



Product Service

SOFTWARE VERSION:	52.8.8(1258)	AMBIENT TEMPERATURE:	21.9 °C
DATE:	25/08/2016	RELATIVE HUMIDITY:	66.1 %
PHANTOM:	QDOVA003-FB	RELATIVE PERMITTIVITY:	0.924 S/m
DUT CONFIGURATION:	LTE Band 17	CONDUCTIVITY:	55.852
DUT POSITION:	10mm - Right Edge	LIQUID TEMPERATURE:	22.0 °C
RAT:	LTE	SCAN TYPE:	Full
FREQUENCY:	709.0 MHz	DRIFT:	0.41 dB
MODULATION:	QPSK	PEAK SAR:	0.15 W/kg
DUTY CYCLE:	100 %	SAR (1g):	0.16 W/kg

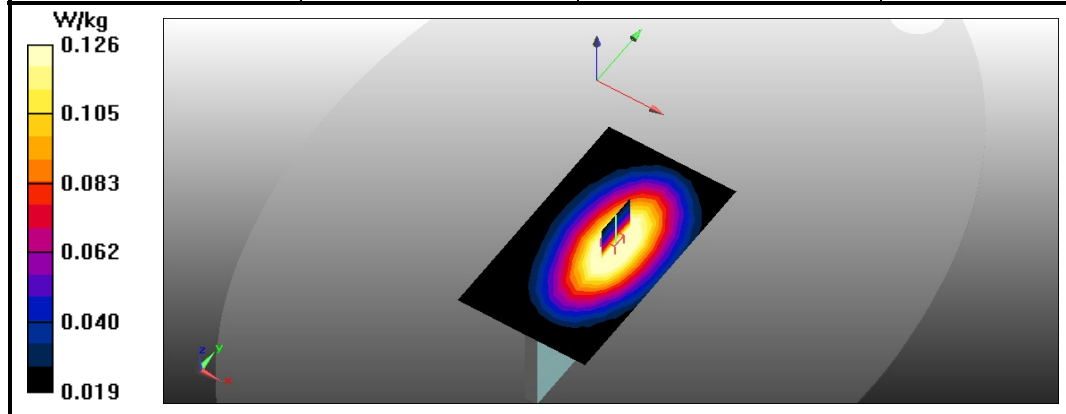


Figure 38: SAR Head Testing Results for the Sharp Smart phone at 709.0 MHz.

SOFTWARE VERSION:	52.8.8(1258)	AMBIENT TEMPERATURE:	21.9 °C
DATE:	25/08/2016	RELATIVE HUMIDITY:	66.1 %
PHANTOM:	QDOVA003-FB	RELATIVE PERMITTIVITY:	0.924 S/m
DUT CONFIGURATION:	LTE Band 17	CONDUCTIVITY:	55.852
DUT POSITION:	10mm - Left Edge	LIQUID TEMPERATURE:	22.0 °C
RAT:	LTE	SCAN TYPE:	Full
FREQUENCY:	709.0 MHz	DRIFT:	-0.01 dB
MODULATION:	QPSK	PEAK SAR:	0.14 W/kg
DUTY CYCLE:	100 %	SAR (1g):	0.15 W/kg

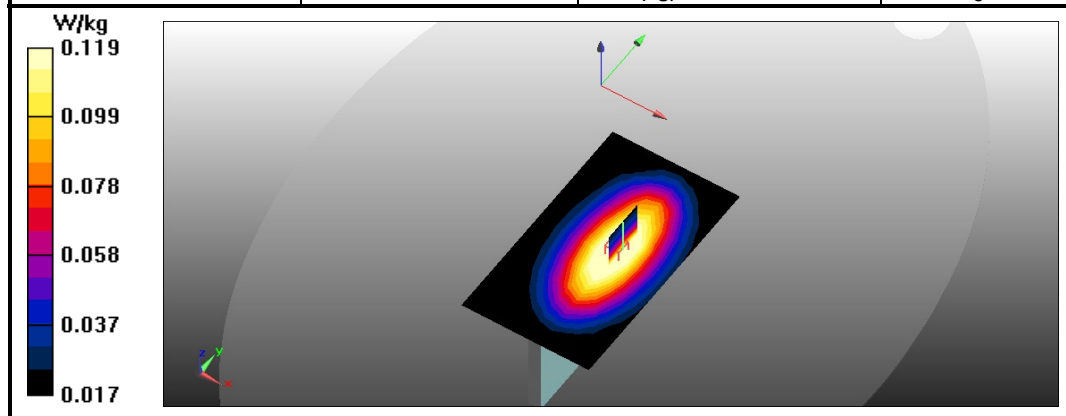


Figure 39: SAR Head Testing Results for the Sharp Smart phone at 709.0 MHz.



Product Service

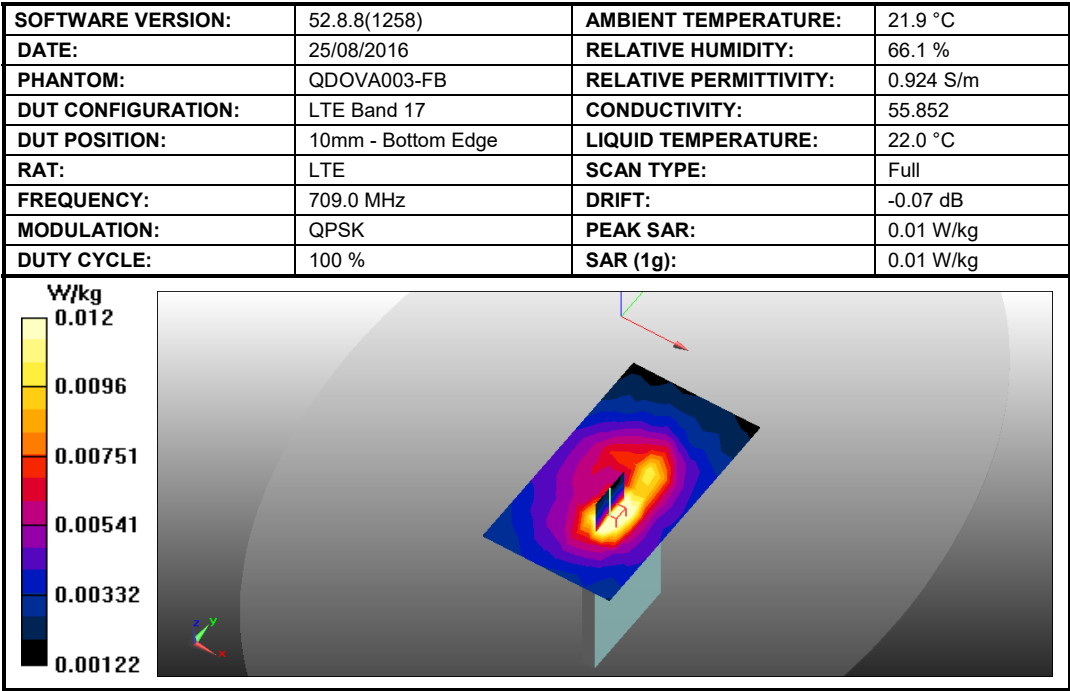


Figure 40: SAR Head Testing Results for the Sharp Smart phone at 709.0 MHz.



2.10 LTE BAND 17 HEAD SAR TEST RESULTS

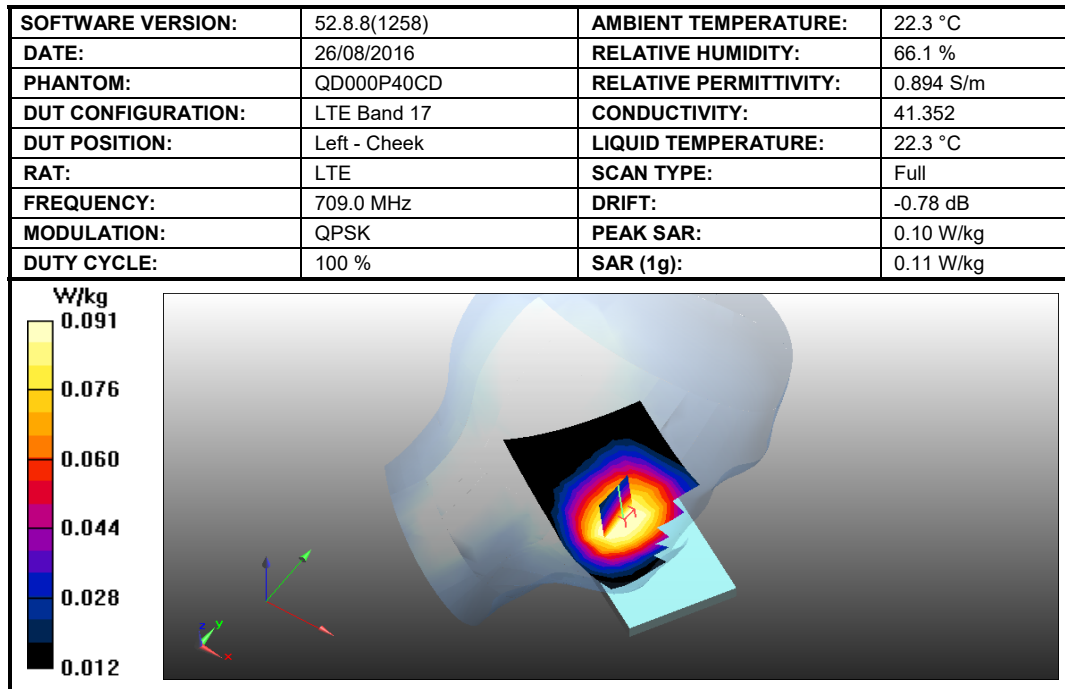


Figure 41: SAR Head Testing Results for the Sharp Smart phone at 709.0 MHz.

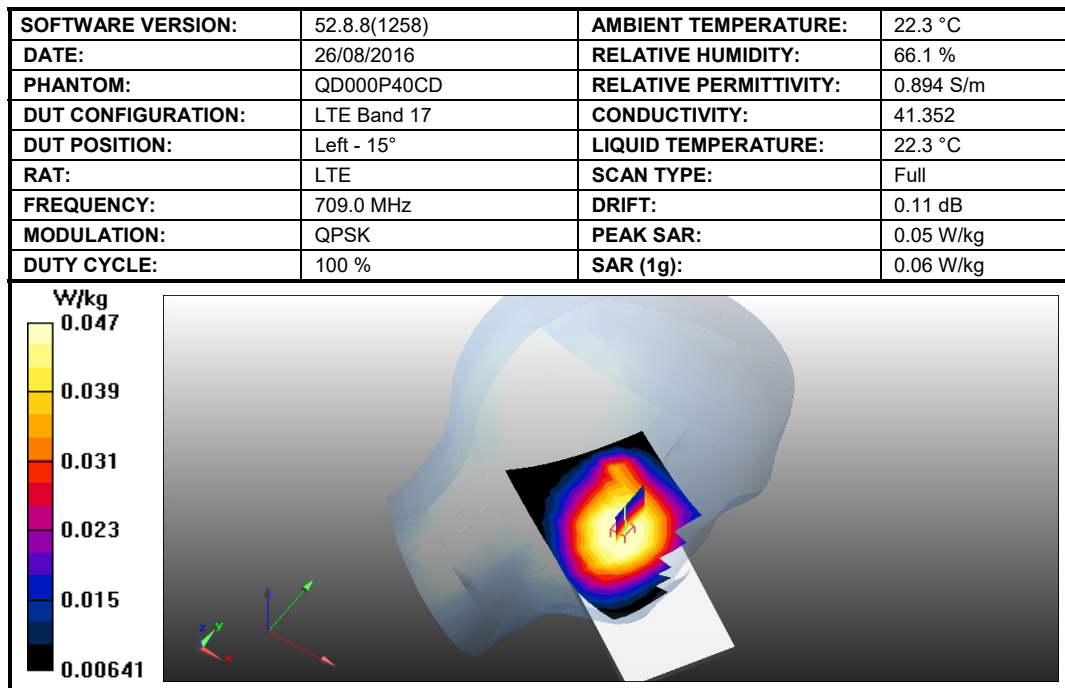


Figure 42 SAR Head Testing Results for the Sharp Smart phone at 709.0 MHz.



Product Service

SOFTWARE VERSION:	52.8.8(1258)	AMBIENT TEMPERATURE:	22.3 °C
DATE:	26/08/2016	RELATIVE HUMIDITY:	66.1 %
PHANTOM:	QD000P40CD	RELATIVE PERMITTIVITY:	0.894 S/m
DUT CONFIGURATION:	LTE Band 17	CONDUCTIVITY:	41.352
DUT POSITION:	Right - Cheek	LIQUID TEMPERATURE:	22.3 °C
RAT:	LTE	SCAN TYPE:	Full
FREQUENCY:	709.0 MHz	DRIFT:	0.26 dB
MODULATION:	QPSK	PEAK SAR:	0.10 W/kg
DUTY CYCLE:	100 %	SAR (1g):	0.11 W/kg

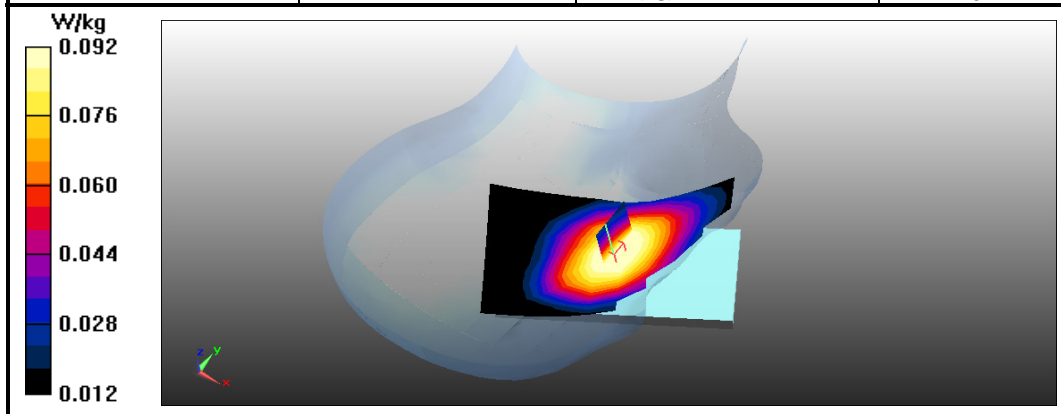


Figure 43: SAR Head Testing Results for the Sharp Smart phone at 709.0 MHz.

SOFTWARE VERSION:	52.8.8(1258)	AMBIENT TEMPERATURE:	22.3 °C
DATE:	26/08/2016	RELATIVE HUMIDITY:	66.1 %
PHANTOM:	QD000P40CD	RELATIVE PERMITTIVITY:	0.894 S/m
DUT CONFIGURATION:	LTE Band 17	CONDUCTIVITY:	41.352
DUT POSITION:	Right - 15°	LIQUID TEMPERATURE:	22.3 °C
RAT:	LTE	SCAN TYPE:	Full
FREQUENCY:	709.0 MHz	DRIFT:	0.25 dB
MODULATION:	QPSK	PEAK SAR:	0.06 W/kg
DUTY CYCLE:	100 %	SAR (1g):	0.07 W/kg

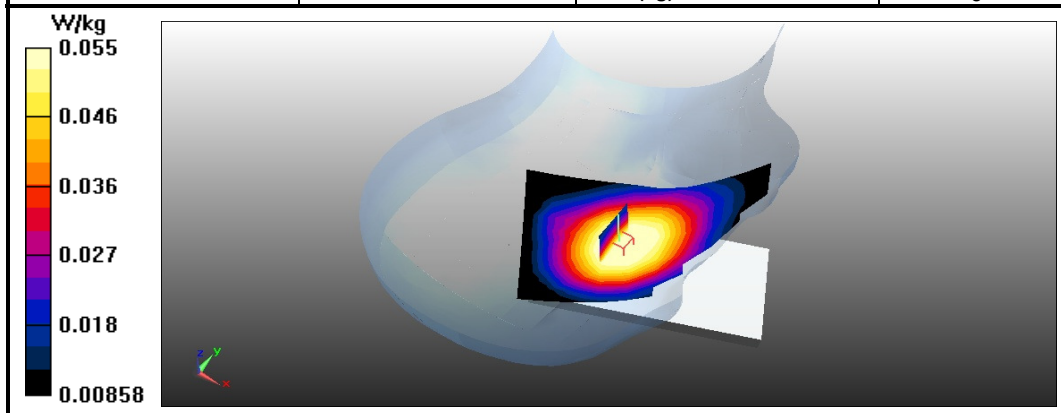


Figure 44: SAR Head Testing Results for the Sharp Smart phone at 709.0 MHz.



