[mW]	Remarks
802.11a		5220	44	6Mbps	2.03	9.61	98.86 / 0.05	4.29	15.98	39.63	Worst data rate of 11a
		5220	44	9Mbps	2.03	9.61	97.93 / 0.09	4.14	15.87	38.65	
		5220	44	12Mbps	2.03	9.61	97.77 / 0.10	4.15	15.89	38.80	
	Data rate check	5220	44	18Mbps	2.03	9.61	96.71 / 0.15	4.06	15.85	38.42	
	at main antenna	5220	44	24Mbps	2.03	9.61	95.73 / 0.19	3.91	15.74	37.49	
		5220	44	36Mbps	2.03	9.61	93.78 / 0.28	3.85	15.77	37.75	
		5220	44	48Mbps	2.03	9.61	91.84 / 0.37	3.72	15.73	37.41	
		5220	44	52Mbps	2.03	9.61	91.24 / 0.40	3.75	15.79	37.91	
	Chain A(Main)	5180	36	6Mbps	2.03	9.61	98.86 / 0.05	4.47	16.16	41.30	
		5200	40	6Mbps	2.03	9.61	98.86 / 0.05	4.40	16.09	40.64	
		5220	44	6Mbps	2.03	9.61	98.86 / 0.05	4.29	15.98	39.63	
		5240	48	6Mbps	2.18	9.61	98.86 / 0.05	4.15	15.99	39.72	
		5260	52	6Mbps	2.17	9.60	98.86 / 0.05	4.11	15.93	39.17	
		5280	56	6Mbps	2.18	9.60	98.86 / 0.05	4.33	16.16	41.30	
		5300	60	6Mbps	2.18	9.60	98.86 / 0.05	4.34	**16.17**	**41.40**	
		5320	64	6Mbps	2.07	9.60	98.86 / 0.05	4.23	15.95	39.35	
	Chain B(Aux)	5180	36	6Mbps	2.03	9.61	98.86 / 0.05	4.41	**16.10**	**40.74**	
		5200	40	6Mbps	2.03	9.61	98.86 / 0.05	4.28	15.97	39.54	
		5220	44	6Mbps	2.03	9.61	98.86 / 0.05	4.22	15.91	38.99	
		5240	48	6Mbps	2.18	9.61	98.86 / 0.05	3.98	15.82	38.19	
		5260	52	6Mbps	2.17	9.60	98.86 / 0.05	3.47	15.29	33.81	
		5280	56	6Mbps	2.18	9.60	98.86 / 0.05	3.84	15.67	36.90	
		5300	60	6Mbps	2.18	9.60	98.86 / 0.05	3.64	15.47	35.24	
		5320	64	6Mbps	2.07	9.60	98.86 / 0.05	3.65	15.37	34.43	
802.11n 20HT SISO		5220	44	MCS0	2.03	9.61	98.86 / 0.05	4.55	16.24	42.11	Worst data rate of 11n20HT SISO
		5220	44	MCS1	2.03	9.61	97.93 / 0.10	4.34	16.08	40.59	
		5220	44	MCS2	2.03	9.61	97.77 / 0.15	4.42	16.21	41.81	
	Data rate check	5220	44	MCS3	2.03	9.61	96.71 / 0.20	4.38	16.22	41.86	
	at main antenna	5220	44	MCS4	2.03	9.61	95.73 / 0.28	4.30	16.22	41.93	
		5220	44	MCS5	2.03	9.61	93.78 / 0.37	4.20	16.21	41.78	
		5220	44	MCS6	2.03	9.61	91.84 / 0.40	4.16	16.20	41.67	
		5220	44	MCS7	2.03	9.61	91.24 / 0.43	4.16	16.23	41.99	
	Chain A(Main)	5180	36	MCS0	2.03	9.61	98.86 / 0.05	4.30	15.99	39.75	
		5200	40	MCS0	2.03	9.61	98.86 / 0.05	4.54	16.23	42.01	
		5220	44	MCS0	2.03	9.61	98.86 / 0.05	4.55	16.24	42.11	
		5240	48	MCS0	2.18	9.61	98.86 / 0.05	4.67	16.51	44.81	
		5260	52	MCS0	2.17	9.60	98.86 / 0.05	4.32	16.14	41.15	
		5280	56	MCS0	2.18	9.60	98.86 / 0.05	4.65	16.48	44.50	
		5300	60	MCS0	2.18	9.60	98.86 / 0.05	4.67	16.50	44.71	
		5320	64	MCS0	2.07	9.60	98.86 / 0.05	4.85	**16.57**	**45.43**	
	Chain B(Aux)	5180	36	MCS0	2.03	9.61	98.86 / 0.05	4.26	15.95	39.39	
		5200	40	MCS0	2.03	9.61	98.86 / 0.05	4.15	15.84	38.40	
		5220	44	MCS0	2.03	9.61	98.86 / 0.05	4.05	15.74	37.53	
		5240	48	MCS0	2.18	9.61	98.86 / 0.05	4.17	**16.01**	**39.94**	
		5260	52	MCS0	2.17	9.60	98.86 / 0.05	3.61	15.43	34.94	
		5280	56	MCS0	2.18	9.60	98.86 / 0.05	3.78	15.61	36.42	
		5300	60	MCS0	2.18	9.60	98.86 / 0.05	3.56	15.39	34.62	
		5320	64	MCS0	2.07	9.60	98.86 / 0.05	3.85	15.57	36.09	
802.11n 40HT SISO		5190	38	MCS0	2.03	9.61	97.54 / 0.11	1.02	12.77	18.92	Worst data rate of 11n40HT SISO
		5190	38	MCS1	2.03	9.61	95.37 / 0.21	0.89	12.74	18.78	
		5190	38	MCS2	2.03	9.61	93.44 / 0.29	0.68	12.61	18.26	
	Data rate check	5190	38	MCS3	2.03	9.61	92.04 / 0.36	0.61	12.61	18.24	
	at main antenna	5190	38	MCS4	2.03	9.61	88.79 / 0.52	0.46	12.62	18.27	
		5190	38	MCS5	2.03	9.61	86.03 / 0.65	0.40	12.69	18.59	
		5190	38	MCS6	2.03	9.61	85.54 / 0.68	0.37	12.69	18.57	
		5190	38	MCS7	2.03	9.61	84.42 / 0.74	0.27	12.65	18.39	
	Chain A(Main)	5190	38	MCS0	2.03	9.61	97.54 / 0.11	1.02	12.77	18.92	
		5230	46	MCS0	2.04	9.61	97.54 / 0.11	4.48	**16.24**	**42.06**	
		5270	54	MCS0	2.17	9.60	97.54 / 0.11	4.11	15.99	39.70	
		5310	62	MCS0	2.18	9.60	97.54 / 0.11	-0.05	11.84	15.27	
	Chain B(Aux)	5190	38	MCS0	2.03	9.61	97.54 / 0.11	0.92	12.67	18.49	
		5230	46	MCS0	2.04	9.61	97.54 / 0.11	4.19	**15.95**	**39.34**	
		5270	54	MCS0	2.17	9.60	97.54 / 0.11	3.40	15.28	33.72	
		5310	62	MCS0	2.18	9.60	97.54 / 0.11	0.18	12.07	16.10	

