

FCC SAR TEST REPORT

APPLICANT TCL Communication Ltd.

Car Wifi Hotspot PRODUCT NAME

Y856UB MODEL NAME

ALCATEL ONETOUCH TRADE NAME

BRAND NAME ALCATEL ONETOUCH

FCC ID 2ACCJB028

47CFR 2.1093 STANDARD(S) IEEE 1528-2013

ISSUE DATE

LICATIONS TECHNOLOGY Co., Ltd. SHENZHEN MORLAB COMMUN

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		Change History	
Issue	Date	Reason for change	
1.0	2015-11-10	First edition	UC ST.
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TEST REPORT DECLARATION

Applicant	TCL Communication Ltd.		
Applicant Address	5F, C-Tower, No.232, Liangjing Road, Zhangjiang High-tech Park, Pudong, Shanghai, China		
Manufacturer	TCL Mobile Communication Co. Ltd. Huizhou		
Manufacturer Address	70 Huifeng 4rd., ZhongKai High-Technology Development District, Huizhou, Guangdong, PRC. 516006		
Product Name	Car Wifi Hotspot		
Model Name	Y856UB		
Brand Name	ALCATEL ONETOUCH		
HW Version	03		
SW Version	Y856_00_03.28_07		
Test Standards	47CFR 2.1093; IEEE 1528-2013		
Test Date	2015-10-16 to 2015-10-17		
The Highest Reported	Body	1.349W/Kg	Limit/\\//ka\: 1.6\\//ka
1g-SAR(W/kg)	Simultaneous	1.483W/Kg	Limit(W/kg): 1.6W/kg

Tested by :	LIU JUN	G.
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Reviewed by :	Thu Than	100
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Approved by :	Zerg Dexin	of ACP
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1.TECHNICAL INFORMATION

Note: the Following data is based on the information by the applicant.

1.1 Identification of Applicant

Company Name:	TCL Communication Ltd.
Address:	5F, C-Tower, No.232, Liangjing Road, Zhangjiang High-tech Park,
B ORLA MOR	Pudong,Shanghai,China

1.2 Identification of Manufacturer

Company Name:	TCL Mobile Communication Co. Ltd. Huizhou
Address:	70 Huifeng 4rd., ZhongKai High-Technology Development District,
B THE SLAB LORLE	Huizhou, Guangdong, PRC. 516006

1.3 Equipment Under Test (EUT)

Model Name:	Y856UB
Trade Name:	ALCATEL ONETOUCH
Brand Name:	ALCATEL ONETOUCH
Hardware Version:	03
Software Version:	Y856_00_03.28_07
Tx Frequency Bands:	CDMA BC0: 824-849MHz; CDMA BC1: 1850-1910MHz; CDMA BC10:817.25-819.75MHz;817.9-819.75MHz; FDD-LTE Band 25: 1850-1915MHz;FDD-LTE Band 26: 824-849 MHz; TDD-LTE Band 41: 2496-2690MHz; WiFi 802.11b/g/n20/n40; WiFi 802.11n MIMO 2x2
Uplink Modulations:	CDMA:CDMA LTE:QPSK/16QAM; WIFI 802.11b: DSSS; WIFI 802.11g: OFDM; WIFI 802.11n20:OFDM; WIFI 802.11n40:OFDM;
DTM:	Not support
Antenna type:	Fixed Internal Antenna
Development Stage:	Identical prototype

1.3.1 Photographs of the EUT

Please refer to the External Photos for the Photos of the EUT





1.3.2 Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the Following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	03	Y856_00_03.28_07

1.4 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title		
AB1	47 CFR§2.1093	Radiofrequency Radiation Exposure Evaluation: Portable		
2 1	IEEE 1528-2013	Devices IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human		
	LAU AE HORE DELAE ME	Head from Wireless Communications Devices: Measurement Techniques		
3	KDB 447498 D01v05r02	General RF Exposure Guidance		
4	KDB 248227 D01v02	SAR Measurement Procedures for 802.11 a/b/g Transmitters		
5	KDB 941225 D01v03	SAR Measurement Procedures for 3G Devices		
6	KDB 941225 D02v02r02	HSPA and 1x Advanced		
7	KDB 941225 D03v01	SAR Test Reduction GSM GPRS EDGE		
8	KDB 941225 D04v01	SAR for GSM E GPRS Dual Xfer Mode		
9 🧬	KDB941225 D05v02r03	SAR for LTE Devices		
10	KDB941225 D06v01r01	Hotspot Mode SAR		
11	KDB 865664 D01v01r04	SAR Measurement 100 MHz to 6 GHz		
12	KDB 865664 D02v01r01	SAR Reporting		



1.5 Device Category and SAR Limits <u>Uncontrolled Environment</u>

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

Note: This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.