2.11 LTE BAND 17 BODY SAR TEST RESULTS

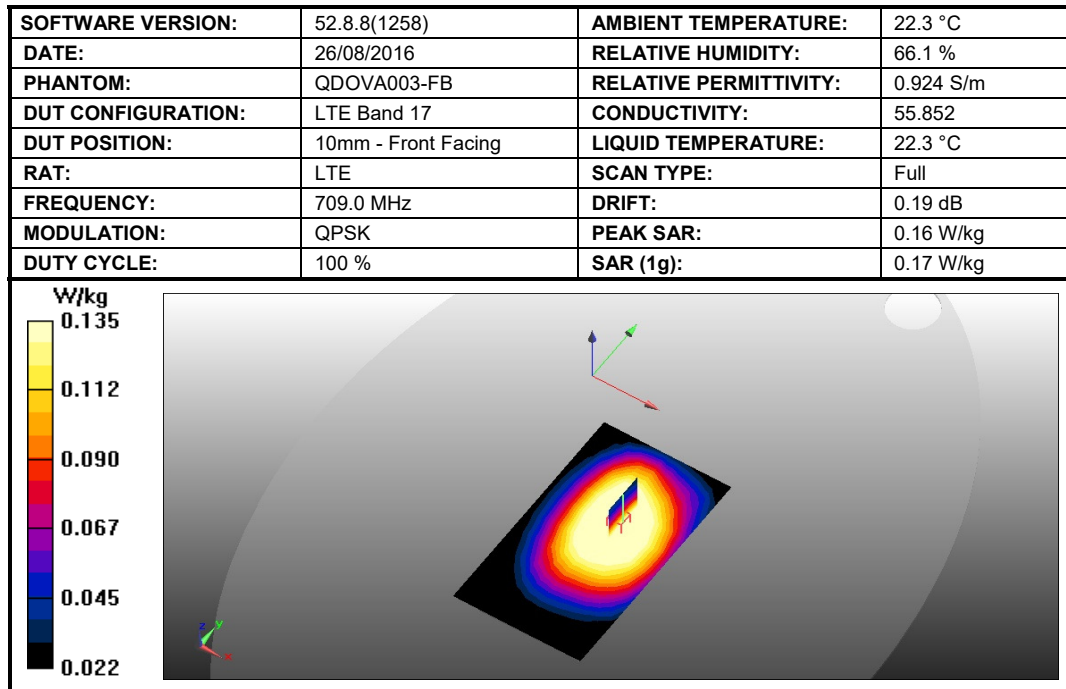


Figure 45: SAR Head Testing Results for the Sharp Smart phone at 709.0 MHz.

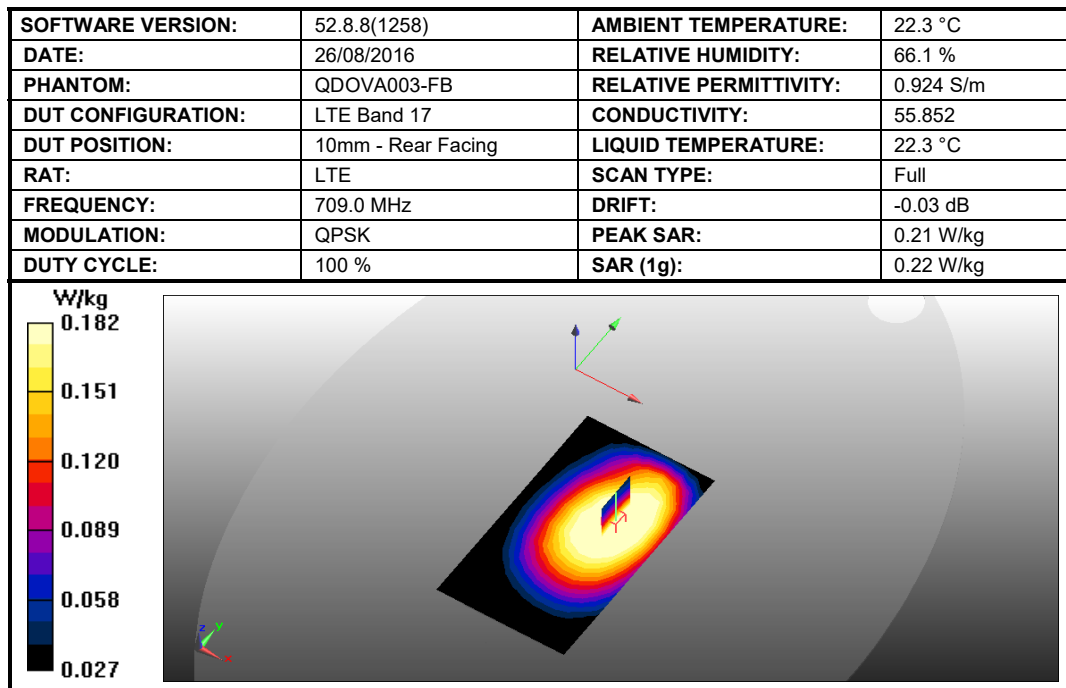


Figure 46: SAR Head Testing Results for the Sharp Smart phone at 709.0 MHz.



Product Service

SOFTWARE VERSION:	52.8.8(1258)	AMBIENT TEMPERATURE:	22.3 °C
DATE:	26/08/2016	RELATIVE HUMIDITY:	66.1 %
PHANTOM:	QDOVA003-FB	RELATIVE PERMITTIVITY:	0.924 S/m
DUT CONFIGURATION:	LTE Band 17	CONDUCTIVITY:	55.852
DUT POSITION:	10mm - Right Edge	LIQUID TEMPERATURE:	22.3 °C
RAT:	LTE	SCAN TYPE:	Full
FREQUENCY:	709.0 MHz	DRIFT:	-0.09 dB
MODULATION:	QPSK	PEAK SAR:	0.12 W/kg
DUTY CYCLE:	100 %	SAR (1g):	0.12 W/kg

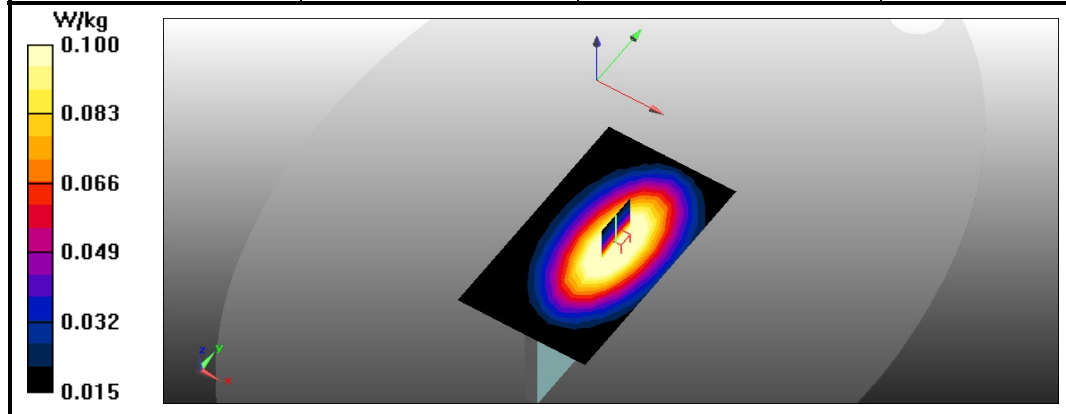


Figure 47: SAR Head Testing Results for the Sharp Smart phone at 709.0 MHz.

SOFTWARE VERSION:	52.8.8(1258)	AMBIENT TEMPERATURE:	22.3 °C
DATE:	26/08/2016	RELATIVE HUMIDITY:	66.1 %
PHANTOM:	QDOVA003-FB	RELATIVE PERMITTIVITY:	0.924 S/m
DUT CONFIGURATION:	LTE Band 17	CONDUCTIVITY:	55.852
DUT POSITION:	10mm - Left Edge	LIQUID TEMPERATURE:	22.3 °C
RAT:	LTE	SCAN TYPE:	Full
FREQUENCY:	709.0 MHz	DRIFT:	0.03 dB
MODULATION:	QPSK	PEAK SAR:	0.12 W/kg
DUTY CYCLE:	100 %	SAR (1g):	0.12 W/kg

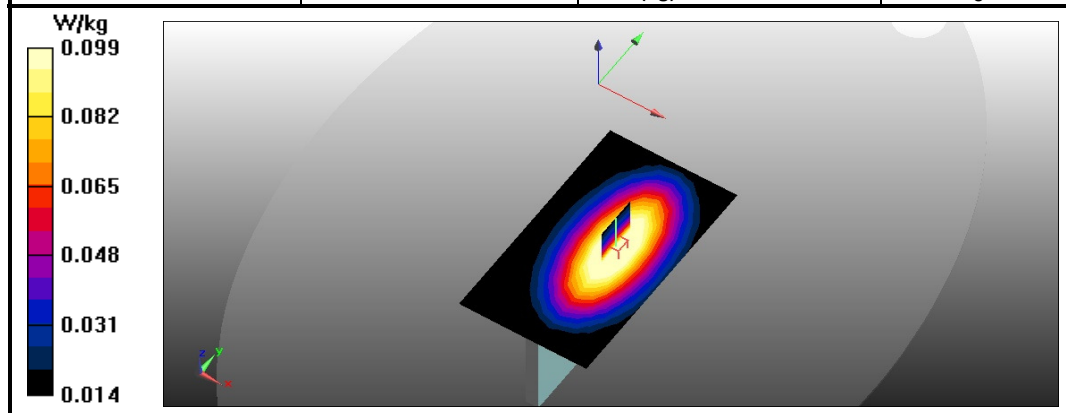


Figure 48: SAR Head Testing Results for the Sharp Smart phone at 709.0 MHz.



Product Service

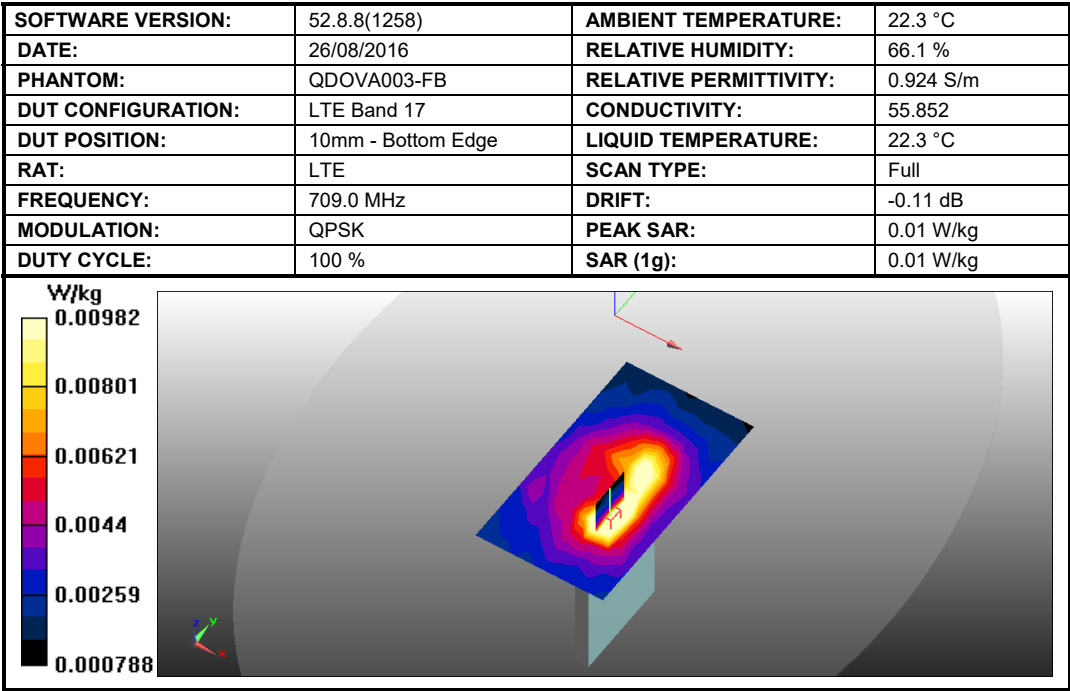


Figure 49: SAR Head Testing Results for the Sharp Smart phone at 709.0 MHz.



2.12 WCDMA FDDV HEAD SAR TEST RESULTS

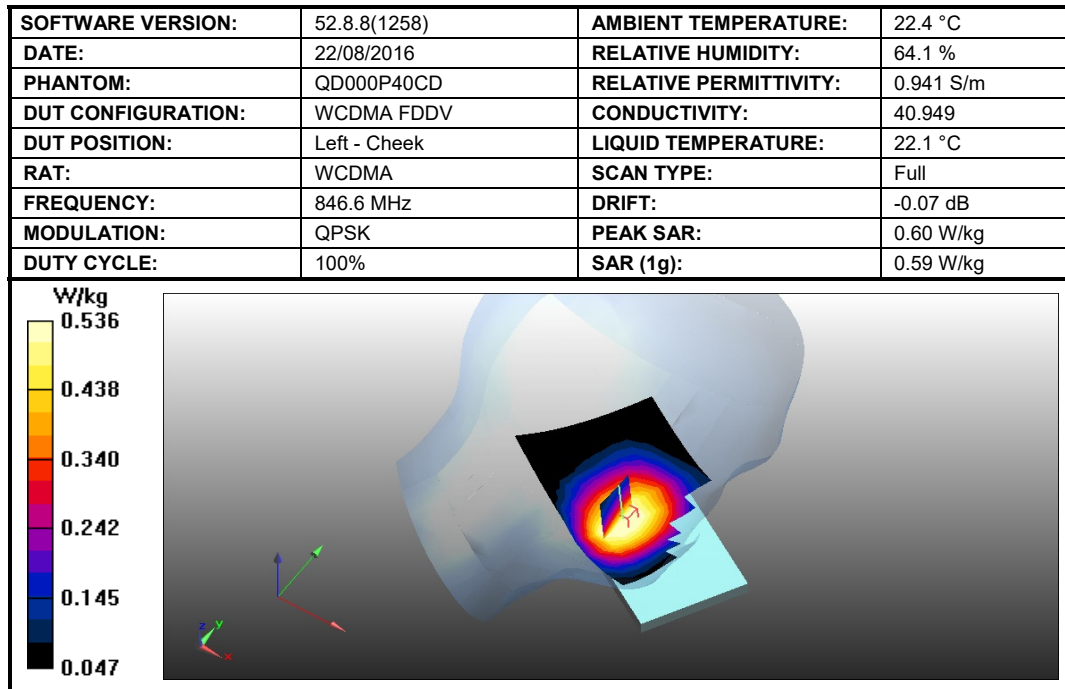


Figure 50: SAR Head Testing Results for the Sharp Smart phone at 846.6 MHz.

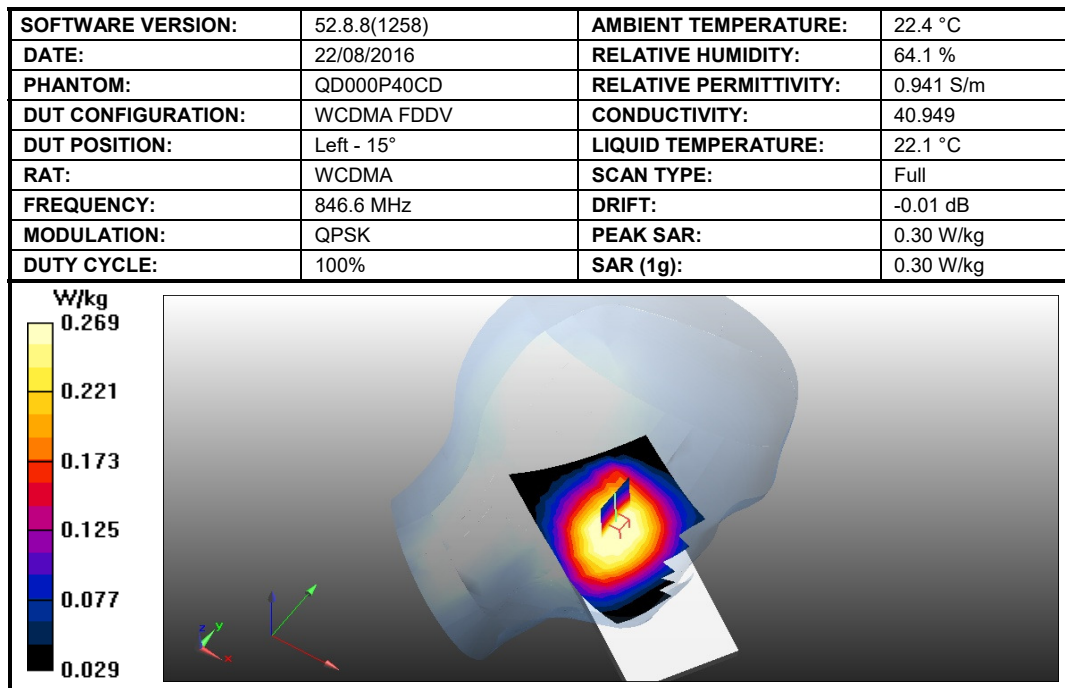


Figure 51 SAR Head Testing Results for the Sharp Smart phone at 846.6 MHz.