Mode	Antenna	Freq. [MHz]	Ch.	Data rate	Loss[dB] Cable	Loss[dB] Attn	Duty cycle / factor [%] / [dB]	Average output power Reading[dBm]	Average output power Result[dBm]	Average output power Result[mW]	Remarks
802.11a		5580	116	6Mbps	2.07	9.60	98.86 / 0.05	6.13	17.85	60.95	Worst data rate of 11a
		5580	116	9Mbps	2.07	9.60	97.93 / 0.09	5.89	17.65	58.22	
		5580	116	12Mbps	2.07	9.60	97.77 / 0.10	5.86	17.63	57.92	
	Data rate check at main antenna	5580	116	18Mbps	2.07	9.60	96.71 / 0.15	5.88	17.70	58.82	
		5580	116	24Mbps	2.07	9.60	95.73 / 0.19	5.75	17.61	57.67	
		5580	116	36Mbps	2.07	9.60	93.78 / 0.28	5.73	17.68	58.60	
		5580	116	48Mbps	2.07	9.60	91.84 / 0.37	5.78	17.82	60.53	
		5580	116	52Mbps	2.07	9.60	91.24 / 0.40	5.70	17.77	59.82	
	Chain A(Main)	5500	100	6Mbps	2.05	9.59	98.86 / 0.05	6.32	18.01	63.24	
		5520	104	6Mbps	2.06	9.59	98.86 / 0.05	6.33	18.03	63.53	
		5540	108	6Mbps	2.06	9.59	98.86 / 0.05	6.13	17.83	60.67	
		5560	112	6Mbps	2.07	9.60	98.86 / 0.05	6.22	17.94	62.23	
		5580	116	6Mbps	2.07	9.60	98.86 / 0.05	6.13	17.85	60.95	
		5600	120	6Mbps	2.25	9.60	98.86 / 0.05	6.15	**18.05**	**63.83**	
		5620	124	6Mbps	2.25	9.60	98.86 / 0.05	6.10	18.00	63.10	
		5640	128	6Mbps	2.26	9.60	98.86 / 0.05	6.10	18.01	63.24	
		5660	132	6Mbps	2.26	9.61	98.86 / 0.05	6.04	17.96	62.52	
		5680	136	6Mbps	2.27	9.61	98.86 / 0.05	6.06	17.99	62.95	
		5700	140	6Mbps	2.13	9.61	98.86 / 0.05	6.01	17.80	60.26	
	Chain B(Aux)	5500	100	6Mbps	2.05	9.59	98.86 / 0.05	6.21	17.90	61.66	
		5520	104	6Mbps	2.06	9.59	98.86 / 0.05	6.34	**18.04**	**63.68**	
		5540	108	6Mbps	2.06	9.59	98.86 / 0.05	6.18	17.88	61.38	
		5560	112	6Mbps	2.07	9.60	98.86 / 0.05	6.23	17.95	62.37	
		5580	116	6Mbps	2.07	9.60	98.86 / 0.05	6.22	17.94	62.23	
		5600	120	6Mbps	2.25	9.60	98.86 / 0.05	5.99	17.89	61.52	
		5620	124	6Mbps	2.25	9.60	98.86 / 0.05	6.03	17.93	62.09	
		5640	128	6Mbps	2.26	9.60	98.86 / 0.05	5.92	17.83	60.67	
		5660	132	6Mbps	2.26	9.61	98.86 / 0.05	6.07	17.99	62.95	
		5680	136	6Mbps	2.27	9.61	98.86 / 0.05	6.07	18.00	63.10	
		5700	140	6Mbps	2.13	9.61	98.86 / 0.05	6.09	17.88	61.38	
802.11n 20HT SISO		5580	116	MCS0	2.07	9.60	98.86 / 0.05	6.36	18.08	64.32	Worst data rate of 11n20HT SISO
		5580	116	MCS1	2.07	9.60	97.93 / 0.10	6.09	17.86	61.16	
		5580	116	MCS2	2.07	9.60	97.77 / 0.15	6.02	17.84	60.85	
	Data rate check at main antenna	5580	116	MCS3	2.07	9.60	96.71 / 0.20	6.00	17.87	61.21	
		5580	116	MCS4	2.07	9.60	95.73 / 0.28	5.97	17.92	62.01	
		5580	116	MCS5	2.07	9.60	93.78 / 0.37	5.88	17.92	61.94	
		5580	116	MCS6	2.07	9.60	91.84 / 0.40	5.87	17.94	62.20	
		5580	116	MCS7	2.07	9.60	91.24 / 0.43	5.92	18.02	63.40	
	Chain A(Main)	5500	100	MCS0	2.05	9.59	98.86 / 0.05	6.23	17.92	61.99	
		5520	104	MCS0	2.06	9.59	98.86 / 0.05	6.23	17.93	62.14	
		5540	108	MCS0	2.06	9.59	98.86 / 0.05	6.20	17.90	61.71	
		5560	112	MCS0	2.07	9.60	98.86 / 0.05	6.31	18.03	63.59	
		5580	116	MCS0	2.07	9.60	98.86 / 0.05	6.36	**18.08**	**64.32**	
		5600	120	MCS0	2.25	9.60	98.86 / 0.05	6.14	18.04	63.73	
		5620	124	MCS0	2.25	9.60	98.86 / 0.05	6.06	17.96	62.57	
		5640	128	MCS0	2.26	9.60	98.86 / 0.05	6.04	17.95	62.42	
		5660	132	MCS0	2.26	9.61	98.86 / 0.05	6.09	18.01	63.29	
		5680	136	MCS0	2.27	9.61	98.86 / 0.05	6.08	18.01	63.29	
		5700	140	MCS0	2.13	9.61	98.86 / 0.05	6.15	17.94	62.28	
	Chain B(Aux)	5500	100	MCS0	2.05	9.59	98.86 / 0.05	6.10	17.79	60.17	
		5520	104	MCS0	2.06	9.59	98.86 / 0.05	6.17	17.87	61.29	
		5540	108	MCS0	2.06	9.59	98.86 / 0.05	6.17	17.87	61.29	
		5560	112	MCS0	2.07	9.60	98.86 / 0.05	6.14	17.86	61.14	
		5580	116	MCS0	2.07	9.60	98.86 / 0.05	6.16	17.88	61.43	
		5600	120	MCS0	2.25	9.60	98.86 / 0.05	6.08	17.98	62.86	
		5620	124	MCS0	2.25	9.60	98.86 / 0.05	6.10	**18.00**	**63.15**	
		5640	128	MCS0	2.26	9.60	98.86 / 0.05	6.02	17.93	62.14	
		5660	132	MCS0	2.26	9.61	98.86 / 0.05	6.06	17.98	62.86	
		5680	136	MCS0	2.27	9.61	98.86 / 0.05	5.92	17.85	61.00	
		5700	140	MCS0	2.13	9.61	98.86 / 0.05	6.17	17.96	62.57	
802.11n 40HT SISO		5550	110	MCS0	2.07	9.60	97.54 / 0.11	6.28	18.06	63.95	Worst data rate of 11n40HT SISO
		5550	110	MCS1	2.07	9.60	95.37 / 0.21	6.06	17.94	62.17	
		5550	110	MCS2	2.07	9.60	93.44 / 0.29	5.99	17.95	62.44	
	Data rate check at main antenna	5550	110	MCS3	2.07	9.60	92.04 / 0.38	5.82	17.87	61.17	
		5550	110	MCS4	2.07	9.60	88.79 / 0.52	5.75	17.94	62.18	
		5550	110	MCS5	2.07	9.60	86.03 / 0.60	5.67	17.94	62.29	
		5550	110	MCS6	2.07	9.60	85.54 / 0.68	5.70	18.05	63.80	
		5550	110	MCS7	2.07	9.60	84.42 / 0.74	5.63	18.04	63.62	
	Chain A(Main)	5510	102	MCS0	2.05	9.59	97.54 / 0.11	5.50	17.25	53.07	
		5550	110	MCS0	2.07	9.60	97.54 / 0.11	6.28	18.06	63.95	
		5590	118	MCS0	2.08	9.60	97.54 / 0.11	6.20	17.99	62.93	
		5630	126	MCS0	2.25	9.60	97.54 / 0.11	6.10	18.06	63.95	
		5670	134	MCS0	2.27	9.61	97.54 / 0.11	6.22	**18.21**	**66.20**	
	Chain B(Aux)	5510	102	MCS0	2.05	9.59	97.54 / 0.11	5.39	17.14	51.74	
		5550	110	MCS0	2.07	9.60	97.54 / 0.11	6.14	17.92	61.92	
		5590	118	MCS0	2.08	9.60	97.54 / 0.11	6.19	17.98	62.78	
		5630	126	MCS0	2.25	9.60	97.54 / 0.11	6.08	**18.04**	**63.66**	
		5670	134	MCS0	2.27	9.61	97.54 / 0.11	6.02	18.01	63.22	