2. SPECIFIC ABSORPTION RATE (SAR)

2.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are Middle than the limits for general population/uncontrolled.

2.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density. (ρ). The equation description is as below:

$$SAR = \frac{d}{dt} \Big(\frac{dW}{dm} \Big) = \frac{d}{dt} \Big(\frac{dW}{\rho dv} \Big)$$

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by,

$$SAR = C\left(\frac{\delta T}{\delta t}\right)$$

Where C is the specific head capacity, δT is the temperature rise and δt the exposure duration, or related to the electrical field in the tissue by

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where σ is the conductivity of the tissue, ρ is the mass density of the tissue and |E| is the rms electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.



3. SAR MEASUREMENT SETUP

3.1 The Measurement System

Comosar is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The Comosar system consists of the Following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The Following figure shows the system.



The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The OpenSAR software computes the results to give a SAR value in a 1g or 10g mass.

3.2 Probe

For the measurements the Specific Dosimetric E-Field Probe SN 37/08 EP80 with Following specifications is used

- Dynamic range: 0.01-100 W/kg

- Tip Diameter: 6.5 mm





- Distance between probe tip and sensor center: 2.5mm

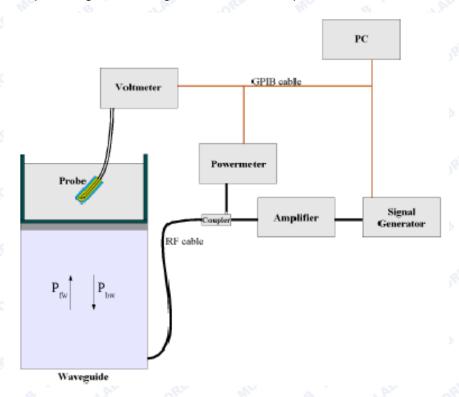
 Distance between sensor center and the inner phantom surface: 4 mm (repeatability better than +/- 1mm)

Probe linearity: <0.25 dB
Axial Isotropy: <0.25 dB
Spherical Isotropy: <0.25 dB

- Calibration range: 835to 2500MHz for head & body simulating liquid.

Angle between probe axis (evaluation axis) and surface normal line: less than 30°

Probe calibration is realized, in compliance with CENELEC EN 62209 and IEEE 1528 std, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the EN 622091 annex technique using reference guide at the five frequencies.



$$SAR = \frac{4\left(P_{fw} - P_{bw}\right)}{ab\delta} \cos^2\left(\pi \frac{y}{a}\right) e^{-(2z/\delta)}$$

Where:

Pfw = Forward Power Pbw = Backward Power

a and b = Waveguide dimensions

Skin depth



Keithley configuration:

Rate = Medium; Filter =ON; RDGS=10; FILTER TYPE =MOVING AVERAGE; RANGE AUTO After each calibration, a SAR measurement is performed on a validation dipole and compared with a NPL calibrated probe, to verify it.

The calibration factors, CF(N), for the 3 sensors corresponding to dipole 1, dipole 2 and dipole 3 are:

$$CF(N)=SAR(N)/Vlin(N)$$

(N=1,2,3)

The linearised output voltage Vlin(N) is obtained from the displayed output voltage V(N) using

$$Vlin(N)=V(N)*(1+V(N)/DCP(N))$$

(N=1,2,3)

Where DCP is the diode compression point in mV.

3.3 Probe Calibration Process

3.3.1 Dosimetric Assessment Procedure

Each E-Probe/Probe Amplifier combination has unique calibration parameters. SATIMO Probe calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm²) using an with CALISAR, Antenna proprietary calibration system.

3.3.2 Free Space Assessment Procedure

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1 mW/cm².

3.3.3 Temperature Assessment Procedure

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulating head tissue. The E-field in the medium correlates with the temperature rise in the dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

Where:

 $\delta t = \text{exposure time (30 seconds)},$





$$SAR = C\left(\frac{\delta T}{\delta t}\right)$$

C = heat capacity of tissue (brain or muscle),

 δT = temperature increase due to RF exposure.

SAR is proportional to $\Delta T/\Delta t$, the initial rate of tissue heating, before thermal diffusion takes place. The electric field in the simulated tissue can be used to estimate SAR by equating the thermally derived SAR to that with the E- field component.

Where:

$$SAR = \frac{\sigma |E|^2}{\rho}$$

 σ = simulated tissue conductivity,

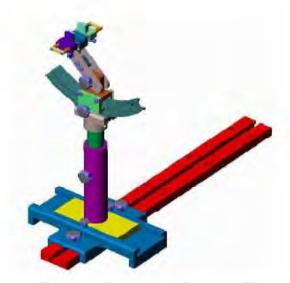
 ρ = Tissue density (1.25 g/cm³ for brain tissue)

3.4 Phantom

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The phantom is a polyurethane shell integrated in a wooden table. The thickness of the phantom amounts to 2mm +/- 0.2mm. It enables the dosimetric evaluation of left and right phone usage and includes an additional flat phantom part for the simplified performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.