Product Service

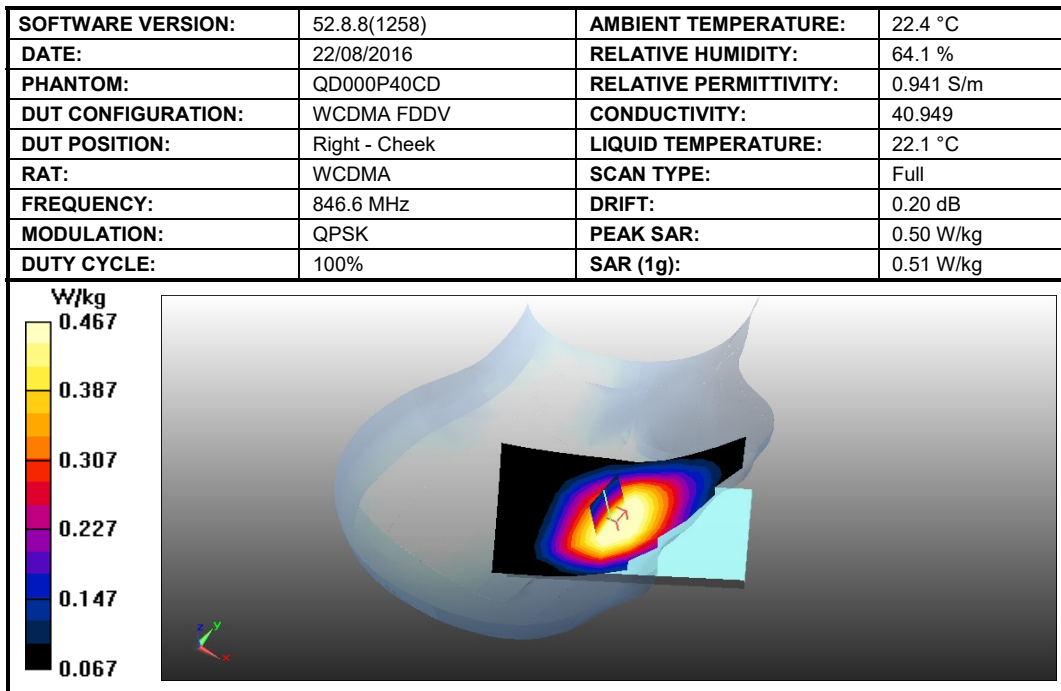


Figure 52: SAR Head Testing Results for the Sharp Smart phone at 846.6 MHz.

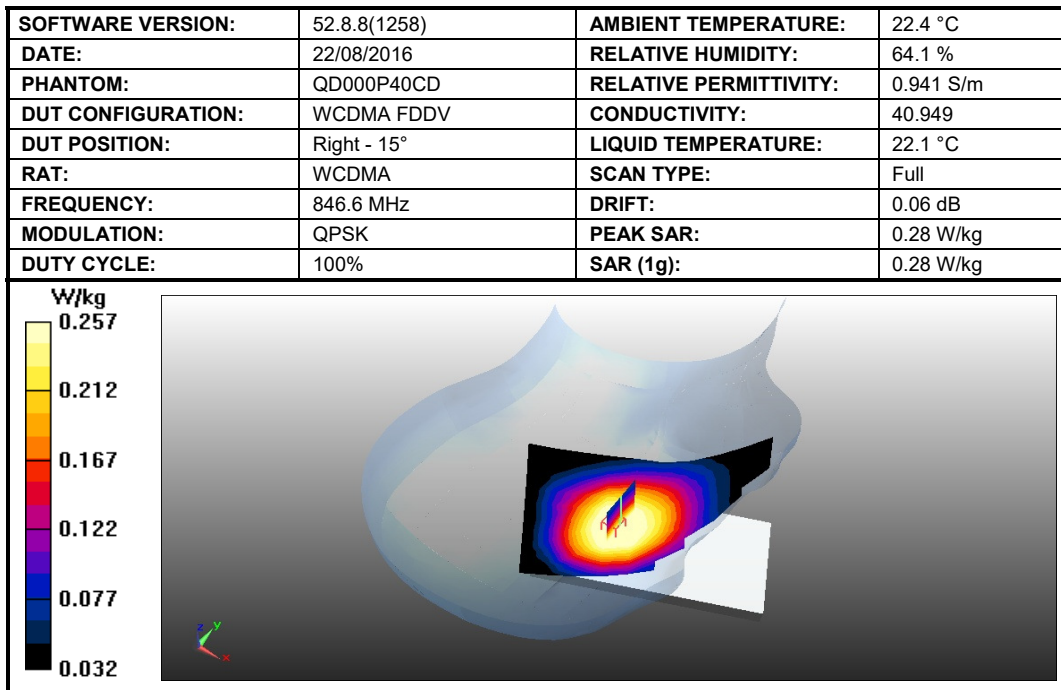


Figure 53: SAR Head Testing Results for the Sharp Smart phone at 846.6 MHz.



2.13 WCDMA FDDV BODY SAR TEST RESULTS

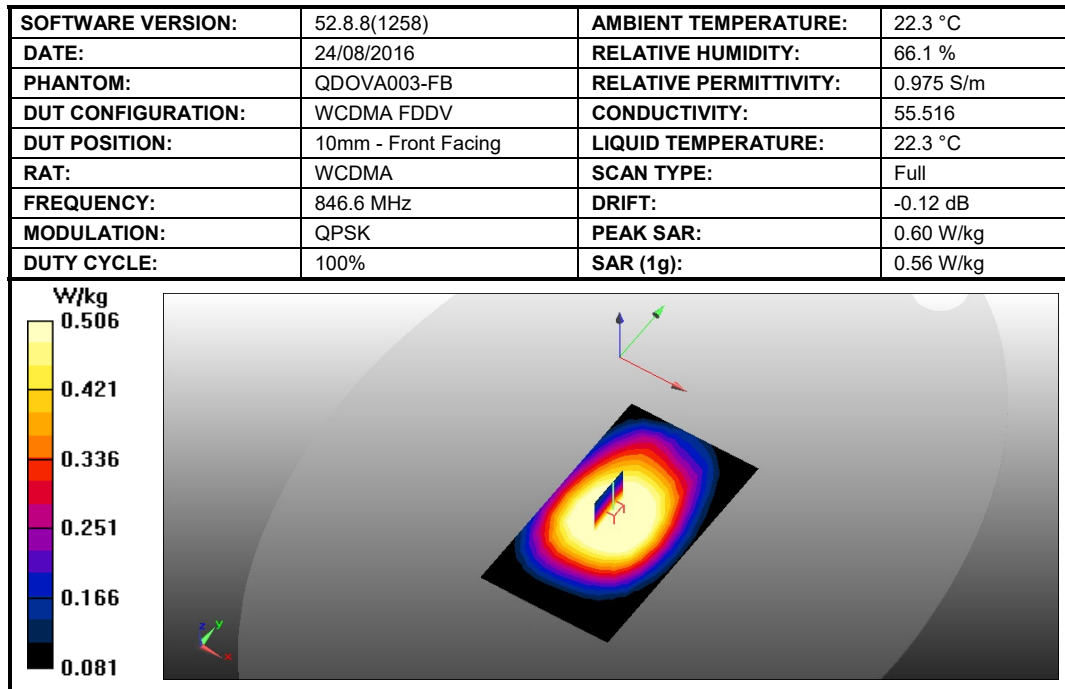


Figure 54: SAR Head Testing Results for the Sharp Smart phone at 846.6 MHz.

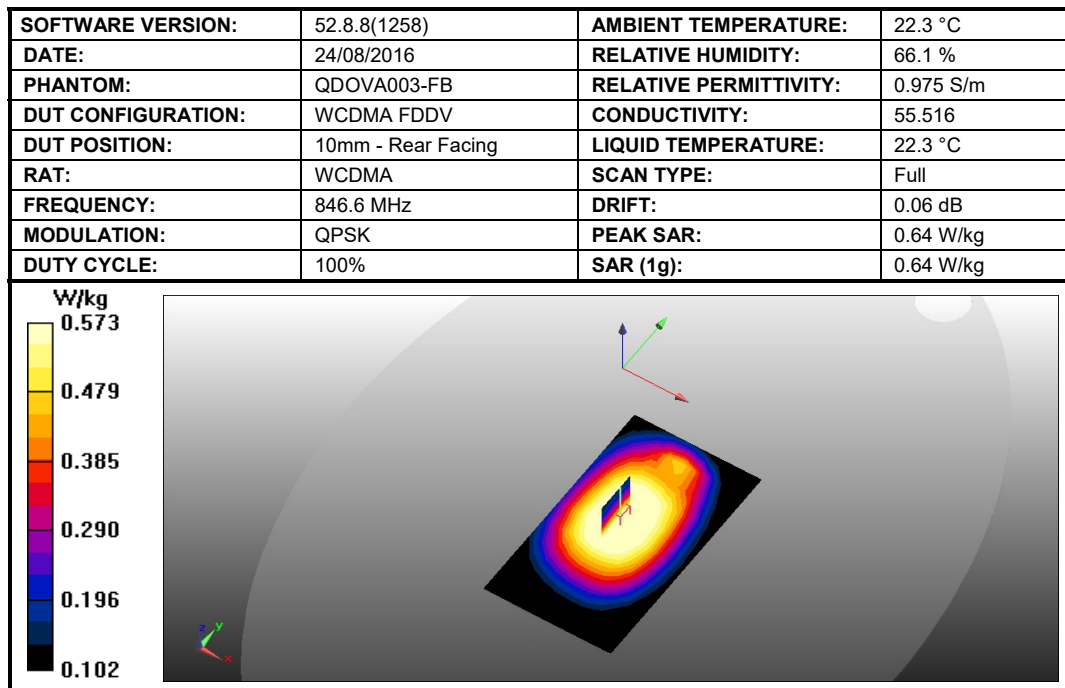


Figure 55: SAR Head Testing Results for the Sharp Smart phone at 846.6 MHz.



Product Service

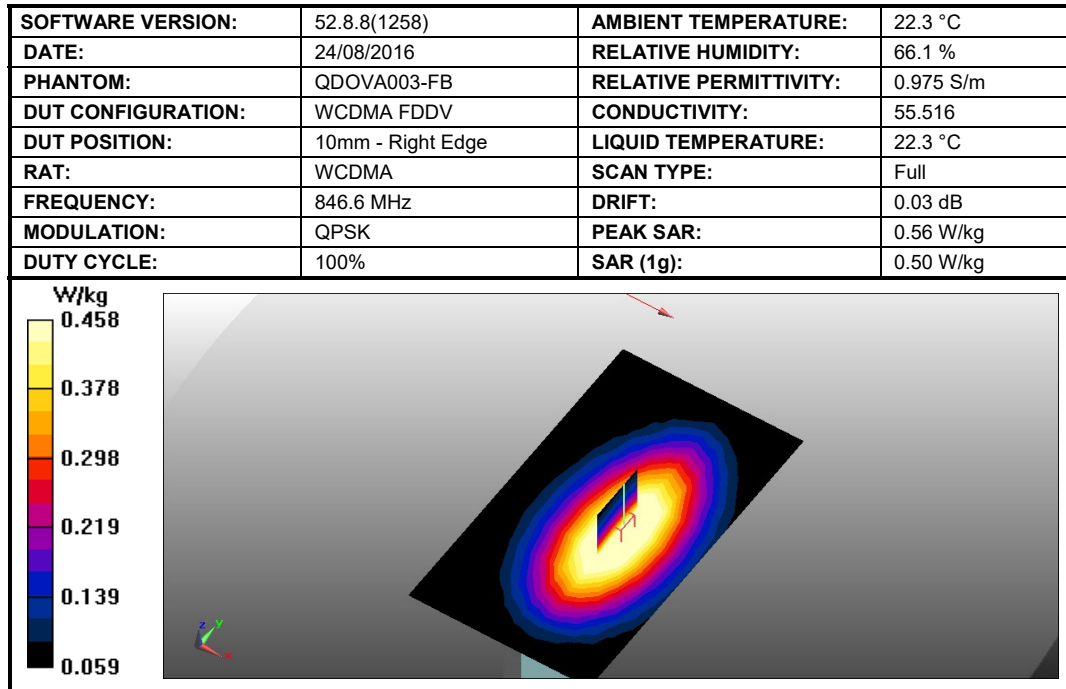


Figure 56: SAR Head Testing Results for the Sharp Smart phone at 846.6 MHz.

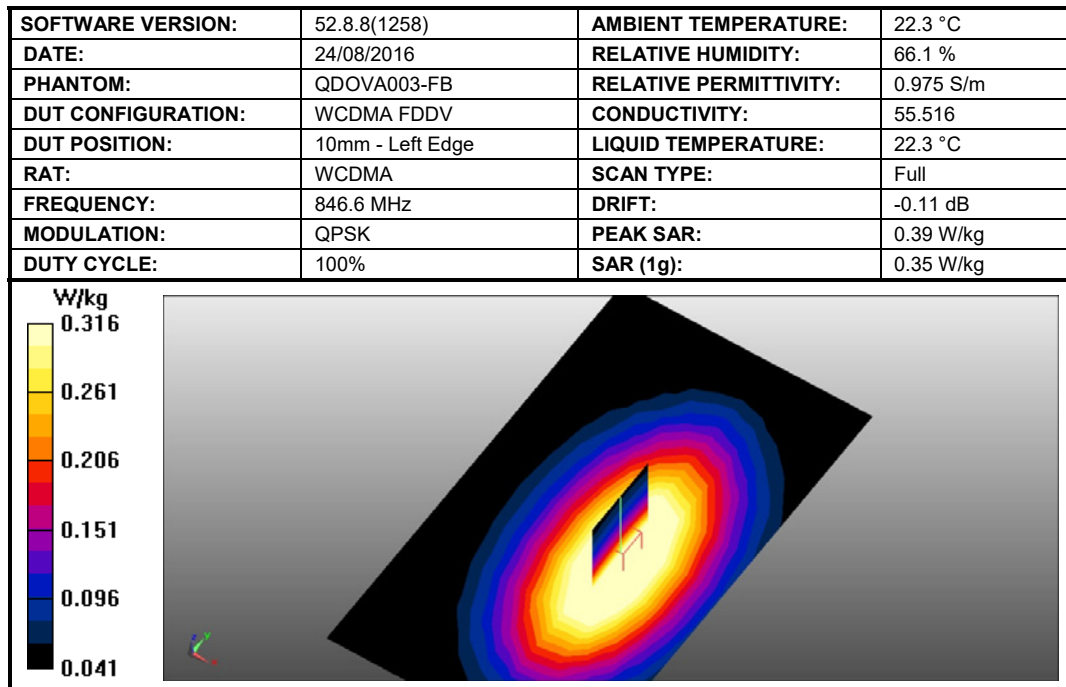


Figure 57: SAR Head Testing Results for the Sharp Smart phone at 846.6 MHz.



Product Service

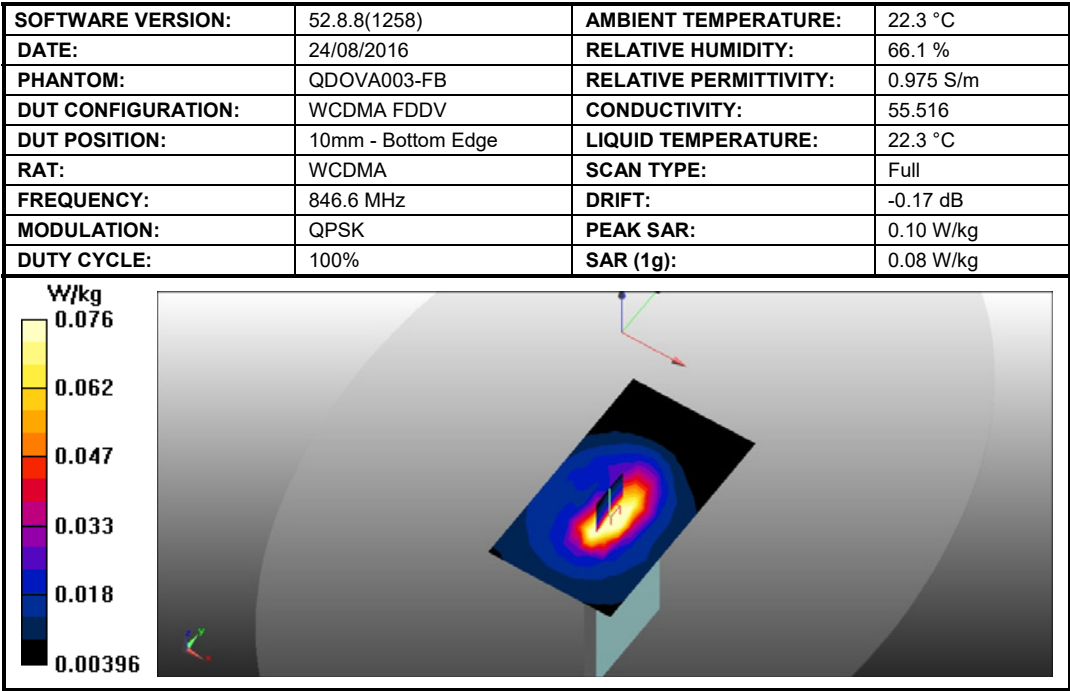


Figure 58: SAR Head Testing Results for the Sharp Smart phone at 846.6 MHz.