Mode	Antenna	Freq. [MHz]	Ch.	Data rate	Loss[dB] Cable	Loss[dB] Attn	Duty cycle / factor [%] / [dB]	Average output power Reading[dBm]	Result[dBm]	Result[mW]	Remarks
802.11a		5785	157	6	2.16	9.62	98.81 / 0.05	6.06	17.89	61.55	Worst data rate of 11a
		5785	157	9	2.16	9.62	97.76 / 0.10	5.84	17.72	59.14	
		5785	157	12	2.16	9.62	97.77 / 0.10	5.90	17.78	59.95	
	Data rate check	5785	157	18	2.16	9.62	96.71 / 0.15	5.88	17.81	60.33	
	at main antenna	5785	157	24	2.16	9.62	95.73 / 0.19	5.74	17.71	59.01	
		5785	157	36	2.16	9.62	93.54 / 0.29	5.65	17.72	59.16	
		5785	157	48	2.16	9.62	91.84 / 0.37	5.67	17.82	60.53	
		5785	157	52	2.16	9.62	91.24 / 0.40	5.60	17.78	59.95	
	Chain A(Main)	5745	149	6	2.15	9.61	98.81 / 0.05	6.10	17.91	61.83	
		5765	153	6	2.16	9.62	98.81 / 0.05	6.07	17.90	61.69	
		5785	157	6	2.16	9.62	98.81 / 0.05	6.06	17.89	61.55	
		5805	161	6	2.17	9.62	98.81 / 0.05	6.00	17.84	60.84	
		5825	165	6	2.46	9.62	98.81 / 0.05	5.95	**18.08**	**64.30**	
	Chain B(Aux)	5745	149	6	2.15	9.61	98.81 / 0.05	5.59	**17.40**	**54.98**	
		5765	153	6	2.16	9.62	98.81 / 0.05	5.57	17.40	54.98	
		5785	157	6	2.16	9.62	98.81 / 0.05	5.49	17.32	53.98	
		5805	161	6	2.17	9.62	98.81 / 0.05	5.44	17.28	53.48	
		5825	165	6	2.46	9.62	98.81 / 0.05	5.24	17.37	54.60	
802.11n 20HT SISO		5785	157	mcs0	2.16	9.62	98.77 / 0.05	5.95	17.78	60.03	Worst data rate of 11n20HT SISO
		5785	157	mcs1	2.16	9.62	97.62 / 0.10	5.60	17.48	56.03	
		5785	157	mcs2	2.16	9.62	96.54 / 0.15	5.57	17.50	56.27	
	Data rate check	5785	157	mcs3	2.16	9.62	95.54 / 0.20	5.51	17.49	56.08	
	at main antenna	5785	157	mcs4	2.16	9.62	93.65 / 0.28	5.50	17.56	57.08	
		5785	157	mcs5	2.16	9.62	91.84 / 0.37	5.45	17.60	57.54	
		5785	157	mcs6	2.16	9.62	91.24 / 0.40	5.41	17.59	57.39	
		5785	157	mcs7	2.16	9.62	90.55 / 0.43	5.33	17.54	56.77	
	Chain A(Main)	5745	149	mcs0	2.15	9.61	98.77 / 0.05	6.16	**17.97**	**62.71**	
		5765	153	mcs0	2.16	9.62	98.77 / 0.05	6.10	17.93	62.14	
		5785	157	mcs0	2.16	9.62	98.77 / 0.05	5.95	17.78	60.03	
		5805	161	mcs0	2.17	9.62	98.77 / 0.05	5.95	17.79	60.17	
		5825	165	mcs0	2.46	9.62	98.77 / 0.05	5.77	17.90	61.71	
	Chain B(Aux)	5745	149	mcs0	2.15	9.61	98.77 / 0.05	5.45	**17.26**	**53.25**	
		5765	153	mcs0	2.16	9.62	98.77 / 0.05	5.30	17.13	51.68	
		5785	157	mcs0	2.16	9.62	98.77 / 0.05	5.31	17.14	51.80	
		5805	161	mcs0	2.17	9.62	98.77 / 0.05	5.26	17.10	51.33	
		5825	165	mcs0	2.46	9.62	98.77 / 0.05	5.11	17.24	53.01	
802.11n 40HT SISO		5755	54	mcs0	2.15	9.62	97.94 / 0.11	6.06	17.94	62.21	Worst data rate of 11n40HT SISO
		5755	54	mcs1	2.15	9.62	95.37 / 0.21	5.73	17.71	58.97	
		5755	54	mcs2	2.15	9.62	93.44 / 0.29	5.62	17.68	58.68	
	Data rate check	5755	54	mcs3	2.15	9.62	91.72 / 0.38	5.44	17.59	57.35	
	at main antenna	5755	54	mcs4	2.15	9.62	88.79 / 0.52	5.39	17.68	58.57	
		5755	54	mcs5	2.15	9.62	86.52 / 0.63	5.28	17.68	58.60	
		5755	54	mcs6	2.15	9.62	85.54 / 0.68	5.31	17.76	59.68	
		5755	54	mcs7	2.15	9.62	84.42 / 0.74	5.28	17.79	60.06	
	Chain A(Main)	5755	151	mcs0	2.15	9.62	97.94 / 0.11	6.06	**17.94**	**62.21**	
		5795	159	mcs0	2.16	9.62	97.94 / 0.11	6.03	17.92	61.92	
	Chain B(Aux)	5755	151	mcs0	2.15	9.62	97.94 / 0.11	5.50	**17.38**	**54.68**	
		5795	159	mcs0	2.16	9.62	97.94 / 0.11	5.42	17.31	53.81	

Mode	Antenna	Freq. [MHz]	Ch.	Data rate	Loss[dB] Cable	Loss[dB] Attn	Duty cycle / factor [%] / [dB]	Average output power Chain A(Main) Reading[dBm]	Chain A(Main) Result[dBm]	Chain B(Aux) Reading[dBm]	Chain B(Aux) Result[dBm]	A + B [dBm]	Remarks
802.11n 20HT MIMO	Data rate check at main antenna	2437	6	mcs8	0.75	10.00	97.49 / 0.11	3.43	14.29	3.01	13.87	17.10	Worst data rate of 11n20HT MIMO
		2437	6	mcs9	0.75	10.00	95.15 / 0.22	3.25	14.22	2.22	13.19	16.74	
		2437	6	mcs10	0.75	10.00	93.15 / 0.31	3.12	14.18	2.19	13.25	16.75	
		2437	6	mcs11	0.75	10.00	91.79 / 0.37	3.06	14.18	2.02	13.14	16.70	
		2437	6	mcs12	0.75	10.00	88.48 / 0.53	2.78	14.06	2.03	13.31	16.71	
		2437	6	mcs13	0.75	10.00	86.14 / 0.65	2.73	14.13	2.05	13.45	16.81	
		2437	6	mcs14	0.75	10.00	85.44 / 0.68	2.71	14.14	2.07	13.50	16.85	
		2437	6	mcs15	0.75	10.00	84.43 / 0.73	2.65	14.13	2.05	13.53	16.86	
		2412	1	mcs8	0.74	10.00	97.49 / 0.11	1.99	12.84	1.20	12.05	15.47	
		2437	6	mcs8	0.75	10.00	97.49 / 0.11	**3.43**	**14.29**	**3.01**	**13.87**	**17.10**	
		2462	11	mcs8	0.75	10.00	97.49 / 0.11	0.66	11.52	-0.11	10.75	14.16	
802.11n 40HT MIMO	Data rate check at main antenna	2437	6	mcs8	0.75	10.00	95.00 / 0.22	3.72	14.69	2.76	13.73	17.25	Worst data rate of 11n40HT MIMO
		2437	6	mcs9	0.75	10.00	91.35 / 0.39	3.33	14.47	1.95	13.09	16.85	
		2437	6	mcs10	0.75	10.00	88.62 / 0.52	2.99	14.26	1.68	12.95	16.67	
		2437	6	mcs11	0.75	10.00	85.88 / 0.66	2.74	14.15	1.52	12.93	16.59	
		2437	6	mcs12	0.75	10.00	82.83 / 0.82	2.58	14.15	1.17	12.74	16.51	
		2437	6	mcs13	0.75	10.00	79.35 / 1.00	2.56	14.31	1.14	12.89	16.67	
		2437	6	mcs14	0.75	10.00	78.72 / 1.04	2.52	14.31	1.12	12.91	16.68	
		2437	6	mcs15	0.75	10.00	77.90 / 1.08	2.51	14.34	1.11	12.94	16.71	
		2422	3	mcs8	0.74	10.00	95.00 / 0.22	1.65	12.61	-2.79	8.17	13.95	
		2437	6	mcs8	0.75	10.00	95.00 / 0.22	**3.72**	**14.69**	**2.76**	**13.73**	**17.25**	
		2452	9	mcs8	0.75	10.00	95.00 / 0.22	0.87	11.84	-3.34	7.63	13.24	