3.5 Device Holder

The positioning system allows obtaining cheek and tilting position with a very good accuracy. In compliance with CENELEC, the tilt angle uncertainty is Middle than 1°.



Device holder

System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005



4. TISSUE SIMULATING LIQUIDS

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in below table.

The following table gives the recipes for tissue simulating liquids

Frequency Band (MHz)	750	83	35	1750	19	00	2450	2600
Tissue Type	Body	Head	Body	Body	Head	Body	Body	Body
Ingredients (% by we	ight)	LAB	OPLA	MOR	S W	LAB	ORLA	W _C
Deionised Water	50.00	50.36	50.20	68.80	54.90	40.40	73.20	68.1
Salt(NaCl)	0.80	1.25	0.90	0.20	0.18	0.50	0.10	0.10
Sugar	48.80	0.00	48.50	0.00	0.00	58.00	0.00	0.00
Tween 20	0.00	48.39	0.00	0.00	0.00	0.00	0.00	0.00
HEC	0.20	0.00	0.20	0.00	0.00	1.00	0.00	0.00
Bactericide	0.20	0.00	0.20	0.00	0.00	0.10	0.00	0.00
Triton X-100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DGBE	0.00	0.00	0.00	31.00	44.92	0.00	26.70	31.8
Diethylenglycol monohexylether	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Target dielectric para	meters	OR	INC	A.B	RLAR	MORE	Mo	aB.
Dielectric Constant	55.50	41.50	56.10	53.40	39.90	53.30	52.70	52.5
Conductivity (S/m)	0.96	0.90	0.95	1.49	1.42	1.52	1.95	2.16

Note: Please refer to the validation results for dielectric parameters of each frequency band.

The dielectric properties of the tissue simulating liquids were verified prior to the SAR evaluation using an Agilent 85033E Dielectric Probe Kit and an Agilent Network Analyzer.



Table 1: Dielectric Performance of Tissue Simulating Liquid

Temperature	e: 22.0~23.8°C	C, humidity: 54~60%.				
Date	Freq.(MHz	Liquid Parameters	Meas.	Target	Delta(%)	Limit±(%)
2015/11/04	Dody 925	Relative Permittivity(cr):	55.69	56.10	-0.73	5
2015/11/04	Body 835	Conductivity(σ):	0.97	0.95	2.11	9 5
2015/11/04	Pady 1000	Relative Permittivity(cr):	53.10	53.3	-0.38	5
2015/11/04	Body 1900	Conductivity(σ):	1.53	1.52	0.66	5
2015/11/05	Dady 0450	Relative Permittivity(cr):	52.52	52.70	-0.34	5
2015/11/05	Body 2450	Conductivity(σ):	1.94	1.95	-0.51	5
2045/44/05	Dody 2000	Relative Permittivity(cr):	52.45	52.50	-0.10	5
2015/11/05	Body 2600	Conductivity(σ):	2.10	2.16	-2.78	5



5. UNCERTAINTY ASSESSMENT

The Following table includes the uncertainty table of the IEEE 1528. The values are determined by Antennessa.

5.1 UNCERTAINTY EVALUATION FOR EUT SAR TEST

							3/3		
a not morting in the morting	b	C	d	e= f(d,k)	MORLAR	g	h= c*f/e	i= c*g/ e	k
Uncertainty Component	Sec.	Tol (+- %)	Prob Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+- %)	Vi
Measurement System	AR	ORLAN	1110	. 6	4110	LAB	ORLAN	70)	Oak
Probe calibration	E.2.1	4.76	N	1.0RL	1 1	1	4.76	4.7	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	0.7	0.7	1.01	1.0	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	0.7	0.7	1.62	1.6	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1.0	0.58	0.5	∞
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1 🐠	1	2.89	2.8	∞
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1.00	0.58	0.5	∞
Readout Electronics	E.2.6	0.02	N	1 110	1 🚜	1	0.02	0.0	∞
Reponse Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.7	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.1	∞
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	10	1 ala	1.73	1.7	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1"	1.15	1.1 5	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	11 0	1 _{RLAB}	0.03	0.0	8
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	E.5.2	5.0	R	$\sqrt{3}$	AB W	1 HORLAE	2.89	2.8	8
Test sample Related	AL	MORE	41/6	, AB		RLAL .	MORIL	NI NI	9
Test sample positioning	E.4.2.	0.03	N	1 _{north}	1 ME	1 NORLAR	0.03	0.0	N- 1
Device Holder Uncertainty	E.4.1.	5.00	N	1 110	1 💸	1	5.00	5.0	N-