2.14 WLAN 2437 MHz HEAD SAR TEST RESULTS

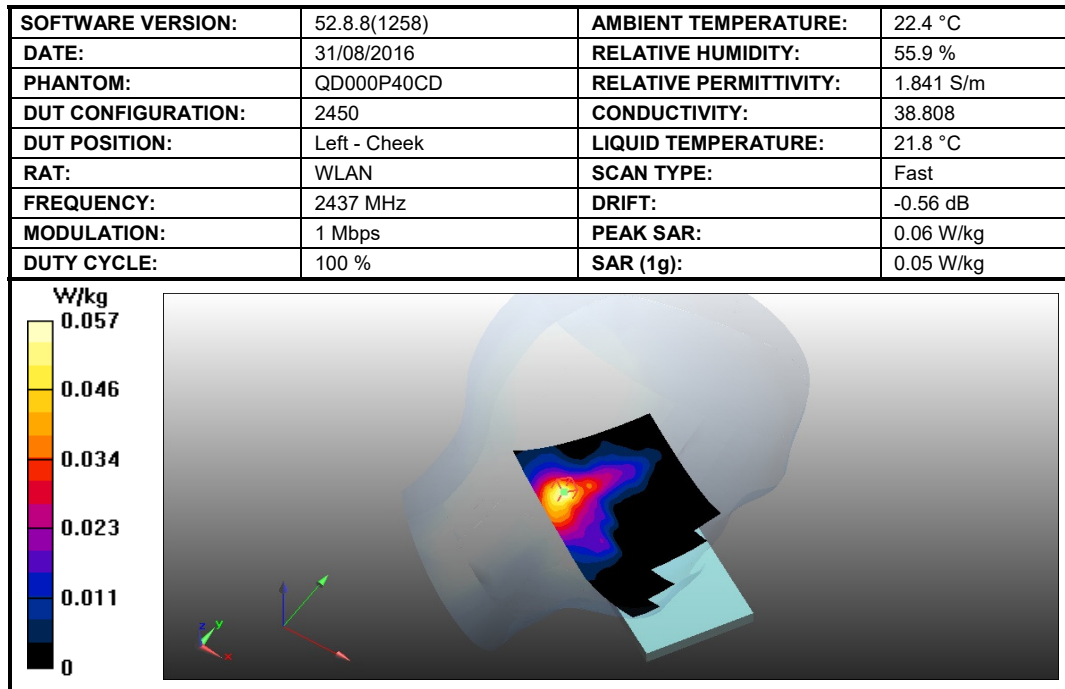


Figure 59: SAR Head Testing Results for the Sharp Smart phone at 2437 MHz.

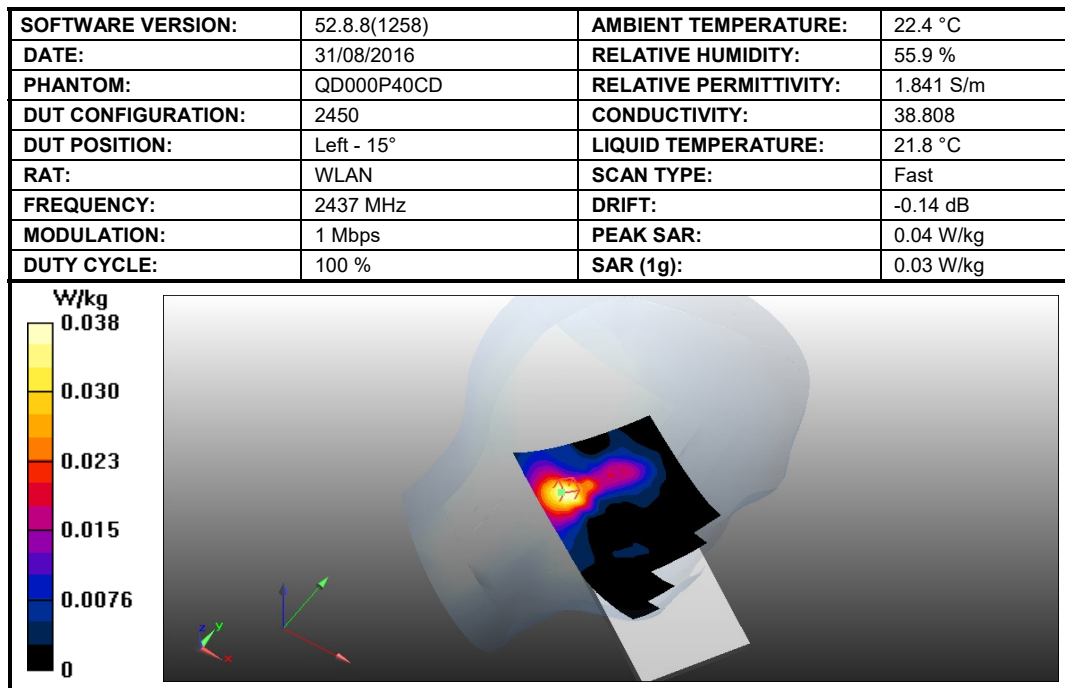


Figure 60: SAR Head Testing Results for the Sharp Smart phone at 2437 MHz.



Product Service

SOFTWARE VERSION:	52.8.8(1258)	AMBIENT TEMPERATURE:	22.4 °C
DATE:	31/08/2016	RELATIVE HUMIDITY:	55.9 %
PHANTOM:	QD000P40CD	RELATIVE PERMITTIVITY:	1.841 S/m
DUT CONFIGURATION:	2450	CONDUCTIVITY:	38.808
DUT POSITION:	Right - Cheek	LIQUID TEMPERATURE:	21.8 °C
RAT:	WLAN	SCAN TYPE:	Fast
FREQUENCY:	2437 MHz	DRIFT:	1.45 dB
MODULATION:	1 Mbps	PEAK SAR:	0.16 W/kg
DUTY CYCLE:	100 %	SAR (1g):	0.12 W/kg

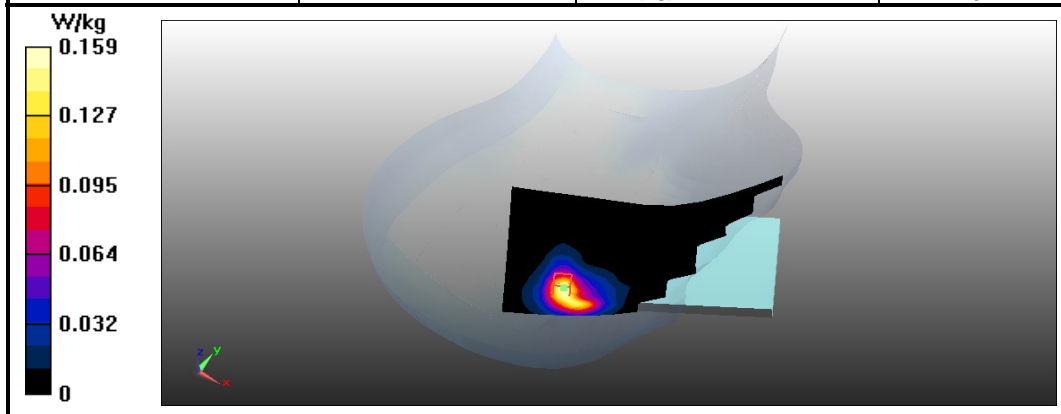


Figure 61: SAR Head Testing Results for the Sharp Smart phone at 2437 MHz.

SOFTWARE VERSION:	52.8.8(1258)	AMBIENT TEMPERATURE:	22.4 °C
DATE:	31/08/2016	RELATIVE HUMIDITY:	55.9 %
PHANTOM:	QD000P40CD	RELATIVE PERMITTIVITY:	1.841 S/m
DUT CONFIGURATION:	2450	CONDUCTIVITY:	38.808
DUT POSITION:	Right - 15°	LIQUID TEMPERATURE:	21.8 °C
RAT:	WLAN	SCAN TYPE:	Fast
FREQUENCY:	2437 MHz	DRIFT:	0.07 dB
MODULATION:	1 Mbps	PEAK SAR:	0.08 W/kg
DUTY CYCLE:	100 %	SAR (1g):	0.06 W/kg

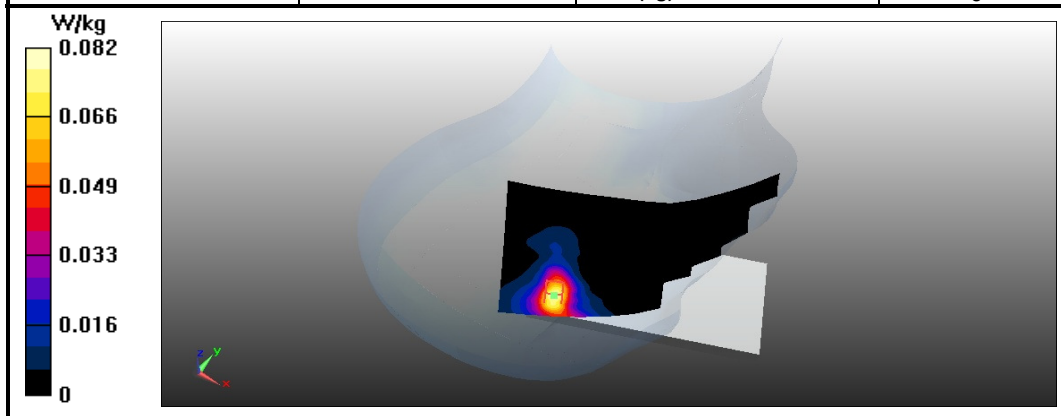


Figure 62: SAR Head Testing Results for the Sharp Smart phone at 2437 MHz.



Product Service

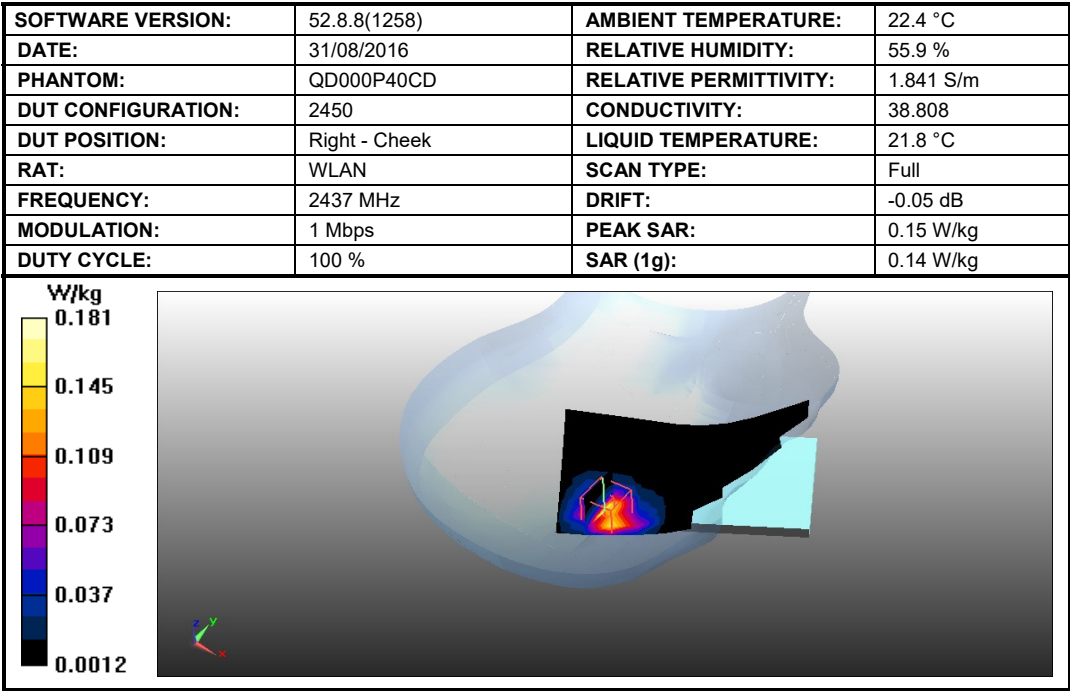


Figure 63: SAR Head Testing Results for the Sharp Smart phone at 2437 MHz.



2.15 WLAN 2437 MHz BODY SAR TEST RESULTS

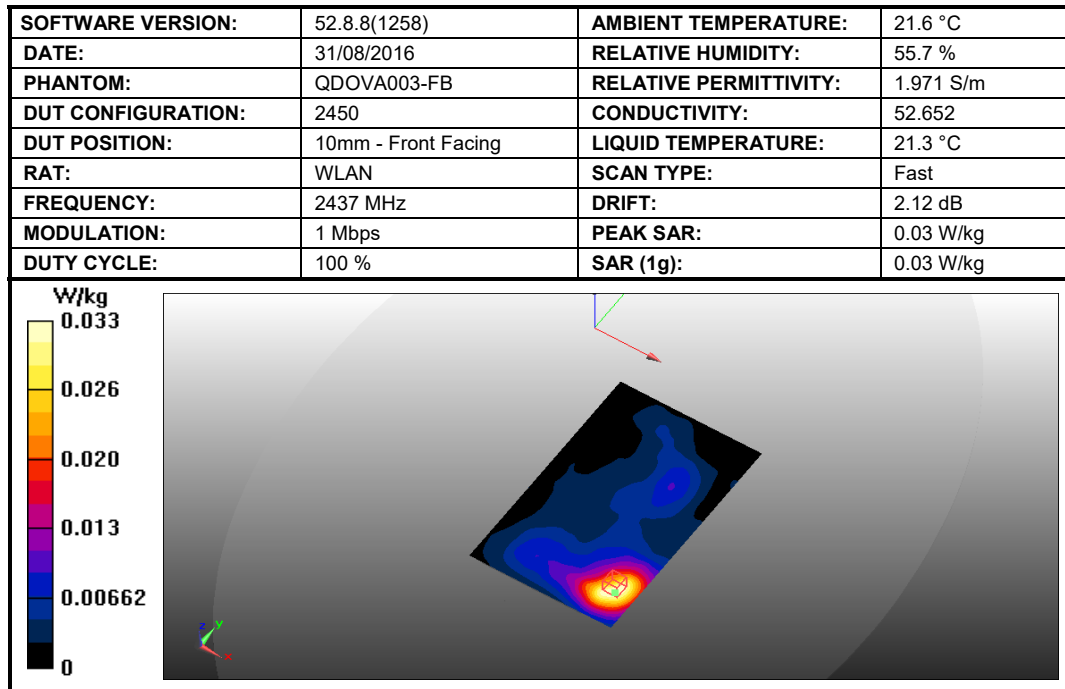


Figure 64: SAR Head Testing Results for the Sharp Smart phone at 2437 MHz.

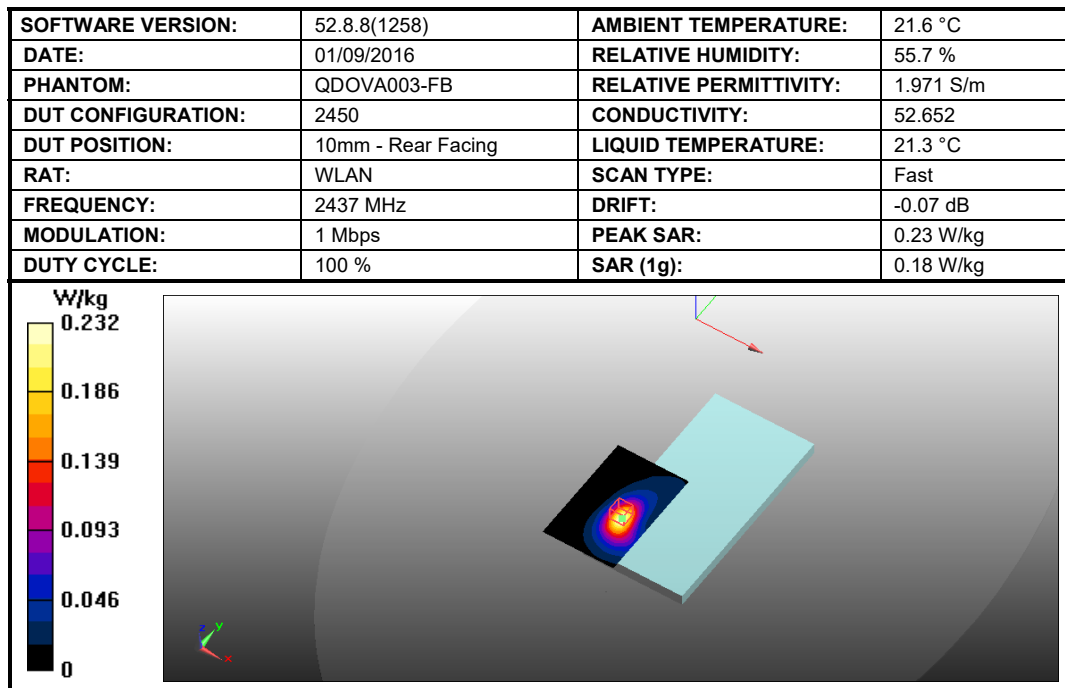


Figure 65: SAR Head Testing Results for the Sharp Smart phone at 2437 MHz.