Mode	Antenna	Freq. [MHz]	Ch.	Data rate	Loss[dB] Cable	Loss[dB] Attn	Duty cycle / factor [%] / [dB]	Average output power Chain A(Main) Reading[dBm]	Chain A(Main) Result[dBm]	Chain B(Aux) Reading[dBm]	Chain B(Aux) Result[dBm]	A + B [dBm]	Remarks
802.11n 20HT MIMO	Data rate check at main antenna	5220	44	mcs8	2.03	9.61	97.63 / 0.10	2.33	14.07	0.53	12.27	16.28	Worst data rate of 11n20HT MIMO
		5220	44	mcs9	2.03	9.61	95.66 / 0.19	2.07	13.90	0.43	12.26	16.17	
		5220	44	mcs10	2.03	9.61	93.57 / 0.29	1.88	13.81	0.42	12.35	16.15	
		5220	44	mcs11	2.03	9.61	91.93 / 0.37	1.91	13.92	0.35	12.36	16.22	
		5220	44	mcs12	2.03	9.61	89.23 / 0.50	1.71	13.85	0.33	12.47	16.22	
		5220	44	mcs13	2.03	9.61	86.53 / 0.63	1.61	13.88	0.26	12.53	16.27	
		5220	44	mcs14	2.03	9.61	85.96 / 0.66	1.58	13.88	0.24	12.54	16.27	
		5220	44	mcs15	2.03	9.61	85.45 / 0.68	1.54	13.86	0.24	12.56	16.27	
		5180	36	mcs8	2.03	9.61	97.63 / 0.10	**2.31**	**14.05**	**1.20**	**12.94**	**16.54**	
		5200	40	mcs8	2.03	9.61	97.63 / 0.10	2.19	13.93	0.92	12.66	16.36	
		5220	44	mcs8	2.03	9.61	97.63 / 0.10	2.33	14.07	0.53	12.27	16.28	
		5240	48	mcs8	2.18	9.61	97.63 / 0.10	1.92	13.81	0.37	12.26	16.12	
		5260	52	mcs8	2.17	9.60	97.63 / 0.10	1.55	13.42	0.47	12.34	15.93	
		5280	56	mcs8	2.18	9.60	97.63 / 0.10	1.57	13.45	0.52	12.40	15.97	
		5300	60	mcs8	2.18	9.60	97.63 / 0.10	1.63	13.51	0.67	12.55	16.05	
		5320	64	mcs8	2.07	9.60	97.63 / 0.10	1.61	13.38	0.78	12.55	16.00	
802.11n 40HT MIMO	Data rate check at main antenna	5190	38	mcs8	2.03	9.61	95.47 / 0.20	-1.18	10.66	-1.70	10.14	13.42	Worst data rate of 11n40HT MIMO
		5190	38	mcs9	2.03	9.61	91.71 / 0.38	-1.29	10.73	-2.15	9.87	13.33	
		5190	38	mcs10	2.03	9.61	88.58 / 0.53	-1.34	10.83	-2.24	9.93	13.41	
		5190	38	mcs11	2.03	9.61	85.74 / 0.67	-1.58	10.73	-2.35	9.96	13.37	
		5190	38	mcs12	2.03	9.61	82.81 / 0.82	-1.70	10.76	-2.56	9.90	13.36	
		5190	38	mcs13	2.03	9.61	79.93 / 0.97	-1.80	10.81	-2.66	9.95	13.41	
		5190	38	mcs14	2.03	9.61	79.41 / 1.00	-1.82	10.82	-2.70	9.94	13.41	
		5190	38	mcs15	2.03	9.61	77.92 / 1.08	-1.89	10.83	-2.80	9.92	13.41	
		5190	38	mcs8	2.03	9.61	95.47 / 0.20	-1.18	10.66	-1.70	10.14	13.42	
		5230	46	mcs8	2.04	9.61	95.47 / 0.20	**2.11**	**13.96**	**0.83**	**12.68**	**16.38**	
		5270	54	mcs8	2.17	9.60	95.47 / 0.20	1.16	13.13	-0.11	11.86	15.55	
		5310	62	mcs8	2.18	9.60	95.47 / 0.20	0.91	12.89	-0.27	11.71	15.35	

Mode	Antenna	Freq. [MHz]	Ch.	Data rate	Loss[dB] Cable	Loss[dB] Attn	Duty cycle / factor [%] / [dB]	Average output power Chain A(Main) Reading[dBm]	Chain A(Main) Result[dBm]	Chain B(Aux) Reading[dBm]	Chain B(Aux) Result[dBm]	A + B [dBm]	Remarks
802.11n 20HT MIMO	Data rate check at main antenna	5580	116	mcs8	2.07	9.60	97.63 / 0.11	3.58	15.36	3.24	15.02	18.16	Worst data rate of 11n20HT MIMO
		5580	116	mcs9	2.07	9.60	95.66 / 0.20	3.30	15.16	2.79	14.65	17.93	
		5580	116	mcs10	2.07	9.60	93.57 / 0.29	3.15	15.11	2.74	14.70	17.92	
		5580	116	mcs11	2.07	9.60	91.93 / 0.38	3.23	15.27	2.61	14.65	17.98	
		5580	116	mcs12	2.07	9.60	89.23 / 0.50	3.05	15.22	2.45	14.62	17.94	
		5580	116	mcs13	2.07	9.60	86.53 / 0.63	3.06	15.36	2.41	14.71	18.06	
		5580	116	mcs14	2.07	9.60	85.96 / 0.66	3.03	15.36	2.44	14.77	18.08	
		5580	116	mcs15	2.07	9.60	85.45 / 0.68	3.00	15.35	2.45	14.80	18.10	
		5500	100	mcs8	2.05	9.59	97.63 / 0.11	**3.81**	**15.56**	**3.37**	**15.12**	**18.35**	
		5520	104	mcs8	2.06	9.59	97.63 / 0.11	3.62	15.38	3.37	15.13	18.26	
		5540	108	mcs8	2.06	9.59	97.63 / 0.11	3.67	15.43	3.27	15.03	18.24	
		5560	112	mcs8	2.07	9.60	97.63 / 0.11	3.54	15.32	3.40	15.18	18.26	
		5580	116	mcs8	2.07	9.60	97.63 / 0.11	3.58	15.36	3.24	15.02	18.20	
		5600	120	mcs8	2.25	9.60	97.63 / 0.11	3.36	15.32	3.00	14.96	18.15	
		5620	124	mcs8	2.25	9.60	97.63 / 0.11	3.38	15.34	3.11	15.07	18.21	
		5640	128	mcs8	2.26	9.60	97.63 / 0.11	3.40	15.37	3.03	15.00	18.20	
		5660	132	mcs8	2.26	9.61	97.63 / 0.11	3.48	15.46	3.05	15.03	18.26	
		5680	136	mcs8	2.27	9.61	97.63 / 0.11	3.44	15.43	3.01	15.00	18.23	
		5700	140	mcs8	2.13	9.61	97.63 / 0.11	3.69	15.54	3.21	15.06	18.31	
802.11n 40HT MIMO	Data rate check at main antenna	5550	110	mcs8	2.07	9.60	95.47 / 0.21	4.81	16.69	3.34	15.22	19.02	Worst data rate of 11n40HT MIMO
		5550	110	mcs9	2.07	9.60	91.71 / 0.36	4.55	16.58	2.73	14.76	18.78	
		5550	110	mcs10	2.07	9.60	88.58 / 0.53	4.32	16.52	2.51	14.71	18.72	
		5550	110	mcs11	2.07	9.60	85.74 / 0.62	4.29	16.58	2.41	14.70	18.75	
		5550	110	mcs12	2.07	9.60	82.81 / 0.82	4.15	16.64	2.25	14.74	18.80	
		5550	110	mcs13	2.07	9.60	79.93 / 0.97	4.00	16.64	2.19	14.83	18.84	
		5550	110	mcs14	2.07	9.60	79.41 / 1.01	3.94	16.62	2.24	14.92	18.86	
		5550	110	mcs15	2.07	9.60	77.92 / 1.01	3.89	16.57	2.16	14.84	18.80	
		5510	102	mcs8	2.05	9.59	95.47 / 0.21	**4.87**	**16.72**	**3.42**	**15.27**	**19.06**	
		5550	110	mcs8	2.07	9.60	95.47 / 0.21	4.81	16.69	3.34	15.22	19.02	
		5590	118	mcs8	2.08	9.60	95.47 / 0.21	4.79	16.68	3.36	15.25	19.03	
		5630	126	mcs8	2.25	9.60	95.47 / 0.21	4.65	16.71	2.99	15.05	18.97	
		5670	134	mcs8	2.27	9.61	95.47 / 0.21	4.47	16.56	2.94	15.03	18.87	

Mode	Antenna	Freq. [MHz]	Ch.	Data rate	Loss[dB] Cable	Loss[dB] Attn	Duty cycle / factor [%] / [dB]	Average output power Chain A(Main) Reading[dBm]	Chain A(Main) Result[dBm]	Chain B(Aux) Reading[dBm]	Chain B(Aux) Result[dBm]	A + B [dBm]	Remarks
802.11n 20HT MIMO	Data rate check at main antenna	5785	157	mcs8	2.16	9.62	97.52 / 0.11	4.10	15.99	1.65	13.54	17.95	Worst data rate of 11n20HT MIMO
		5785	157	mcs9	2.16	9.62	95.43 / 0.20	3.44	15.42	1.45	13.43	17.55	
		5785	157	mcs10	2.16	9.62	93.59 / 0.29	3.52	15.59	1.51	13.58	17.71	
		5785	157	mcs11	2.16	9.62	91.61 / 0.38	3.58	15.74	1.05	13.21	17.67	
		5785	157	mcs12	2.16	9.62	89.14 / 0.50	3.53	15.81	1.12	13.40	17.78	
		5785	157	mcs13	2.16	9.62	87.05 / 0.60	3.45	15.83	1.05	13.43	17.81	
		5785	157	mcs14	2.16	9.62	85.96 / 0.66	3.41	15.85	1.08	13.52	17.85	
		5785	157	mcs15	2.16	9.62	84.92 / 0.71	3.42	15.91	1.03	13.52	17.89	
		5745	149	mcs8	2.15	9.61	97.52 / 0.11	4.30	16.17	1.62	13.49	18.04	
		5765	153	mcs8	2.16	9.62	97.52 / 0.11	4.13	16.02	1.54	13.43	17.92	
		5785	157	mcs8	2.16	9.62	97.52 / 0.11	4.10	15.99	1.53	13.42	17.90	
		5805	161	mcs8	2.17	9.62	97.52 / 0.11	4.17	16.07	1.47	13.37	17.94	
		5825	165	mcs8	2.46	9.62	97.52 / 0.11	**4.00**	**16.19**	**1.41**	**13.60**	**18.09**	
802.11n 40HT MIMO	Data rate check at main antenna	5755	150	mcs8	2.15	9.62	95.29 / 0.21	3.60	15.58	1.99	13.97	17.86	Worst data rate of 11n40HT MIMO
		5755	150	mcs9	2.15	9.62	92.10 / 0.36	3.13	15.26	1.48	13.61	17.52	
		5755	150	mcs10	2.15	9.62	88.53 / 0.53	2.97	15.27	1.15	13.45	17.46	
		5755	150	mcs11	2.15	9.62	86.22 / 0.64	2.82	15.23	1.07	13.48	17.46	
		5755	150	mcs12	2.15	9.62	82.74 / 0.82	2.74	15.33	0.88	13.47	17.51	
		5755	150	mcs13	2.15	9.62	80.66 / 0.93	2.72	15.42	0.99	13.69	17.65	
		5755	150	mcs14	2.15	9.62	78.66 / 1.04	2.68	15.49	1.10	13.91	17.78	
		5755	150	mcs15	2.15	9.62	78.60 / 1.05	2.65	15.47	1.02	13.84	17.74	
		5755	150	mcs8	2.15	9.62	95.29 / 0.21	**3.60**	**15.58**	**2.12**	**14.10**	**17.91**	
		5795	158	mcs8	2.16	9.62	95.29 / 0.21	3.41	15.40	2.25	14.24	17.87	

*. SAR reference; Date tested: November 26, 2012 / Measured by: Hikaru Shirasawa / Place: preparation room of No. 1 measurement room. (24 deg.C / 45 %RH)
*. Calculating formula: Results = ["Reading"] +["Loss(Cable+Attn)"(Cable loss and attenuator loss)] + ["Duty factor"]
*. A red figure indicates it is the maximum value in each operation condition.

SECTION 7: Measurement results

7.1 SAR test results for 2.4GHz band

Measurement date: November 19, 2012 Measurement by: Tomochika Sato

[Liquid measurement (Body tissue)]

Used Target Frequency [MHz]	Target Body Tissue		Measured Body Tissue				Environment		Remarks
	Permittivity [-]	Conductivity [S/m]	Permittivity (εr) [-]	Conductivity (σ) [S/m]	Temp. [deg.C.]	Depth [mm]	Temp. [deg.C.]	Humidity [%RH]	
2450	**52.7**	**1.95**	50.26 (-4.6%)	1.99 (2.1%)	20.6	153	21.4	41	-
2412	***52.75***	***1.914***	50.37 (-4.5%)	1.94 (1.4%)					
2422	***52.74***	***1.923***	50.22 (-4.8%)	1.96 (2.1%)					
2437	***52.72***	***1.938***	50.26 (-4.7%)	1.99 (2.7%)					
2452	***52.70***	***1.953***	50.18 (-4.8%)	2.01 (2.8%)					
2462	***52.68***	***1.967***	50.24 (-4.6%)	2.02 (2.7%)					

Measurement date: November 20, 2012 Measurement by: Tomochika Sato

[Liquid measurement (Body tissue)]

Used Target Frequency [MHz]	Target Body Tissue		Measured Body Tissue				Environment		Remarks
	Permittivity [-]	Conductivity [S/m]	Permittivity (εr) [-]	Conductivity (σ) [S/m]	Temp. [deg.C.]	Depth [mm]	Temp. [deg.C.]	Humidity [%RH]	
2450	**52.7**	**1.95**	50.38 (-4.4%)	2.03 (4.0%)	21.0	153	21.9	44	-
2412	***52.75***	***1.914***	50.60 (-4.1%)	1.98 (3.4%)					
2422	***52.74***	***1.923***	50.55 (-4.2%)	1.98 (2.9%)					
2437	***52.72***	***1.938***	50.59 (-4.0%)	2.02 (4.4%)					
2452	***52.70***	***1.953***	50.48 (-4.2%)	2.04 (4.3%)					
2462	***52.68***	***1.967***	50.39 (-4.4%)	2.06 (4.7%)					