Product Service

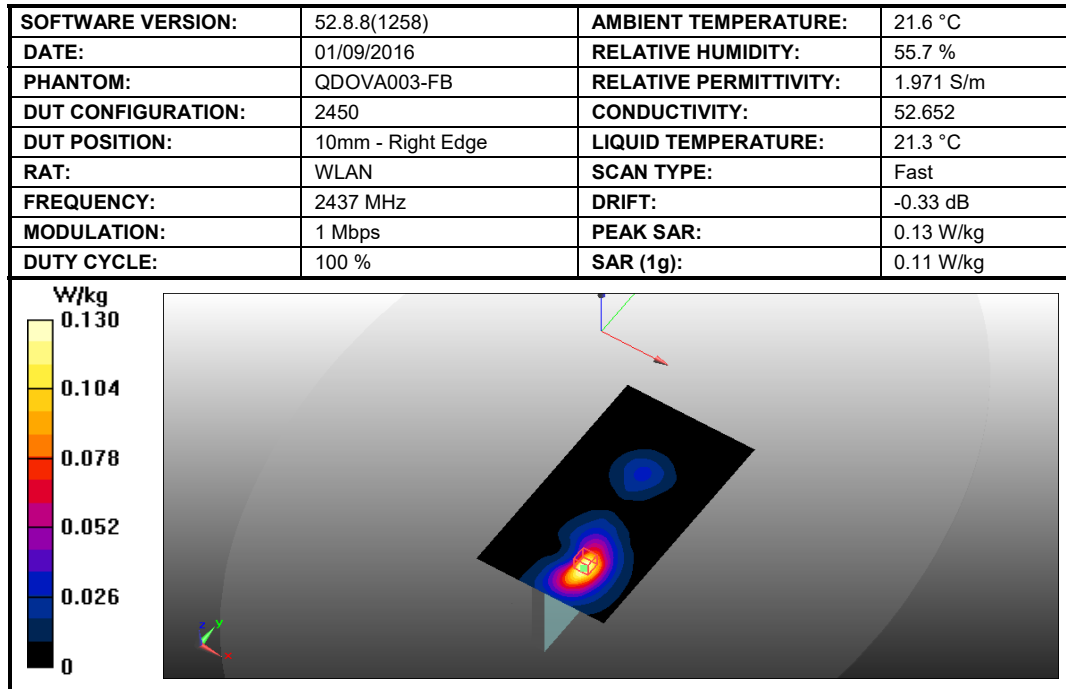


Figure 66: SAR Head Testing Results for the Sharp Smart phone at 2437 MHz.

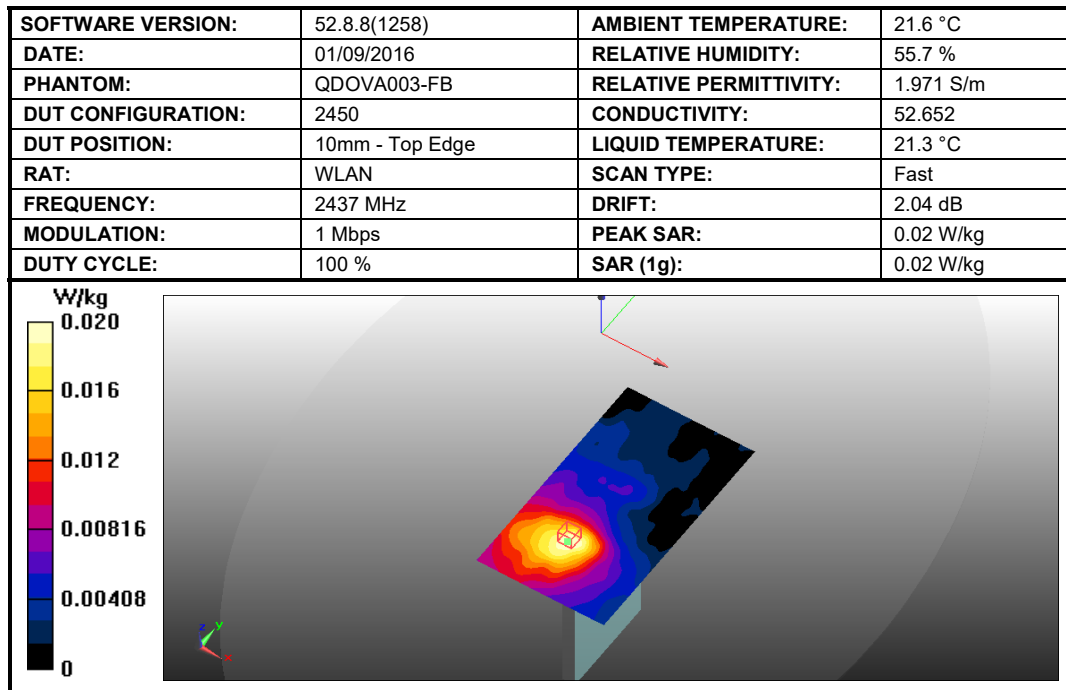


Figure 67: SAR Head Testing Results for the Sharp Smart phone at 2437 MHz.



Product Service

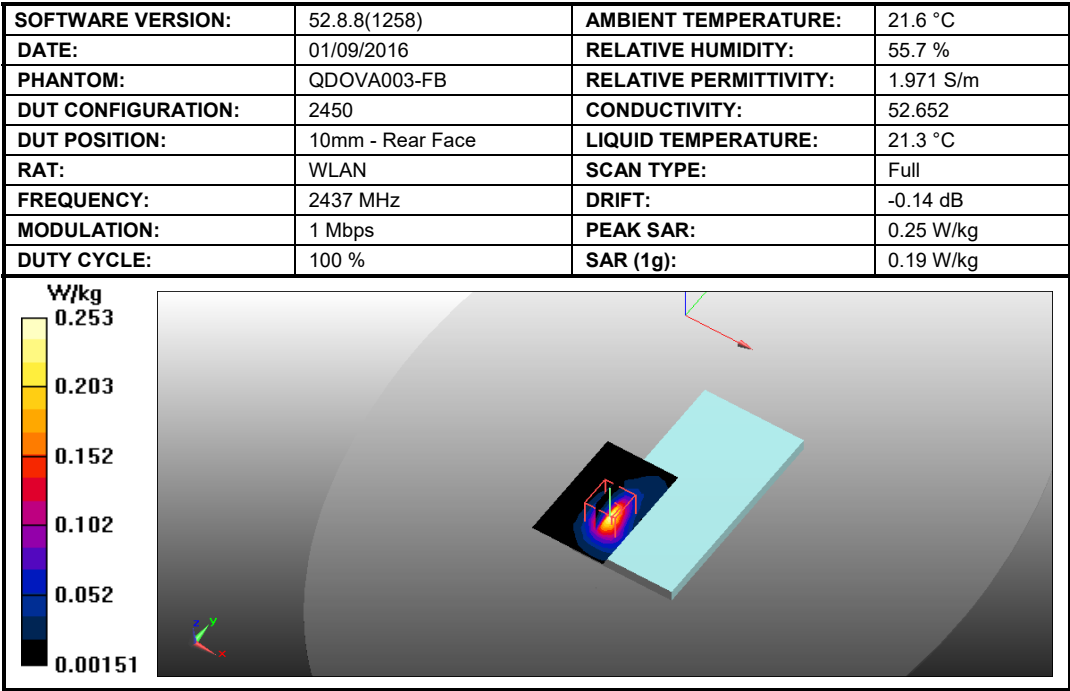


Figure 68: SAR Head Testing Results for the Sharp Smart phone at 2437 MHz.



Product Service

SECTION 3

TEST EQUIPMENT USED



Product Service

3.1 TEST EQUIPMENT USED

The following test equipment was used at TÜV SÜD Product Service:

Instrument Description	Manufacturer	Model Type	TE Number	Cal Period (months)	Calibration Due Date
10MHz - 2.5GHz, 3W, Amplifier	Vectawave Technology	VTL5400	51	-	TU
Power Sensor	Rohde & Schwarz	NRV-Z1	60	12	16-Jun-2017
Signal Generator	Hewlett Packard	ESG4000A	61	12	12-Jul-2017
Radio Communications Test Set	Rohde & Schwarz	CMU 200	442	12	18-Jan-2017
Attenuator (20dB, 10W)	Weinschel	37-20-34	482	12	23-Oct-2016
Bi-directional Coupler	IndexSar Ltd	7401 (VDC0830-20)	2414	-	TU
Hygrometer	Rotronic	I-1000	2784	12	26-Apr-2017
Power Sensor	Rohde & Schwarz	NRV- Z5	2878	12	16-Jun-2017
Dual Channel Power Meter	Rohde & Schwarz	NRVD	3259	12	16-Jun-2017
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	4144	12	16-Nov-2016
Wideband Radio Test Set	Rohde & Schwarz	CMW500	4546	12	3-Feb-2017
ANT Wideband Communication Antenna	Speag	SE UMS 176 C	4688	-	TU
Data Acquisition Electronics	Speag	DAE 4 - SD 000 D04 BM	4689	12	8-Dec-2016
Measurement Server	Speag	DASY 5 Measurement Server	4692	-	TU
Body Phantom	Speag	ELI Phantom	4699	-	TU
Dosimetric SAR Probe	Speag	EX3DV4	4700	12	15-Dec-2016
Mounting Platform for TX90XL Robot and Phantoms	Speag	MP6C-TX90XL Mounting Platform Extended	4702	-	TU
Head Phantom	Speag	Twin Sam Phantom	4703	-	TU
Robot	Speag	TX90 XLspeag Robot	4704	-	TU
HBBL Head Fluid	Speag	Batch 1	N/A	1	30-Sep-2016
MBBL Body Fluid	Speag	Batch 2	N/A	1	30-Sep-2016



3.2 TEST SOFTWARE

The following software was used to control the TÜV SÜD Product Service DASY System.

Instrument	Version Number
DASY system	52.8.8(1258)

3.3 DIELECTRIC PROPERTIES OF SIMULANT LIQUIDS

The fluid properties of the simulant fluids used during routine SAR evaluation meet the dielectric properties required KDB 865664 D01.

The dielectric properties of the tissue simulant liquids used for the SAR testing at TÜV SÜD Product Service are as follows:-

Fluid Frequency	Relative Permittivity Target	Relative Permittivity Measured	Conductivity Target	Conductivity Measured
750 MHz Head	41.9	41.26	0.89	0.90
750 MHz Body	55.3	55.78	0.96	0.94
835 MHz Head	41.5	40.97	0.90	0.93
835 MHz Body	55.2	55.65	0.97	0.96
1900 MHz Head	40.0	38.98	1.40	1.45
1900 MHz Body	53.3	53.88	1.52	1.57
2450 MHz Head	39.2	38.19	1.80	1.84
2450 MHz Body	52.7	53.16	1.95	2.04



Product Service

3.4 TEST CONDITIONS

3.4.1 Test Laboratory Conditions

Ambient temperature: Within +15°C to +35°C.

The actual temperature during the testing ranged from 21.6°C to 22.7°C.

The actual humidity during the testing ranged from 46.7% to 66.1% RH.

3.4.2 Test Fluid Temperature Range

Frequency	Body / Head Fluid	Min Temperature °C	Max Temperature °C
PCS 1900	Head	22.2	22.2
PCS 1900	Body	22.2	22.2
PCS 1900	Head	22.2	22.3
GSM 850	Head	22.1	22.1
GSM 850	Body	22.3	22.3
GSM 850	Head	22.1	22.1
WCDMA FDD V	Body	21.5	22.3
WCDMA FDD V	Head	22.1	22.1
LTE Band 17	Head	21.1	21.1
LTE Band 17	Body	22.0	22.0
LTE Band 17	Head	22.3	22.3
LTE Band 17	Body	22.3	22.3
WLAN 2450	Head	21.8	21.8
WLAN 2450	Body	21.3	21.3



3.5 MEASUREMENT UNCERTAINTY

Fast SAR Measurements, 300 MHz to 3 GHz Using Probe EX3DV4 - SN3759

Source of Uncertainty	Uncertainty $\pm$ %	Probability distribution	Div	c_i (1g)	Standard Uncertainty $\pm$ % (1g)	V_i (V_{eff})
Measurement System						
Probe calibration	6.0	N	1.00	0.00	0.0	
Axial Isotropy	4.7	R	1.73	0.70	1.9	Infinity
Hemispherical Isotropy	9.6	R	1.73	0.70	3.9	Infinity
Boundary effect	1.0	R	1.73	1.00	0.6	Infinity
Linearity	4.7	R	1.73	1.00	2.7	Infinity
System Detection limits	1.0	R	1.73	1.00	0.6	Infinity
Modulation response	2.4	R	1.73	1.00	1.4	Infinity
Readout electronics	0.3	N	1.00	0.00	0.0	
Response time	0.8	R	1.73	0.00	0.0	
Integration time	2.6	R	1.73	1.00	1.5	Infinity
RF ambient noise	3.0	R	1.73	1.00	1.7	Infinity
RF ambient reflections	3.0	R	1.73	0.00	0.0	
Probe positioner	0.4	R	1.73	1.00	0.2	Infinity
Probe positioning	2.9	R	1.73	1.00	1.7	Infinity
Spatial x-y-Resolution	10.0	R	1.73	1.00	5.8	Infinity
Fast SAR z-Approximation	7.0	R	1.73	1.00	4.0	Infinity
Test sample related						
Device Positioning	2.9	N	1.00	1.00	2.9	145
Device Holder	3.6	N	1.00	1.00	3.6	5
Input Power and SAR Drift	5.0	R	1.73	1.00	2.9	Infinity
Phantom and Setup						
Phantom uncertainty	6.1	R	1.73	1.00	3.5	Infinity
SAR Correction	1.9	R	1.73	0.00	0.0	
Liquid conductivity Meas.	2.5	R	1.73	0.00	0.0	
Liquid Permittivity Meas.	2.5	R	1.73	0.00	0.0	
Temp. Unc. Conductivity	3.4	R	1.73	0.00	0.0	
Temp. Unc. Permittivity	0.4	R	1.73	0.00	0.0	
Combined Standard Uncertainty		RSS			11.4	
Expanded Standard Uncertainty		K=2			22.7	



Full SAR Measurements, 300 MHz to 3 GHz Using Probe EX3DV4 - SN3759

Source of Uncertainty	Uncertainty $\pm$ %	Probability distribution	Div	c_i (1g)	Standard Uncertainty $\pm$ % (1g)	v_i (v_{eff})
Measurement System						
Probe calibration	6.0	N	1.00	1.00	6.0	Infinity
Axial Isotropy	4.7	R	1.73	0.70	1.9	Infinity
Hemispherical Isotropy	9.6	R	1.73	0.70	3.9	Infinity
Boundary effect	1.0	R	1.73	1.00	0.6	Infinity
Linearity	4.7	R	1.73	1.00	2.7	Infinity
System Detection limits	1.0	R	1.73	1.00	0.6	Infinity
Modulation response	2.4	R	1.73	1.00	1.4	Infinity
Readout electronics	0.3	N	1.00	1.00	0.3	Infinity
Response time	0.8	R	1.73	1.00	0.5	Infinity
Integration time	2.6	R	1.73	1.00	1.5	Infinity
RF ambient noise	3.0	R	1.73	1.00	1.7	Infinity
RF ambient reflections	3.0	R	1.73	1.00	1.7	Infinity
Probe positioner	0.4	R	1.73	1.00	0.2	Infinity
Probe positioning	2.9	R	1.73	1.00	1.7	Infinity
Max SAR Evaluation	2.0	R	1.73	1.00	1.2	Infinity
Test sample related						
Device Positioning	2.9	N	1.00	1.00	2.9	145
Device Holder	3.6	N	1.00	1.00	3.6	5
Input Power and SAR Drift	5.0	R	1.73	1.00	2.9	Infinity
Phantom and Setup						
Phantom uncertainty	6.1	R	1.73	1.00	3.5	Infinity
SAR Correction	1.9	R	1.73	1.00	1.1	Infinity
Liquid conductivity Meas.	2.5	R	1.73	0.78	1.1	Infinity
Liquid Permittivity Meas.	2.5	R	1.73	0.23	0.3	Infinity
Temp. Unc. Conductivity	3.4	R	1.73	0.78	1.5	Infinity
Temp. Unc. Permittivity	0.4	R	1.73	0.23	0.1	Infinity
Combined Standard Uncertainty		RSS			11.1	361
Expanded Standard Uncertainty		K=2			22.2	



Product Service

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA
(Not UKAS Accredited).