*. The target value is a parameter defined in OET65 Supplement C. In the current standards (e.g., IEEE 1528, OET 65 Supplement C), the dielectric parameters suggested for head and body tissue simulating liquid are given at 2450MHz. As an intermediate solution, dielectric parameters for the frequencies between 2000 to 2450 MHz and 2450 to 3000MHz were obtained using linear interpolation. (Refer to Appendix 3-7 in this report)

Lap held(Bottom face) Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g] *a			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11b	6	2437	1Mbps	17.16		0.156	0.084	0.306	No	-	-	-
	6	2437	1Mbps		15.68	0.208	0.105	0.458	No	-	-	-
802.11g	6	2437	6Mbps	17.03		0.201	0.104	0.417	No	-	-	-
	6	2437	6Mbps		16.51	0.232	0.116	0.510	No	-	-	-
802.11n 20HT	6	2437	MCS0	16.79		0.201	0.104	0.410	No	-	-	-
	6	2437	MCS0		16.45	0.246	0.122	0.522	No	-	-	-
	6	2437	MCS8	14.29	13.87	0.113	0.062	0.283	Yes	0.098	0.055	0.211

Right side Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g] *a			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11b	6	2437	1Mbps		15.68	0.074	0.032	No	0.184	-	-	-

Left side Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g] *a			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11b	6	2437	1Mbps	17.16		0.124	0.054	Yes	0.303	-	-	-

LCD back side(Nearby person) Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g] *a			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11b	6	2437	1Mbps	17.16		0.060	0.042	No	0.106	-	-	-
	6	2437	1Mbps		15.68	0.069	0.041	No	0.147	-	-	-

Notes:

*. SAR measurement were tested at the maximum output power each mode or band.

*. SAR measurement were reduced the low and high channels based on 1g SAR value(=<0.8W/kg) and extrapolated maximum peak SAR value(=<1.6W/kg). (KDB 248227 and KDB 447489)

7.2 Decision of the simultaneous transmission measurement for 2.4GHz band

We were based on the following procedure to exclude the simultaneous transmission measurement.

- Step 1
The EUT transmitting power is greater than (60/f) mW, therefore applied the following formula.[KDB 616217]

Following formula was applied for the highest power condition of MIMO (IEEE802.11n 20HT).

"n=P/(60/f)-1" *P=Output power of Chain A or Chain B [mW], f=Frequency [GHz]

n(Chain A)
P : 14.29dBm = 27mW, f : 2.45GHz, n= 27/(60/2.45)-1 = 0.103

n(Chain B)
P : 13.87dBm = 24mW, f : 2.45GHz, n= 24/(60/2.45)-1 = 0 (=< 60/f[Ghz])

Antenna X(Chain A) is (0.75 cm) =>(5+1/2*n(Chain A))=5.052 cm from users and nearby persons, and it is also =>(5+1/2*n(Chain A)+1/2*n(Chain B))=5.052 cm from another simultaneous transmitting antenna Y(Chain B).

Actual separation distance antenna A to user (0.75 cm) is less than calculated separation distance. Actual separation distance antenna A to B (11 cm) is greater than calculated separation distance. Considering the distance of antenna A to user is required simultaneous transmission measurement.

- Step 2
Comparing the 1g SAR limit (1.6W/kg) and worst condition of the simultaneous transmissions sum of 1g SAR value. [KDB 616217]

The measurements were performed highest power condition of MIMO, and following calculation on the based of measured 1g SAR results.
Antenna A(0.124 W/kg) + Antenna B(0.121 W/kg) = 0.254 W/kg … 0.254 W/kg is lower than 1g SAR limit(1.6 W/kg)
Since the total value is lower than 1g SAR limit(1.6 W/kg), the simultaneous transmission measurement is not required.

- Decision

The simultaneous transmission measurement is not required

7.3 SAR test results for W52-53, W56 and W58 band

Measurement date: November 27, 2012 Measurement by: Kazutaka Takeyama

[Liquid measurement (Body tissue)]

Used Target Frequency [MHz]	Target Body Tissue		Measured Body Tissue						Environment		Remarks
	Permittivity [-]	Conductivity [S/m]	Permittivity [-]		Conductivity [S/m]		Temp. [deg.C.]	Depth [mm]	Temp. [deg.C.]	Humidity [%RH]	
5500	48.61	5.65	48.029	-1.20%	5.84	3.40%					
5800	48.2	6	47.177	-2.10%	6.253	4.20%					
5500	48.61	5.65	48.029	-1.20%	5.84	3.40%					
5510	48.59	5.661	48.027	-1.20%	5.888	4.00%					
5520	48.58	5.673	48.026	-1.10%	5.919	4.30%					
5540	48.55	5.696	47.898	-1.30%	5.922	4.00%					
5550	48.54	5.708	47.906	-1.30%	5.923	3.80%					
5560	48.53	5.72	47.835	-1.40%	5.954	4.10%					
5580	48.5	5.743	47.876	-1.30%	5.998	4.40%					
5590	48.49	5.755	47.899	-1.20%	5.98	3.90%					
5600	48.47	5.766	47.863	-1.30%	6.04	4.70%					
5620	48.44	5.79	47.778	-1.40%	6.062	4.70%					
5630	48.43	5.801	47.818	-1.30%	6.03	3.90%	24.4	151	24.8	45	-
5640	48.42	5.813	47.779	-1.30%	6.056	4.20%					
5660	48.39	5.837	47.74	-1.30%	6.065	3.90%					
5670	48.38	5.848	47.703	-1.40%	6.095	4.20%					
5680	48.36	5.86	47.628	-1.50%	6.1	4.30%					
5700	48.34	5.883	47.611	-1.50%	6.135	4.30%					
5745	48.27	5.936	47.499	-1.60%	6.159	3.80%					
5755	48.26	5.947	47.607	-1.40%	6.189	4.10%					
5765	48.25	5.959	47.449	-1.70%	6.202	4.10%					
5785	48.22	5.982	47.326	-1.90%	6.214	3.90%					
5795	48.21	5.994	47.482	-1.50%	6.263	4.50%					
5805	48.19	6.006	47.288	-1.90%	6.28	4.60%					
5825	48.17	6.029	47.322	-1.80%	6.291	4.30%					

Measurement date: November 29, 2012 Measurement by: Kazutaka Takeyama

[Liquid measurement (Body tissue)]

Used Target Frequency [MHz]	Target Body Tissue		Measured Body Tissue						Environment		Remarks
	Permittivity [-]	Conductivity [S/m]	Permittivity [-]		Conductivity [S/m]		Temp. [deg.C.]	Depth [mm]	Temp. [deg.C.]	Humidity [%RH]	
5200	49.01	5.299	47.608	-2.90%	5.371	1.40%					
5180	49.04	5.276	47.57	-3.00%	5.295	0.40%					
5190	49.03	5.288	47.624	-2.90%	5.366	1.50%					
5200	49.01	5.299	47.608	-2.90%	5.371	1.40%					
5220	48.99	5.323	47.731	-2.60%	5.369	0.90%					
5230	48.97	5.334	47.831	-2.30%	5.411	1.40%					
5240	48.96	5.346	47.796	-2.40%	5.412	1.20%	24.4	151	24.6	43	-
5260	48.93	5.369	47.544	-2.80%	5.441	1.30%					
5270	48.92	5.381	47.458	-3.00%	5.449	1.30%					
5280	48.91	5.393	47.428	-3.00%	5.419	0.50%					
5300	48.88	5.416	47.316	-3.20%	5.508	1.70%					
5310	48.87	5.428	47.201	-3.40%	5.496	1.30%					
5320	48.85	5.439	47.306	-3.20%	5.561	2.20%					

Measurement date: November 30, 2012 Measurement by: Kazutaka Takeyama

[Liquid measurement (Body tissue)]

Used Target Frequency [MHz]	Target Body Tissue		Measured Body Tissue						Environment		Remarks
	Permittivity [-]	Conductivity [S/m]	Permittivity [-]		Conductivity [S/m]		Temp. [deg.C.]	Depth [mm]	Temp. [deg.C.]	Humidity [%RH]	
5200	49.01	5.299	48.37	-1.30%	5.448	2.80%					
5180	49.04	5.276	48.337	-1.40%	5.42	2.70%					
5190	49.03	5.288	48.246	-1.60%	5.42	2.50%					
5200	49.01	5.299	48.37	-1.30%	5.448	2.80%					
5220	48.99	5.323	48.41	-1.20%	5.476	2.90%					
5230	48.97	5.334	48.326	-1.30%	5.438	1.90%					
5240	48.96	5.346	48.364	-1.20%	5.453	2.00%	24.6	151	24.8	48	-
5260	48.93	5.369	48.298	-1.30%	5.516	2.70%					
5270	48.92	5.381	48.228	-1.40%	5.533	2.80%					
5280	48.91	5.393	48.154	-1.50%	5.538	2.70%					
5300	48.88	5.416	48.163	-1.50%	5.538	2.30%					
5310	48.87	5.428	48.1	-1.60%	5.573	2.70%					
5320	48.85	5.439	48.162	-1.40%	5.576	2.50%					

Measurement date: December 1, 2012 Measurement by: Tomochika Sato

[Liquid measurement (Body tissue)]

Used Target Frequency [MHz]	Target Body Tissue		Measured Body Tissue						Environment		Remarks
	Permittivity [-]	Conductivity [S/m]	Permittivity [-]		Conductivity [S/m]		Temp. [deg.C.]	Depth [mm]	Temp. [deg.C.]	Humidity [%RH]	
5200	49.01	5.299	48.463	-1.10%	5.376	1.50%					
5500	48.61	5.65	47.958	-1.30%	5.815	2.90%					
5180	49.04	5.276	48.242	-1.60%	5.385	2.10%					
5190	49.03	5.288	48.322	-1.40%	5.384	1.80%					
5200	49.01	5.299	48.463	-1.10%	5.376	1.50%					
5220	48.99	5.323	48.184	-1.60%	5.348	0.50%					
5230	48.97	5.334	48.399	-1.20%	5.378	0.80%					
5240	48.96	5.346	48.387	-1.20%	5.405	1.10%					
5260	48.93	5.369	48.335	-1.20%	5.497	2.40%					
5270	48.92	5.381	48.28	-1.30%	5.494	2.10%					
5280	48.91	5.393	48.138	-1.60%	5.551	2.90%					
5300	48.88	5.416	48.217	-1.40%	5.545	2.40%					
5310	48.87	5.428	48.047	-1.70%	5.562	2.50%					
5320	48.85	5.439	47.973	-1.80%	5.548	2.00%					
5500	48.61	5.65	47.958	-1.30%	5.815	2.90%					
5510	48.59	5.661	47.978	-1.30%	5.853	3.40%	24	152	24.4	43	-
5520	48.58	5.673	47.794	-1.60%	5.898	4.00%					
5540	48.55	5.696	47.646	-1.90%	5.901	3.60%					
5550	48.54	5.708	47.601	-1.90%	5.903	3.40%					
5560	48.53	5.72	47.491	-2.10%	5.868	2.60%					
5580	48.5	5.743	47.739	-1.60%	5.913	3.00%					
5590	48.49	5.755	47.735	-1.50%	5.91	2.70%					
5600	48.47	5.766	47.792	-1.40%	5.971	3.50%					
5620	48.44	5.79	47.738	-1.50%	5.933	2.50%					
5630	48.43	5.801	47.64	-1.60%	6.004	3.50%					
5640	48.42	5.813	47.726	-1.40%	6.018	3.50%					
5660	48.39	5.837	47.317	-2.20%	6.058	3.80%					
5670	48.38	5.848	47.314	-2.20%	6.065	3.70%					
5680	48.36	5.86	47.258	-2.30%	6.028	2.90%					
5700	48.34	5.883	47.427	-1.90%	6.034	2.60%					

Measurement date: December 3, 2012 Measurement by: Hiroshi Naka

[Liquid measurement (Body tissue)]

Used Target Frequency [MHz]	Target Body Tissue		Measured Body Tissue						Environment		Remarks
	Permittivity [-]	Conductivity [S/m]	Permittivity [-]		Conductivity [S/m]		Temp. [deg.C.]	Depth [mm]	Temp. [deg.C.]	Humidity [%RH]	
5500	48.61	5.65	47.271	-2.70%	5.875	4.00%					
5800	48.2	6	46.723	-3.10%	6.202	3.40%					
5500	48.61	5.65	47.271	-2.70%	5.875	4.00%					
5510	48.59	5.661	47.392	-2.50%	5.856	3.40%					
5520	48.58	5.673	47.278	-2.70%	5.865	3.40%					
5540	48.55	5.696	47.274	-2.60%	5.9	3.60%					
5550	48.54	5.708	47.188	-2.80%	5.936	4.00%					
5560	48.53	5.72	47.342	-2.40%	5.95	4.00%					
5580	48.5	5.743	47.148	-2.80%	5.957	3.70%					
5590	48.49	5.755	47.268	-2.50%	5.997	4.20%					
5600	48.47	5.766	47.188	-2.60%	6.008	4.20%					
5620	48.44	5.79	47.153	-2.70%	6.001	3.60%					
5630	48.43	5.801	47.057	-2.80%	6.043	4.20%	24.6	152	24.9	46	-
5640	48.42	5.813	46.992	-2.90%	6.006	3.30%					
5660	48.39	5.837	46.964	-2.90%	6.072	4.00%					
5670	48.38	5.848	46.918	-3.00%	6.103	4.40%					
5680	48.36	5.86	47.031	-2.80%	6.112	4.30%					
5700	48.34	5.883	47.034	-2.70%	6.137	4.30%					
5745	48.27	5.936	47.084	-2.50%	6.192	4.30%					
5755	48.26	5.947	46.695	-3.20%	6.19	4.10%					
5765	48.25	5.959	46.893	-2.80%	6.185	3.80%					
5785	48.22	5.982	46.798	-2.90%	6.207	3.80%					
5795	48.21	5.994	46.822	-2.90%	6.259	4.40%					
5805	48.19	6.006	46.67	-3.20%	6.252	4.10%					
5825	48.17	6.029	46.71	-3.00%	6.318	4.80%					

Measurement date: December 4, 2012 Measurement by: Hiroshi Naka

[Liquid measurement (Body tissue)]

Used Target Frequency [MHz]	Target Body Tissue		Measured Body Tissue						Environment		Remarks
	Permittivity [-]	Conductivity [S/m]	Permittivity [-]		Conductivity [S/m]		Temp. [deg.C.]	Depth [mm]	Temp. [deg.C.]	Humidity [%RH]	
5800	48.2	6	46.684	-3.10%	6.266	4.40%	24.5	150	25	50	-
5745	48.27	5.936	46.668	-3.30%	6.191	4.30%					
5755	48.26	5.947	46.598	-3.40%	6.217	4.50%					
5765	48.25	5.959	46.736	-3.10%	6.196	4.00%					
5785	48.22	5.982	46.619	-3.30%	6.235	4.20%					
5795	48.21	5.994	46.477	-3.60%	6.277	4.70%					
5805	48.19	6.006	46.578	-3.40%	6.258	4.20%					
5825	48.17	6.029	46.551	-3.40%	6.271	4.00%					