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TÜV SÜD Product Service

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Product Service

ANNEX A

PROBE CALIBRATION REPORT



Product Service

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**Client **TüV Süd UK**Certificate No: **EX3-3759_Dec15****CALIBRATION CERTIFICATE**Object **EX3DV4 - SN:3759**

Calibration procedure(s) **QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v4, QA CAL-23.v5,
QA CAL-25.v6
Calibration procedure for dosimetric E-field probes**

Calibration date: **December 15, 2015**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	01-Apr-15 (No. 217-02128)	Mar-16
Power sensor E4412A	MY41498087	01-Apr-15 (No. 217-02128)	Mar-16
Reference 3 dB Attenuator	SN: S5054 (3c)	01-Apr-15 (No. 217-02129)	Mar-16
Reference 20 dB Attenuator	SN: S5277 (20x)	01-Apr-15 (No. 217-02132)	Mar-16
Reference 30 dB Attenuator	SN: S5129 (30b)	01-Apr-15 (No. 217-02133)	Mar-16
Reference Probe ES3DV2	SN: 3013	30-Dec-14 (No. ES3-3013_Dec14)	Dec-15
DAE4	SN: 660	14-Jan-15 (No. DAE4-660_Jan15)	Jan-16
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP B648C	US3642U01700	4-Aug-99 (in house check Apr-13)	In house check: Apr-16
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			
Issued: December 15, 2015			



Product Service

Calibration Laboratory of
Schmid & Partner
Engineering AG
 Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization ϕ	ϕ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E^2 -field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z} = NORM_{x,y,z} * frequency_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).



Product Service

EX3DV4 – SN:3759

December 15, 2015

Probe EX3DV4

SN:3759

Manufactured:	March 16, 2010
Repaired:	December 10, 2015
Calibrated:	December 15, 2015

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)



EX3DV4- SN:3759

December 15, 2015

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3759

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$) ^A	0.49	0.46	0.47	$\pm 10.1 \%$
DCP (mV) ^B	101.8	101.0	100.0	

Sensor Model Parameters

	C1 fF	C2 fF	α V ⁻¹	T1 ms.V ⁻²	T2 ms.V ⁻¹	T3 ms	T4 V ⁻²	T5 V ⁻¹	T6
X	41.28	306.2	35.05	12.52	0.734	4.994	0.677	0.253	1.005
Y	42.65	317.1	35.18	10.52	0.844	4.984	1.558	0.202	1.008
Z	42.8	317.1	34.69	9.763	1.004	4.978	1.769	0.118	1.007

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter; uncertainty not required.



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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3759

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^f	Conductivity (S/m) ^f	ConvF X	ConvF Y	ConvF Z	Alpha ^g	Depth ^g (mm)	Unc (k=2)
450	43.5	0.87	10.35	10.35	10.35	0.18	1.30	± 13.3 %
750	41.9	0.89	9.60	9.60	9.60	0.46	0.92	± 12.0 %
835	41.5	0.90	9.14	9.14	9.14	0.40	0.93	± 12.0 %
900	41.5	0.97	8.93	8.93	8.93	0.29	1.21	± 12.0 %
1640	40.3	1.29	7.98	7.98	7.98	0.36	0.85	± 12.0 %
1750	40.1	1.37	7.88	7.88	7.88	0.34	0.91	± 12.0 %
1900	40.0	1.40	7.58	7.58	7.58	0.38	0.80	± 12.0 %
2100	39.8	1.49	7.73	7.73	7.73	0.37	0.84	± 12.0 %
2450	39.2	1.80	6.98	6.98	6.98	0.34	0.94	± 12.0 %
2600	39.0	1.96	6.76	6.76	6.76	0.39	0.85	± 12.0 %
5200	36.0	4.66	5.04	5.04	5.04	0.35	1.80	± 13.1 %
5300	35.9	4.76	4.84	4.84	4.84	0.35	1.80	± 13.1 %
5500	35.6	4.96	4.69	4.69	4.69	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.32	4.32	4.32	0.50	1.80	± 13.1 %
5800	35.3	5.27	4.48	4.48	4.48	0.50	1.80	± 13.1 %

^c Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

^f At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^g Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.



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December 15, 2015

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3759

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth (mm) ^G	Unc (k=2)
450	56.7	0.94	10.63	10.63	10.63	0.10	1.30	± 13.3 %
750	55.5	0.96	9.31	9.31	9.31	0.27	1.31	± 12.0 %
835	55.2	0.97	9.17	9.17	9.17	0.44	0.90	± 12.0 %
900	55.0	1.05	9.14	9.14	9.14	0.25	1.30	± 12.0 %
1640	53.8	1.40	7.88	7.88	7.88	0.34	1.00	± 12.0 %
1750	53.4	1.49	7.49	7.49	7.49	0.36	0.92	± 12.0 %
1900	53.3	1.52	7.31	7.31	7.31	0.39	0.85	± 12.0 %
2100	53.2	1.62	7.61	7.61	7.61	0.44	0.80	± 12.0 %
2450	52.7	1.95	7.03	7.03	7.03	0.36	0.86	± 12.0 %
2600	52.5	2.16	6.78	6.78	6.78	0.36	0.95	± 12.0 %
5200	49.0	5.30	4.45	4.45	4.45	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.29	4.29	4.29	0.50	1.90	± 13.1 %
5500	48.6	5.65	3.73	3.73	3.73	0.60	1.90	± 13.1 %
5600	48.5	5.77	3.59	3.59	3.59	0.60	1.90	± 13.1 %
5800	48.2	6.00	3.87	3.87	3.87	0.60	1.90	± 13.1 %

^C Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10 , 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to $\pm 10\%$ if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to $\pm 5\%$. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than $\pm 1\%$ for frequencies below 3 GHz and below $\pm 2\%$ for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

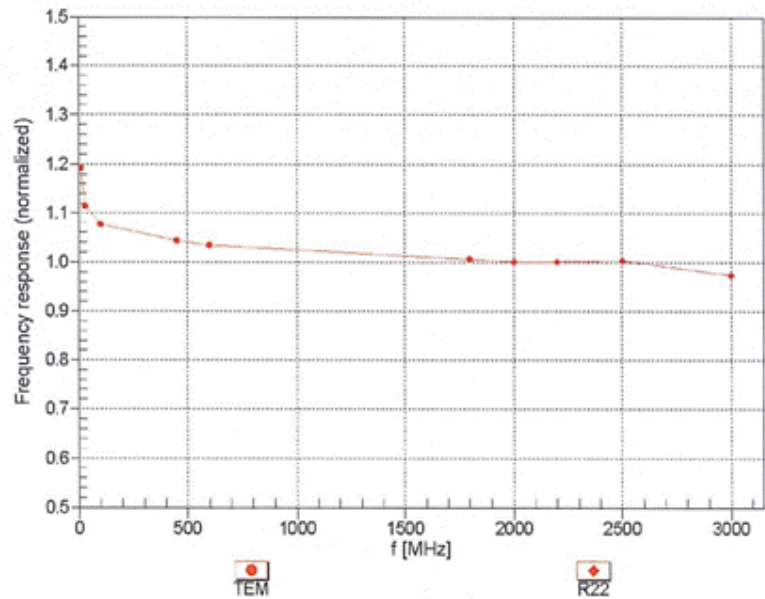


Product Service

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Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)

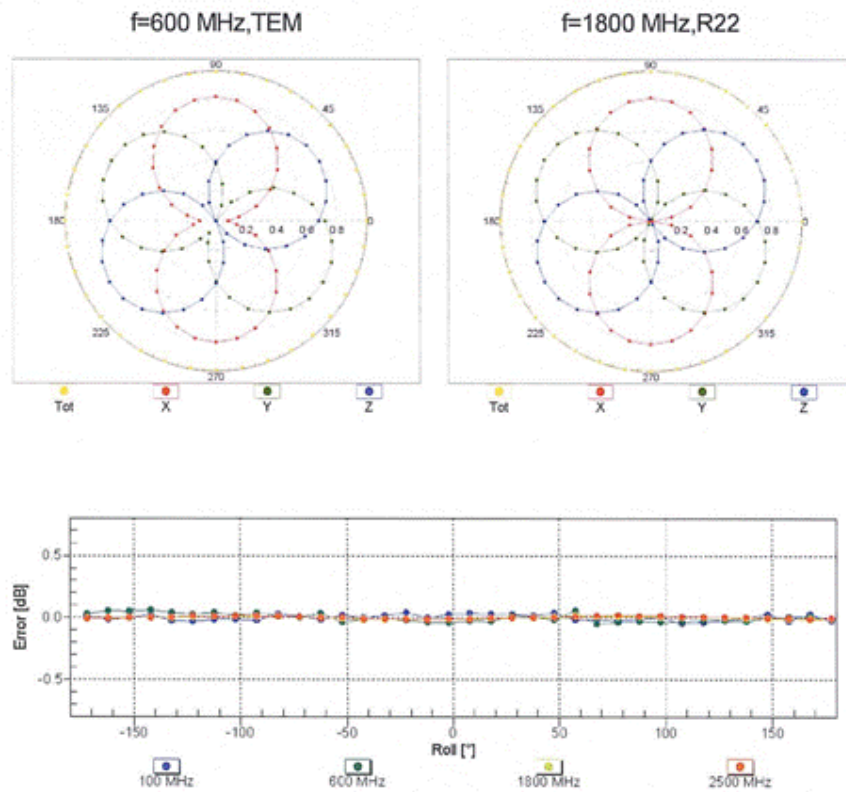


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)



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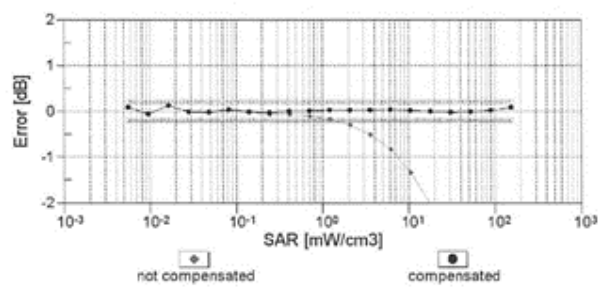
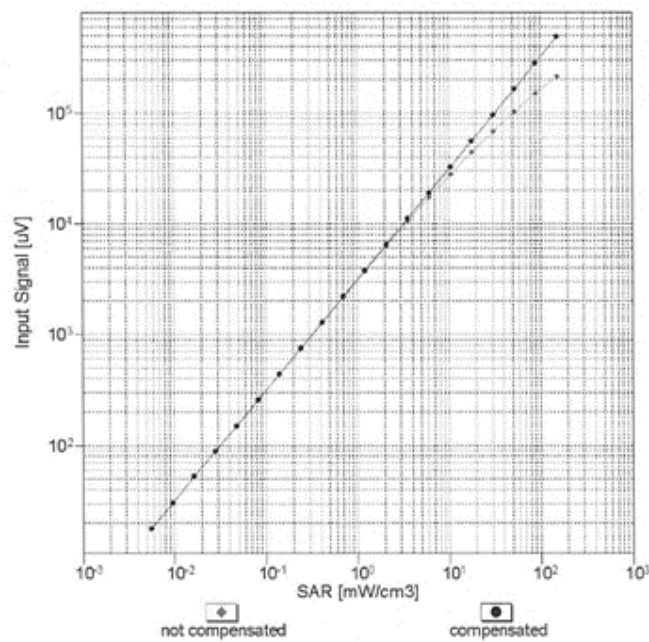
Receiving Pattern (ϕ), $\theta = 0^\circ$ Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)



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Dynamic Range f(SAR_{head}) (TEM cell , f_{eval}= 1900 MHz)



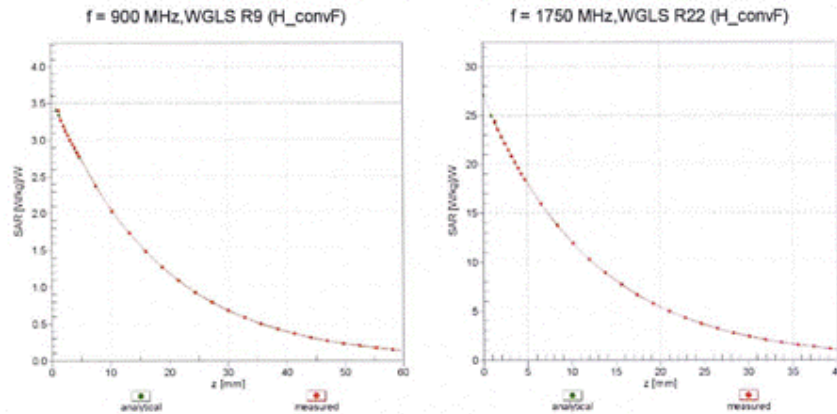
Uncertainty of Linearity Assessment: ± 0.6% (k=2)



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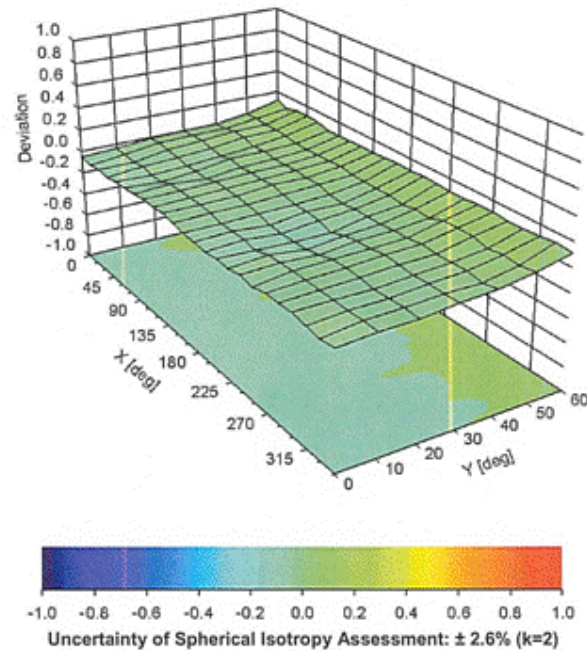
December 15, 2015

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ , θ), $f = 900 \text{ MHz}$





EX3DV4- SN:3759

December 15, 2015

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3759**Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle (°)	27.8
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm



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Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB μ V	C	D dB	VR mV	Max Unc ^E (k=2)
0	CW	X	0.00	0.00	1.00	0.00	137.4	$\pm 3.5\%$
		Y	0.00	0.00	1.00		148.5	
		Z	0.00	0.00	1.00		142.2	
10010- CAA	SAR Validation (Square, 100ms, 10ms)	X	3.46	69.97	12.84	10.00	20.0	$\pm 9.6\%$
		Y	3.56	70.15	13.09		20.0	
		Z	3.97	71.55	14.16		20.0	
10011- CAB	UMTS-FDD (WCDMA)	X	0.95	64.62	13.58	0.00	150.0	$\pm 9.6\%$
		Y	0.94	64.12	13.29		150.0	
		Z	0.89	62.25	11.72		150.0	
10012- CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.19	62.77	14.17	0.41	150.0	$\pm 9.6\%$
		Y	1.18	62.39	13.90		150.0	
		Z	1.18	61.47	12.83		150.0	
10013- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	4.80	66.41	16.69	1.46	150.0	$\pm 9.6\%$
		Y	4.81	66.26	16.58		150.0	
		Z	4.81	65.99	16.26		150.0	
10021- DAB	GSM-FDD (TDMA, GMSK)	X	100.00	113.42	27.36	9.39	50.0	$\pm 9.6\%$
		Y	55.77	106.43	25.91		50.0	
		Z	18.93	93.26	22.95		50.0	
10023- DAB	GPRS-FDD (TDMA, GMSK, TN 0)	X	58.52	106.35	25.67	9.57	50.0	$\pm 9.6\%$
		Y	29.55	97.95	23.72		50.0	
		Z	14.95	89.78	21.91		50.0	
10024- DAB	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	112.07	25.64	6.56	60.0	$\pm 9.6\%$
		Y	100.00	112.77	25.99		60.0	
		Z	13.59	90.28	20.87		60.0	
10025- DAB	EDGE-FDD (TDMA, 8PSK, TN 0)	X	9.80	95.07	37.43	12.57	50.0	$\pm 9.6\%$
		Y	4.43	69.49	24.68		50.0	
		Z	7.03	82.68	31.43		50.0	
10026- DAB	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	8.61	89.61	31.48	9.56	60.0	$\pm 9.6\%$
		Y	6.90	83.14	28.50		60.0	
		Z	7.07	83.35	28.61		60.0	
10027- DAB	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	112.51	25.09	4.80	80.0	$\pm 9.6\%$
		Y	100.00	113.33	25.44		80.0	
		Z	8.57	86.56	19.18		80.0	
10028- DAB	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	114.16	25.17	3.55	100.0	$\pm 9.6\%$
		Y	100.00	115.07	25.54		100.0	
		Z	4.52	81.54	17.36		100.0	
10029- DAB	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	5.41	79.01	26.03	7.80	80.0	$\pm 9.6\%$
		Y	4.78	75.56	24.25		80.0	
		Z	4.78	75.09	23.94		80.0	
10030- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	110.43	24.44	5.30	70.0	$\pm 9.6\%$
		Y	44.16	102.43	22.81		70.0	
		Z	6.07	81.13	17.44		70.0	
10031- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	114.78	24.24	1.88	100.0	$\pm 9.6\%$
		Y	6.35	89.05	18.68		100.0	
		Z	0.93	68.71	12.20		100.0	



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10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	5.75	92.88	20.09	1.17	100.0	± 9.6 %
		Y	1.27	77.94	16.10		100.0	
		Z	0.47	65.20	10.94		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	4.88	79.14	19.56	5.30	70.0	± 9.6 %
		Y	3.87	75.70	18.33		70.0	
		Z	3.16	72.00	16.77		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	1.90	69.58	14.48	1.88	100.0	± 9.6 %
		Y	1.70	68.18	14.00		100.0	
		Z	1.46	65.25	12.40		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	1.47	67.57	13.41	1.17	100.0	± 9.6 %
		Y	1.37	66.58	13.09		100.0	
		Z	1.21	64.01	11.56		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	5.54	81.22	20.38	5.30	70.0	± 9.6 %
		Y	4.25	77.30	19.02		70.0	
		Z	3.33	72.95	17.23		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	1.81	69.08	14.24	1.88	100.0	± 9.6 %
		Y	1.64	67.76	13.79		100.0	
		Z	1.42	65.00	12.26		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	1.47	67.67	13.56	1.17	100.0	± 9.6 %
		Y	1.37	66.65	13.21		100.0	
		Z	1.20	64.02	11.65		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	1.31	67.25	13.15	0.00	150.0	± 9.6 %
		Y	1.31	66.96	13.14		150.0	
		Z	1.12	63.89	11.31		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	100.00	110.37	25.17	7.78	50.0	± 9.6 %
		Y	50.75	103.30	23.75		50.0	
		Z	13.62	88.84	20.46		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.04	83.16	2.99	0.00	150.0	± 9.6 %
		Y	0.05	85.78	2.29		150.0	
		Z	0.07	79.92	0.01		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	13.64	84.78	20.90	13.80	25.0	± 9.6 %
		Y	11.80	82.44	20.33		25.0	
		Z	10.74	81.50	20.54		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	16.41	89.18	21.23	10.79	40.0	± 9.6 %
		Y	13.15	86.27	20.53		40.0	
		Z	11.03	84.39	20.43		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	11.79	88.00	23.02	9.03	50.0	± 9.6 %
		Y	9.09	83.74	21.62		50.0	
		Z	7.76	81.04	20.84		50.0	
10058-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	4.22	74.24	23.18	6.55	100.0	± 9.6 %
		Y	3.87	71.93	21.91		100.0	
		Z	3.85	71.25	21.43		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.20	63.46	14.52	0.61	110.0	± 9.6 %
		Y	1.19	62.95	14.17		110.0	
		Z	1.18	61.87	13.02		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	1.73	75.17	18.04	1.30	110.0	± 9.6 %
		Y	1.32	71.18	16.40		110.0	
		Z	1.02	65.90	13.47		110.0	



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10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	1.91	71.56	17.96	2.04	110.0	± 9.6 %
		Y	1.68	69.19	16.83		110.0	
		Z	1.51	66.25	14.95		110.0	
10062-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.60	66.40	16.16	0.49	100.0	± 9.6 %
		Y	4.62	66.29	16.08		100.0	
		Z	4.60	65.95	15.71		100.0	
10063-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.61	66.47	16.24	0.72	100.0	± 9.6 %
		Y	4.63	66.34	16.15		100.0	
		Z	4.61	66.00	15.78		100.0	
10064-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	4.87	66.70	16.45	0.86	100.0	± 9.6 %
		Y	4.90	66.59	16.37		100.0	
		Z	4.88	66.28	16.02		100.0	
10065-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.75	66.57	16.52	1.21	100.0	± 9.6 %
		Y	4.76	66.43	16.42		100.0	
		Z	4.75	66.13	16.07		100.0	
10066-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	4.76	66.57	16.66	1.46	100.0	± 9.6 %
		Y	4.77	66.42	16.55		100.0	
		Z	4.77	66.14	16.21		100.0	
10067-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.05	66.81	17.13	2.04	100.0	± 9.6 %
		Y	5.06	66.63	16.99		100.0	
		Z	5.07	66.40	16.70		100.0	
10068-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.09	66.78	17.30	2.55	100.0	± 9.6 %
		Y	5.10	66.60	17.16		100.0	
		Z	5.11	66.40	16.89		100.0	
10069-CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.17	66.83	17.51	2.67	100.0	± 9.6 %
		Y	5.18	66.63	17.35		100.0	
		Z	5.19	66.45	17.09		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.89	66.48	16.98	1.99	100.0	± 9.6 %
		Y	4.90	66.31	16.84		100.0	
		Z	4.90	66.08	16.54		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	4.86	66.73	17.15	2.30	100.0	± 9.6 %
		Y	4.86	66.53	17.00		100.0	
		Z	4.86	66.29	16.69		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	4.92	66.88	17.46	2.83	100.0	± 9.6 %
		Y	4.91	66.66	17.28		100.0	
		Z	4.92	66.43	16.99		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.91	66.81	17.61	3.30	100.0	± 9.6 %
		Y	4.91	66.57	17.42		100.0	
		Z	4.92	66.37	17.15		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	4.95	66.90	17.89	3.82	90.0	± 9.6 %
		Y	4.94	66.64	17.69		90.0	
		Z	4.97	66.47	17.44		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	4.98	66.77	18.05	4.15	90.0	± 9.6 %
		Y	4.97	66.49	17.83		90.0	
		Z	5.00	66.36	17.61		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	5.01	66.86	18.16	4.30	90.0	± 9.6 %
		Y	5.00	66.56	17.93		90.0	
		Z	5.03	66.44	17.71		90.0	



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10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.73	63.46	10.92	0.00	150.0	± 9.6 %
		Y	0.75	63.35	11.00		150.0	
		Z	0.70	61.50	9.66		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	0.68	58.87	4.28	4.77	80.0	± 9.6 %
		Y	0.65	58.57	4.16		80.0	
		Z	0.75	59.37	5.01		80.0	
10090-DAB	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	112.05	25.65	6.56	60.0	± 9.6 %
		Y	100.00	112.74	25.99		60.0	
		Z	13.27	89.95	20.78		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.73	66.15	14.58	0.00	150.0	± 9.6 %
		Y	1.72	65.74	14.38		150.0	
		Z	1.62	64.07	13.12		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.69	66.08	14.54	0.00	150.0	± 9.6 %
		Y	1.68	65.67	14.33		150.0	
		Z	1.59	64.00	13.06		150.0	
10099-DAB	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	8.67	89.71	31.51	9.56	60.0	± 9.6 %
		Y	6.93	83.22	28.52		60.0	
		Z	7.10	83.42	28.62		60.0	
10100-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	2.89	68.66	15.83	0.00	150.0	± 9.6 %
		Y	2.86	68.31	15.63		150.0	
		Z	2.68	66.73	14.55		150.0	
10101-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.14	66.73	15.39	0.00	150.0	± 9.6 %
		Y	3.14	66.54	15.27		150.0	
		Z	3.06	65.69	14.56		150.0	
10102-CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.25	66.76	15.51	0.00	150.0	± 9.6 %
		Y	3.25	66.59	15.40		150.0	
		Z	3.18	65.77	14.71		150.0	
10103-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	5.77	73.71	19.33	3.98	65.0	± 9.6 %
		Y	5.18	71.67	18.40		65.0	
		Z	5.04	70.75	17.81		65.0	
10104-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	5.99	72.52	19.60	3.98	65.0	± 9.6 %
		Y	5.76	71.57	19.10		65.0	
		Z	5.67	70.92	18.65		65.0	
10105-CAB	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	5.98	72.36	19.83	3.98	65.0	± 9.6 %
		Y	5.43	70.29	18.80		65.0	
		Z	5.33	69.55	18.29		65.0	
10108-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.52	67.89	15.60	0.00	150.0	± 9.6 %
		Y	2.50	67.54	15.40		150.0	
		Z	2.36	65.96	14.28		150.0	
10109-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.78	66.49	15.20	0.00	150.0	± 9.6 %
		Y	2.79	66.28	15.08		150.0	
		Z	2.71	65.30	14.28		150.0	
10110-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.03	66.91	15.06	0.00	150.0	± 9.6 %
		Y	2.02	66.53	14.85		150.0	
		Z	1.91	64.92	13.66		150.0	
10111-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.46	67.03	15.25	0.00	150.0	± 9.6 %
		Y	2.47	66.79	15.15		150.0	
		Z	2.35	65.35	14.09		150.0	



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10112-CAC	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	2.91	66.57	15.29	0.00	150.0	± 9.6 %
		Y	2.92	66.38	15.19		150.0	
		Z	2.84	65.43	14.41		150.0	
10113-CAC	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.61	67.25	15.42	0.00	150.0	± 9.6 %
		Y	2.62	67.03	15.33		150.0	
		Z	2.49	65.62	14.29		150.0	
10114-CAB	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.07	66.96	16.20	0.00	150.0	± 9.6 %
		Y	5.09	66.91	16.15		150.0	
		Z	5.06	66.56	15.78		150.0	
10115-CAB	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.32	67.04	16.25	0.00	150.0	± 9.6 %
		Y	5.36	67.00	16.21		150.0	
		Z	5.33	66.69	15.87		150.0	
10116-CAB	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.15	67.13	16.21	0.00	150.0	± 9.6 %
		Y	5.18	67.07	16.17		150.0	
		Z	5.14	66.72	15.79		150.0	
10117-CAB	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.04	66.86	16.16	0.00	150.0	± 9.6 %
		Y	5.06	66.79	16.11		150.0	
		Z	5.03	66.45	15.74		150.0	
10118-CAB	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.39	67.22	16.35	0.00	150.0	± 9.6 %
		Y	5.43	67.18	16.31		150.0	
		Z	5.39	66.85	15.96		150.0	
10119-CAB	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.13	67.09	16.21	0.00	150.0	± 9.6 %
		Y	5.16	67.03	16.16		150.0	
		Z	5.12	66.68	15.78		150.0	
10140-CAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.28	66.78	15.43	0.00	150.0	± 9.6 %
		Y	3.28	66.61	15.33		150.0	
		Z	3.20	65.79	14.65		150.0	
10141-CAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.40	66.93	15.62	0.00	150.0	± 9.6 %
		Y	3.41	66.77	15.53		150.0	
		Z	3.33	65.96	14.85		150.0	
10142-CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	1.78	66.63	14.50	0.00	150.0	± 9.6 %
		Y	1.78	66.26	14.33		150.0	
		Z	1.66	64.45	13.03		150.0	
10143-CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.25	67.31	14.65	0.00	150.0	± 9.6 %
		Y	2.26	67.08	14.59		150.0	
		Z	2.09	65.25	13.36		150.0	
10144-CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.07	65.42	13.21	0.00	150.0	± 9.6 %
		Y	2.09	65.28	13.20		150.0	
		Z	2.00	64.08	12.32		150.0	
10145-CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.05	63.06	10.20	0.00	150.0	± 9.6 %
		Y	1.09	63.24	10.48		150.0	
		Z	1.04	61.94	9.58		150.0	
10146-CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	1.43	63.12	9.42	0.00	150.0	± 9.6 %
		Y	1.74	64.74	10.48		150.0	
		Z	1.57	63.26	9.55		150.0	
10147-CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	1.55	64.01	10.00	0.00	150.0	± 9.6 %
		Y	1.96	66.08	11.26		150.0	
		Z	1.69	63.99	10.04		150.0	



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10149-CAB	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.79	66.54	15.24	0.00	150.0	± 9.6 %
		Y	2.80	66.34	15.12		150.0	
		Z	2.71	65.34	14.31		150.0	
10150-CAB	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	2.92	66.61	15.33	0.00	150.0	± 9.6 %
		Y	2.93	66.43	15.23		150.0	
		Z	2.84	65.46	14.44		150.0	
10151-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	5.94	75.70	20.19	3.98	65.0	± 9.6 %
		Y	5.51	74.19	19.51		65.0	
		Z	5.20	72.66	18.67		65.0	
10152-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	5.47	72.25	19.12	3.98	65.0	± 9.6 %
		Y	5.23	71.20	18.59		65.0	
		Z	5.14	70.47	18.11		65.0	
10153-CAB	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	5.83	73.21	19.90	3.98	65.0	± 9.6 %
		Y	5.58	72.17	19.39		65.0	
		Z	5.45	71.30	18.83		65.0	
10154-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.06	67.19	15.25	0.00	150.0	± 9.6 %
		Y	2.05	66.83	15.06		150.0	
		Z	1.93	65.11	13.81		150.0	
10155-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.47	67.05	15.27	0.00	150.0	± 9.6 %
		Y	2.47	66.81	15.17		150.0	
		Z	2.35	65.37	14.10		150.0	
10156-CAC	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.61	66.39	14.08	0.00	150.0	± 9.6 %
		Y	1.61	66.05	13.95		150.0	
		Z	1.49	64.09	12.57		150.0	
10157-CAC	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	1.87	65.61	13.02	0.00	150.0	± 9.6 %
		Y	1.90	65.48	13.04		150.0	
		Z	1.79	64.01	12.02		150.0	
10158-CAC	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.62	67.31	15.46	0.00	150.0	± 9.6 %
		Y	2.62	67.09	15.37		150.0	
		Z	2.50	65.65	14.32		150.0	
10159-CAC	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	1.96	65.96	13.24	0.00	150.0	± 9.6 %
		Y	1.98	65.84	13.28		150.0	
		Z	1.85	64.27	12.21		150.0	
10160-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.57	67.35	15.49	0.00	150.0	± 9.6 %
		Y	2.57	67.04	15.32		150.0	
		Z	2.44	65.67	14.31		150.0	
10161-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.81	66.53	15.22	0.00	150.0	± 9.6 %
		Y	2.82	66.34	15.12		150.0	
		Z	2.73	65.34	14.31		150.0	
10162-CAB	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	2.92	66.73	15.36	0.00	150.0	± 9.6 %
		Y	2.93	66.54	15.26		150.0	
		Z	2.84	65.53	14.45		150.0	
10166-CAC	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.29	68.19	18.33	3.01	150.0	± 9.6 %
		Y	3.51	68.98	18.72		150.0	
		Z	3.40	67.92	17.89		150.0	
10167-CAC	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	3.82	70.64	18.68	3.01	150.0	± 9.6 %
		Y	4.31	72.22	19.35		150.0	
		Z	4.06	70.75	18.41		150.0	



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10168-CAC	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	4.20	72.71	19.96	3.01	150.0	± 9.6 %
		Y	4.87	74.88	20.89		150.0	
		Z	4.45	72.72	19.62		150.0	
10169-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	2.63	66.83	17.73	3.01	150.0	± 9.6 %
		Y	2.93	68.39	18.45		150.0	
		Z	2.81	67.22	17.54		150.0	
10170-CAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	3.24	71.42	19.68	3.01	150.0	± 9.6 %
		Y	4.12	75.18	21.22		150.0	
		Z	3.67	72.59	19.71		150.0	
10171-AAB	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	2.76	68.22	17.25	3.01	150.0	± 9.6 %
		Y	3.29	70.52	18.19		150.0	
		Z	3.08	69.10	17.23		150.0	
10172-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	5.47	82.72	25.06	6.02	65.0	± 9.6 %
		Y	4.20	76.96	22.67		65.0	
		Z	4.05	75.61	21.82		65.0	
10173-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	7.27	85.40	24.19	6.02	65.0	± 9.6 %
		Y	8.35	87.00	24.60		65.0	
		Z	6.50	82.14	22.62		65.0	
10174-CAB	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	5.74	80.70	22.00	6.02	65.0	± 9.6 %
		Y	5.36	79.02	21.33		65.0	
		Z	4.82	76.71	20.17		65.0	
10175-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	2.61	66.61	17.52	3.01	150.0	± 9.6 %
		Y	2.89	68.08	18.20		150.0	
		Z	2.78	66.99	17.33		150.0	
10176-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	3.25	71.44	19.69	3.01	150.0	± 9.6 %
		Y	4.13	75.21	21.23		150.0	
		Z	3.67	72.61	19.72		150.0	
10177-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	2.63	66.72	17.59	3.01	150.0	± 9.6 %
		Y	2.92	68.23	18.30		150.0	
		Z	2.80	67.10	17.40		150.0	
10178-CAC	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	3.23	71.31	19.61	3.01	150.0	± 9.6 %
		Y	4.08	74.97	21.11		150.0	
		Z	3.65	72.45	19.63		150.0	
10179-CAC	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	2.98	69.75	18.35	3.01	150.0	± 9.6 %
		Y	3.65	72.66	19.54		150.0	
		Z	3.34	70.72	18.33		150.0	
10180-CAC	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	2.76	68.18	17.22	3.01	150.0	± 9.6 %
		Y	3.29	70.46	18.14		150.0	
		Z	3.07	69.06	17.19		150.0	
10181-CAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	2.62	66.70	17.59	3.01	150.0	± 9.6 %
		Y	2.91	68.21	18.29		150.0	
		Z	2.80	67.09	17.40		150.0	
10182-CAB	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	3.22	71.28	19.59	3.01	150.0	± 9.6 %
		Y	4.07	74.94	21.10		150.0	
		Z	3.64	72.43	19.62		150.0	
10183-AAA	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	2.76	68.16	17.21	3.01	150.0	± 9.6 %
		Y	3.28	70.43	18.13		150.0	
		Z	3.07	69.04	17.18		150.0	