SAR result of W52-53 Band

Lap held(Bottom face) Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g] *a			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11a	36	5180	6Mbps	16.16		0.393	0.160	1.342	No	-	-	-
	48	5240	6Mbps	15.99		0.422	0.171	1.464	No	-	-	-
	56	5280	6Mbps	16.16		0.528	0.206	1.912	No	-	-	-
	60	5300	6Mbps	**16.17**		0.536	0.212	1.914	No	-	-	-
	36	5180	6Mbps		**16.10**	0.429	0.177	1.546	No	-	-	-
	44	5220	6Mbps		15.91	0.380	0.160	1.338	No	-	-	-
	56	5280	6Mbps		15.67	0.375	0.160	1.398	No	-	-	-
	60	5300	6Mbps		15.47	0.366	0.158	1.367	No	-	-	-
802.11n 20HT SISO	40	5200	MCS0	16.23		0.454	0.187	1.627	No	-	-	-
	48	5240	MCS0	16.51		0.543	0.186	2.131	No	-	-	-
	56	5280	MCS0	16.48		0.622	0.242	2.261	No	-	-	-
	64	5320	MCS0	**16.57**		0.670	0.256	2.546	No	-	-	-
	36	5180	MCS0		15.95	0.505	0.205	1.887	No	-	-	-
	48	5240	MCS0		**16.01**	0.452	0.188	1.704	No	-	-	-
	56	5280	MCS0		15.61	0.439	0.186	1.699	No	-	-	-
	64	5320	MCS0		15.57	0.489	0.205	1.943	No	-	-	-
802.11n 20HT MIMO	36	5180	MCS8	**14.05**	**12.94**	0.268	0.122	0.918	Yes	0.223	0.110	0.491

Right side Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g]			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11a	36	5180	6Mbps		**16.10**	0.022	0.009	0.253	No	-	-	-

Left side Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g]			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11a	60	5300	6Mbps	**16.17**		0.026	0.008	0.132	No	-	-	-

LCD back side(Nearby person) Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g]			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11a	60	5300	6Mbps	**16.17**		0.340	0.159	1.108	No	-	-	-
	36	5180	6Mbps		**16.10**	0.234	0.109	0.799	No	-	-	-

SAR result of W56 Band

Lap held(Bottom face) Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g]			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11a	104	5520	6Mbps	18.03		0.591	0.245	2.158	No	-	-	-
	112	5560	6Mbps	17.94		0.619	0.256	2.361	No	-	-	-
	120	5600	6Mbps	**18.05**		0.594	0.251	2.216	No	-	-	-
	136	5680	6Mbps	17.99		0.460	0.200	1.890	No	-	-	-
	104	5520	6Mbps		**18.04**	**0.700**	**0.262**	**2.866**	No	-	-	-
	112	5560	6Mbps		17.95	0.676	0.243	2.873	No	-	-	-
	124	5620	6Mbps		17.93	0.544	0.213	1.917	No	-	-	-
	136	5680	6Mbps		18.00	0.476	0.195	2.082	No	-	-	-
802.11n 20HT MIMO	100	5500	MCS8	**15.56**	**15.12**	0.394	0.169	1.554	Yes	0.304	0.141	0.698
802.11n 40HT MIMO	102	5510	MCS8	**16.72**	**15.27**	0.381	0.160	1.607	Yes	0.376	0.157	0.757

Right side Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g]			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11a	104	5520	6Mbps		**18.04**	0.046	0.013	0.371	No	-	-	-

Left side Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g]			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11a	120	5600	6Mbps	**18.05**		0.039	0.013	0.431	No	-	-	-

LCD back side(Nearby person) Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g]			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11a	120	5600	6Mbps	**18.05**		0.250	0.114	0.894	No	-	-	-
	104	5520	6Mbps		**18.04**	0.175	0.089	0.663	No	-	-	-

SAR result of W58 Band

Lap held(Bottom face) Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g]			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11a	149	5745	6Mbps	17.91		0.441	0.203	1.652	No	-	-	-
	157	5785	6Mbps	17.89		0.451	0.196	1.600	No	-	-	-
	165	5825	6Mbps	**18.08**		0.440	0.183	1.586	No	-	-	-
	149	5745	6Mbps		**17.40**	0.442	0.172	1.853	No	-	-	-
	157	5785	6Mbps		17.32	0.424	0.192	1.696	No	-	-	-
	165	5825	6Mbps		17.37	0.454	0.191	1.675	No	-	-	-
802.11n 20HT MIMO	165	5825	MCS8	**16.19**	**13.60**	0.337	0.157	1.198	Yes	0.243	0.116	0.580

Right side Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g]			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11a	149	5745	6Mbps		**17.40**	0.052	0.023	0.193	No	-	-	-

Left side Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g]			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11a	165	5825	6Mbps	**18.08**		0.009	0.002	0.086	No	-	-	-

LCD back side(Nearby person) Touch(0mm)

Mode	Ch. #	Freq. [MHz]	Data rate	Measured AV Power [dBm]		Measured SAR Result [mW/g]			2nd Peak ? =>	Measured 2nd SAR Result [mW/g] *b		1g SAR (SUM *a *b) [mW/g]
				Chain A	Chain B	1g	10g	Exp.Peak		1g	10g	
802.11a	165	5825	6Mbps	**18.08**		0.371	0.170	1.210	No	-	-	-
	149	5745	6Mbps		**17.40**	0.226	0.118	0.697	No	-	-	-

Notes:

*. SAR measurement were tested at the maximum output power each mode or band.

*. SAR measurement were reduced the low and high channels based on 1g SAR value(=<0.8W/kg) and extrapolated maximum peak SAR value(=<1.6W/kg). (KDB 248227 and KDB 447489)

7.4 Decision of the simultaneous transmission measurement for W52-53, W56 and W58 band

We were based on the following procedure to exclude the simultaneous transmission measurement.

- Step 1

The EUT transmitting power is greater than (60/f) mW, therefore applied the following formula.[KDB 616217]
Following formula was applied for the highest power condition of MIMO

"n=P/(60/f)-1" *P=Output power of Chain A or Chain B [mW], f=Frequency [GHz]
For W52-53 band (IEEE802.11n 20HT)
n(Chain A)
P : 14.05dBm = 25mW, f : 5.2GHz, n= 25/(60/5.2)-1 = 1.17
n(Chain B)
P : 12.94dBm = 20mW, f : 5.2GHz, n= 20/(60/5.2)-1 = 0.73

Antenna X(Chain A) is (0.75 cm) =>(5+1/2*n(Chain A))=5.585 cm from users and nearby persons, and it is also =>(5+1/2*n(Chain A)+1/2*n(Chain B))=5.950 cm from another simultaneous transmitting antenna Y(Chain B).

For W56 band (IEEE802.11n 40HT)
n(Chain A)
P : 16.72dBm = 47mW, f : 5.5GHz, n= 47/(60/5.5)-1 = 3.308
n(Chain B)
P : 15.27dBm = 34mW, f : 5.5GHz, n= 34/(60/5.5)-1 = 2.117

Antenna X(Chain A) is (0.75 cm) =>(5+1/2*n(Chain A))=6.654 cm from users and nearby persons, and it is also =>(5+1/2*n(Chain A)+1/2*n(Chain B))=7.713 cm from another simultaneous transmitting antenna Y(Chain B).

For W58 band (IEEE802.11n 20HT)
n(Chain A)
P : 16.19dBm = 42mW, f : 5.8GHz, n= 42/(60/5.8)-1 = 3.060
n(Chain B)
P : 13.60dBm = 23mW, f : 5.8GHz, n= 23/(60/5.8)-1 = 2.223

Antenna X(Chain A) is (0.75 cm) =>(5+1/2*n(Chain A))=6.530 cm from users and nearby persons, and it is also =>(5+1/2*n(Chain A)+1/2*n(Chain B))=7.642 cm from another simultaneous transmitting antenna Y(Chain B).

Actual separation distance antenna A to user (0.75 cm) is less than calculated separation distance. Actual separation distance antenna A to B (11 cm) is greater than calculated separation distance. Considering the distance of antenna A to user is required simultaneous transmission measurement.

- Step 2

Comparing the 1g SAR limit (1.6W/kg) and worst condition of the simultaneous transmissions sum of 1g SAR value. [KDB 616217]

The measurements were performed highest power condition of MIMO, and following calculation on the based of measured 1g SAR results.
Antenna A(0.381 W/kg) + Antenna B(0.376 W/kg) = 0.757 W/kg … 0.757 W/kg is lower than 1g SAR limit(1.6 W/kg)
Since the total value is lower than 1g SAR limit(1.6 W/kg), the simultaneous transmission measurement is not required.

- Decision

The simultaneous transmission measurement is not required