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10184-CAC	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	2.63	66.74	17.61	3.01	150.0	± 9.6 %
		Y	2.92	68.25	18.31		150.0	
		Z	2.81	67.12	17.42		150.0	
10185-CAC	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	3.23	71.35	19.63	3.01	150.0	± 9.6 %
		Y	4.10	75.03	21.14		150.0	
		Z	3.66	72.49	19.65		150.0	
10186-AAC	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	2.77	68.22	17.24	3.01	150.0	± 9.6 %
		Y	3.30	70.50	18.17		150.0	
		Z	3.08	69.09	17.21		150.0	
10187-CAC	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	2.64	66.79	17.67	3.01	150.0	± 9.6 %
		Y	2.93	68.31	18.38		150.0	
		Z	2.82	67.18	17.48		150.0	
10188-CAC	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	3.31	71.83	19.94	3.01	150.0	± 9.6 %
		Y	4.24	75.78	21.56		150.0	
		Z	3.75	73.03	19.98		150.0	
10189-AAC	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	2.82	68.54	17.47	3.01	150.0	± 9.6 %
		Y	3.37	70.94	18.46		150.0	
		Z	3.14	69.44	17.45		150.0	
10193-CAB	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.47	66.43	15.87	0.00	150.0	± 9.6 %
		Y	4.49	66.34	15.81		150.0	
		Z	4.46	65.95	15.40		150.0	
10194-CAB	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.62	66.71	16.00	0.00	150.0	± 9.6 %
		Y	4.64	66.62	15.94		150.0	
		Z	4.61	66.23	15.54		150.0	
10195-CAB	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.66	66.74	16.02	0.00	150.0	± 9.6 %
		Y	4.68	66.66	15.96		150.0	
		Z	4.65	66.27	15.56		150.0	
10196-CAB	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.46	66.46	15.87	0.00	150.0	± 9.6 %
		Y	4.48	66.37	15.82		150.0	
		Z	4.45	65.98	15.41		150.0	
10197-CAB	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.63	66.72	16.01	0.00	150.0	± 9.6 %
		Y	4.66	66.64	15.95		150.0	
		Z	4.62	66.25	15.55		150.0	
10198-CAB	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.66	66.75	16.03	0.00	150.0	± 9.6 %
		Y	4.68	66.67	15.97		150.0	
		Z	4.65	66.28	15.57		150.0	
10219-CAB	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.41	66.47	15.83	0.00	150.0	± 9.6 %
		Y	4.43	66.38	15.78		150.0	
		Z	4.40	65.97	15.35		150.0	
10220-CAB	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.62	66.69	16.00	0.00	150.0	± 9.6 %
		Y	4.65	66.61	15.94		150.0	
		Z	4.62	66.22	15.54		150.0	
10221-CAB	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.67	66.69	16.02	0.00	150.0	± 9.6 %
		Y	4.70	66.61	15.96		150.0	
		Z	4.67	66.23	15.56		150.0	
10222-CAB	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	5.02	66.85	16.15	0.00	150.0	± 9.6 %
		Y	5.04	66.79	16.10		150.0	
		Z	5.01	66.45	15.73		150.0	



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10223-CAB	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.31	67.09	16.29	0.00	150.0	± 9.6 %
		Y	5.34	67.04	16.25		150.0	
		Z	5.30	66.71	15.90		150.0	
10224-CAB	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.06	66.96	16.14	0.00	150.0	± 9.6 %
		Y	5.08	66.89	16.09		150.0	
		Z	5.05	66.55	15.71		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.72	65.54	14.67	0.00	150.0	± 9.6 %
		Y	2.73	65.39	14.61		150.0	
		Z	2.68	64.57	13.91		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	7.63	86.31	24.59	6.02	65.0	± 9.6 %
		Y	8.86	88.13	25.08		65.0	
		Z	6.77	82.89	22.97		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	7.45	84.85	23.48	6.02	65.0	± 9.6 %
		Y	8.67	86.63	23.98		65.0	
		Z	6.62	81.60	21.95		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	5.56	83.10	25.23	6.02	65.0	± 9.6 %
		Y	5.57	82.43	24.85		65.0	
		Z	4.86	79.06	23.24		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	7.32	85.49	24.23	6.02	65.0	± 9.6 %
		Y	8.41	87.12	24.65		65.0	
		Z	6.54	82.23	22.66		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	7.11	84.01	23.12	6.02	65.0	± 9.6 %
		Y	8.19	85.62	23.56		65.0	
		Z	6.36	80.93	21.64		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	5.39	82.47	24.92	6.02	65.0	± 9.6 %
		Y	5.38	81.75	24.52		65.0	
		Z	4.74	78.57	22.98		65.0	
10232-CAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	7.30	85.47	24.22	6.02	65.0	± 9.6 %
		Y	8.40	87.10	24.64		65.0	
		Z	6.53	82.21	22.65		65.0	
10233-CAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	7.09	83.98	23.11	6.02	65.0	± 9.6 %
		Y	8.17	85.59	23.55		65.0	
		Z	6.35	80.90	21.64		65.0	
10234-CAB	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	5.25	81.89	24.59	6.02	65.0	± 9.6 %
		Y	5.23	81.13	24.18		65.0	
		Z	4.64	78.11	22.70		65.0	
10235-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	7.30	85.49	24.23	6.02	65.0	± 9.6 %
		Y	8.40	87.11	24.65		65.0	
		Z	6.53	82.22	22.66		65.0	
10236-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	7.16	84.11	23.15	6.02	65.0	± 9.6 %
		Y	8.24	85.72	23.59		65.0	
		Z	6.40	81.00	21.67		65.0	
10237-CAB	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	5.39	82.50	24.93	6.02	65.0	± 9.6 %
		Y	5.38	81.76	24.53		65.0	
		Z	4.74	78.58	22.98		65.0	
10238-CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	7.29	85.45	24.21	6.02	65.0	± 9.6 %
		Y	8.37	87.06	24.63		65.0	
		Z	6.51	82.18	22.64		65.0	



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10239-CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	7.07	83.95	23.10	6.02	65.0	± 9.6 %
		Y	8.14	85.56	23.54		65.0	
		Z	6.33	80.87	21.62		65.0	
10240-CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	5.38	82.47	24.92	6.02	65.0	± 9.6 %
		Y	5.37	81.73	24.51		65.0	
		Z	4.73	78.56	22.97		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	7.17	79.14	24.28	6.98	65.0	± 9.6 %
		Y	7.29	78.93	24.09		65.0	
		Z	7.06	77.98	23.58		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	6.66	77.62	23.56	6.98	65.0	± 9.6 %
		Y	6.18	75.54	22.58		65.0	
		Z	6.18	75.29	22.35		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	5.52	74.33	22.97	6.98	65.0	± 9.6 %
		Y	5.14	72.24	21.90		65.0	
		Z	5.18	72.09	21.70		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	4.36	70.62	15.44	3.98	65.0	± 9.6 %
		Y	4.59	71.27	15.92		65.0	
		Z	4.21	69.60	15.06		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	4.29	70.16	15.18	3.98	65.0	± 9.6 %
		Y	4.52	70.81	15.66		65.0	
		Z	4.18	69.28	14.87		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	4.01	72.52	16.68	3.98	65.0	± 9.6 %
		Y	3.73	71.39	16.29		65.0	
		Z	3.40	69.47	15.35		65.0	
10247-CAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	4.34	70.86	16.59	3.98	65.0	± 9.6 %
		Y	4.15	70.08	16.32		65.0	
		Z	3.98	68.93	15.68		65.0	
10248-CAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	4.35	70.49	16.41	3.98	65.0	± 9.6 %
		Y	4.19	69.76	16.16		65.0	
		Z	4.04	68.75	15.59		65.0	
10249-CAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	5.03	76.01	19.12	3.98	65.0	± 9.6 %
		Y	4.53	74.20	18.43		65.0	
		Z	4.06	71.82	17.26		65.0	
10250-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	5.34	73.84	19.67	3.98	65.0	± 9.6 %
		Y	5.06	72.69	19.17		65.0	
		Z	4.84	71.36	18.39		65.0	
10251-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	5.18	72.21	18.62	3.98	65.0	± 9.6 %
		Y	4.94	71.17	18.14		65.0	
		Z	4.81	70.28	17.59		65.0	
10252-CAB	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	5.71	77.17	20.66	3.98	65.0	± 9.6 %
		Y	5.16	75.23	19.84		65.0	
		Z	4.74	73.12	18.75		65.0	
10253-CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	5.40	71.87	18.90	3.98	65.0	± 9.6 %
		Y	5.16	70.85	18.40		65.0	
		Z	5.08	70.16	17.94		65.0	
10254-CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	5.72	72.73	19.59	3.98	65.0	± 9.6 %
		Y	5.48	71.72	19.10		65.0	
		Z	5.37	70.91	18.57		65.0	



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10255-CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	5.72	75.21	20.17	3.98	65.0	± 9.6 %
		Y	5.32	73.72	19.49		65.0	
		Z	5.06	72.29	18.68		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	3.34	66.97	12.65	3.98	65.0	± 9.6 %
		Y	3.55	67.68	13.21		65.0	
		Z	3.38	66.73	12.71		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	3.29	66.49	12.32	3.98	65.0	± 9.6 %
		Y	3.49	67.18	12.87		65.0	
		Z	3.36	66.37	12.44		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	3.07	68.48	13.96	3.98	65.0	± 9.6 %
		Y	2.97	68.04	13.90		65.0	
		Z	2.82	66.85	13.31		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	4.73	72.02	17.73	3.98	65.0	± 9.6 %
		Y	4.50	71.08	17.36		65.0	
		Z	4.31	69.85	16.67		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	4.77	71.84	17.65	3.98	65.0	± 9.6 %
		Y	4.56	70.95	17.30		65.0	
		Z	4.38	69.78	16.64		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	5.13	75.91	19.52	3.98	65.0	± 9.6 %
		Y	4.64	74.10	18.79		65.0	
		Z	4.24	71.97	17.71		65.0	
10262-CAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	5.33	73.78	19.62	3.98	65.0	± 9.6 %
		Y	5.05	72.64	19.12		65.0	
		Z	4.83	71.32	18.35		65.0	
10263-CAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	5.17	72.19	18.61	3.98	65.0	± 9.6 %
		Y	4.93	71.15	18.14		65.0	
		Z	4.81	70.26	17.59		65.0	
10264-CAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	5.67	77.01	20.58	3.98	65.0	± 9.6 %
		Y	5.13	75.08	19.76		65.0	
		Z	4.72	73.01	18.69		65.0	
10265-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	5.47	72.25	19.13	3.98	65.0	± 9.6 %
		Y	5.23	71.20	18.60		65.0	
		Z	5.14	70.47	18.11		65.0	
10266-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	5.83	73.20	19.89	3.98	65.0	± 9.6 %
		Y	5.58	72.16	19.38		65.0	
		Z	5.45	71.29	18.82		65.0	
10267-CAB	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	5.93	75.67	20.18	3.98	65.0	± 9.6 %
		Y	5.50	74.16	19.50		65.0	
		Z	5.20	72.64	18.66		65.0	
10268-CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	6.16	72.51	19.69	3.98	65.0	± 9.6 %
		Y	5.94	71.60	19.22		65.0	
		Z	5.86	70.98	18.79		65.0	
10269-CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	6.17	72.20	19.61	3.98	65.0	± 9.6 %
		Y	5.96	71.33	19.15		65.0	
		Z	5.89	70.77	18.75		65.0	
10270-CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	6.07	73.94	19.64	3.98	65.0	± 9.6 %
		Y	5.77	72.85	19.12		65.0	
		Z	5.58	71.81	18.48		65.0	



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10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.51	65.84	14.58	0.00	150.0	± 9.6 %
		Y	2.52	65.60	14.47		150.0	
		Z	2.44	64.63	13.68		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.48	65.87	14.27	0.00	150.0	± 9.6 %
		Y	1.47	65.43	14.03		150.0	
		Z	1.39	63.67	12.69		150.0	
10277-CAA	PHS (QPSK)	X	2.32	61.85	7.43	9.03	50.0	± 9.6 %
		Y	2.39	62.00	7.67		50.0	
		Z	2.59	62.64	8.34		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	4.01	69.23	13.78	9.03	50.0	± 9.6 %
		Y	4.05	69.29	13.97		50.0	
		Z	4.11	69.29	14.23		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	4.10	69.46	13.94	9.03	50.0	± 9.6 %
		Y	4.14	69.51	14.11		50.0	
		Z	4.20	69.48	14.36		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	1.14	65.37	11.96	0.00	150.0	± 9.6 %
		Y	1.16	65.27	12.04		150.0	
		Z	1.04	63.04	10.62		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	0.72	63.34	10.83	0.00	150.0	± 9.6 %
		Y	0.74	63.23	10.92		150.0	
		Z	0.70	61.43	9.60		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	0.81	65.45	12.33	0.00	150.0	± 9.6 %
		Y	0.81	65.06	12.27		150.0	
		Z	0.72	62.22	10.36		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	1.01	68.43	14.20	0.00	150.0	± 9.6 %
		Y	0.98	67.59	13.94		150.0	
		Z	0.79	63.25	11.26		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	8.27	81.58	21.80	9.03	50.0	± 9.6 %
		Y	7.31	79.27	20.97		50.0	
		Z	6.65	77.32	20.30		50.0	
10297-AAA	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.52	67.96	15.65	0.00	150.0	± 9.6 %
		Y	2.51	67.62	15.46		150.0	
		Z	2.36	66.02	14.32		150.0	
10298-AAB	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	1.31	65.03	12.32	0.00	150.0	± 9.6 %
		Y	1.34	64.95	12.39		150.0	
		Z	1.24	63.11	11.14		150.0	
10299-AAB	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	1.94	65.97	11.96	0.00	150.0	± 9.6 %
		Y	2.37	67.93	13.07		150.0	
		Z	2.01	65.39	11.59		150.0	
10300-AAB	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	1.58	63.06	9.76	0.00	150.0	± 9.6 %
		Y	1.84	64.23	10.55		150.0	
		Z	1.73	63.17	9.82		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	4.65	65.37	17.24	4.17	50.0	± 9.6 %
		Y	4.53	64.58	16.80		50.0	
		Z	4.58	64.53	16.64		50.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	5.08	65.78	17.86	4.96	50.0	± 9.6 %
		Y	5.05	65.38	17.62		50.0	
		Z	5.09	65.33	17.48		50.0	



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10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	4.83	65.41	17.67	4.96	50.0	± 9.6 %
		Y	4.81	65.01	17.43		50.0	
		Z	4.85	64.96	17.29		50.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	4.64	65.25	17.14	4.17	50.0	± 9.6 %
		Y	4.61	64.89	16.93		50.0	
		Z	4.63	64.72	16.71		50.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	4.31	67.17	19.07	6.02	35.0	± 9.6 %
		Y	4.26	66.48	18.68		35.0	
		Z	4.34	66.61	18.67		35.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	4.62	66.23	18.75	6.02	35.0	± 9.6 %
		Y	4.59	65.71	18.43		35.0	
		Z	4.66	65.81	18.40		35.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	4.51	66.33	18.69	6.02	35.0	± 9.6 %
		Y	4.48	65.81	18.37		35.0	
		Z	4.55	65.90	18.34		35.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	4.49	66.54	18.83	6.02	35.0	± 9.6 %
		Y	4.45	65.98	18.49		35.0	
		Z	4.53	66.08	18.46		35.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	4.65	66.37	18.87	6.02	35.0	± 9.6 %
		Y	4.62	65.85	18.54		35.0	
		Z	4.70	65.95	18.52		35.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	4.57	66.29	18.73	6.02	35.0	± 9.6 %
		Y	4.54	65.76	18.41		35.0	
		Z	4.61	65.86	18.38		35.0	
10311-AAA	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	2.87	67.40	15.40	0.00	150.0	± 9.6 %
		Y	2.85	67.08	15.21		150.0	
		Z	2.67	65.55	14.15		150.0	
10313-AAA	iDEN 1:3	X	3.13	71.14	15.52	6.99	70.0	± 9.6 %
		Y	2.78	69.65	14.97		70.0	
		Z	2.53	67.94	14.30		70.0	
10314-AAA	iDEN 1:6	X	3.80	75.24	20.00	10.00	30.0	± 9.6 %
		Y	3.42	73.31	19.25		30.0	
		Z	2.87	69.72	17.77		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.10	62.64	14.06	0.17	150.0	± 9.6 %
		Y	1.10	62.30	13.81		150.0	
		Z	1.09	61.30	12.66		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.50	66.39	15.94	0.17	150.0	± 9.6 %
		Y	4.52	66.28	15.86		150.0	
		Z	4.49	65.92	15.47		150.0	
10317-AAB	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.50	66.39	15.94	0.17	150.0	± 9.6 %
		Y	4.52	66.28	15.86		150.0	
		Z	4.49	65.92	15.47		150.0	
10400-AAC	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.60	66.74	15.99	0.00	150.0	± 9.6 %
		Y	4.62	66.64	15.92		150.0	
		Z	4.59	66.25	15.52		150.0	
10401-AAC	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.29	66.86	16.15	0.00	150.0	± 9.6 %
		Y	5.33	66.84	16.12		150.0	
		Z	5.30	66.53	15.78		150.0	