		. 40		100	~20		70,		
2LAB CORL	1	VB In.	al.P	300	Line	More	" B W.	0	1
Output power Power drift -	6.6.2	4.04	R	$\sqrt{3}$	1 , 1	1	2.33	2.3	∞
SAR drift measurement	"B W	CLAP		RLA	Mole	B W	LAB	3	ORL
Phantom and Tissue Para	meters	MOL	.0	LAB	.(RLA	MOL	0 1	
Phantom Uncertainty	E.3.1	0.05	R	$\sqrt{3}$	1,	1 1 N	OF	0.0	∞
(Shape and thickness tolerances)	NOTE OF	AB M	MORLA	3 MOF	L.A. A	Mole	0.03	3	8
Liquid conductivity -	E.3.2	4.57	R	$\sqrt{3}$	0.64	0.43	1.69	1.1	∞
deviation from target value	AL	MORIE	2 11	AB	,	QLAP.	MORL	3	
Liquid conductivity -	E.3.3	5.00	N	1,108	0.64	0.43	3.20	2.1	М
measurement uncertainty	MORT	Mo	. 0	3	LAR	MORL	MO.	5	8
Liquid permittivity -	E.3.2	3.69	R	$\sqrt{3}$	0.6	0.49	1.28	1.0	8
deviation from target value	Mo	A.B		QLAB	MORL	Mc	O.B	4	الله
Liquid permittivity -	E.3.3	10.0	N 🐠	1 6	0.6	0.49	6.00	4.9	М
measurement uncertainty	o.B	0	LAB	MORL	4110			0	- 0
Combined Standard	ORL	Mo	RSS	9	LAB	JORL	11.55	10.	3
Uncertainty		AB	NORLE	MO	~	9	aLAE	67	
Expanded Uncertainty	Mo.	.0	K=2	alaB	*OBI	Mc	23.11	21.	210
(95% Confidence interval)	AB	ORLA	17/	000	Di.	LAB	ORLA	33 🕔	Ole

5.2 UNCERTAINTY FOR SYSTEM PERFORMANCE CHECK

a	b word	C	d	e= f(d,k)	f RLA	g	h= c*f/e	i= c*g/	k
AE MIC SLAE SOR	ALL	ORL	~B III.	LAB	.0	2LAP	MOKE	е	
Uncertainty Component	Sec.	Tol	Prob	Div.	Ci	Ci	1g Ui	10g	Vi
	NOF	(+-	· ALA	, o ⁸	(1g)	(10g)	(+-%)	Ui	8
	OPI	%)	Dist.	B	AF	.0	RLA	(+-	
	S W	LAB		RLA	MORE	BHIL	LAB	%)	PLA
Measurement System	Like	Moles	· · · · · · · · · · · · · · · · · · ·	LAB	.0	RLA	MORE	S W	
Probe calibration	E.2.1	4.76	N	1,000	1	1 100	4.76	4.7	8
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	0.7	0.7	1.01	1.0	8
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	0.7	0.7	1.62	1.6	8
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1.8	0.58	0.5	8
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1 🐠	1 🕓	2.89	2.8	8
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	108	0.58	0.5	∞
Readout Electronics	E.2.6	0.02	N	1,5	1 ALAS	1	0.02	0.0	8



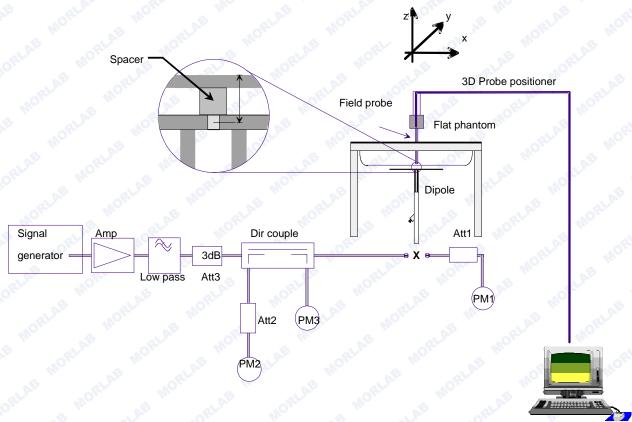
Reponse Time	E.2.7	3.0	R	$\sqrt{3}$	1	1,10	1.73	1.7	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1 21.0	1	1.15	1.1	∞
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1,0	1.73	1.7	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1 👊	1	1.15	1.1	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1/110	0.03	0.0	8
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	E.5.2	5.0	R	$\sqrt{3}$	LAE IN	ALAS MORLAS	2.89	2.8	8
Dipole	OR	Library	Mole	S III		3	RLA	MOL	
Dipole axis to liquid Distance	8,E.4. 2	1.00	N	$\sqrt{3}$	1	1 PLAE	0.58	0.5 8	∞
Input power and SAR drift measurement	8,6.6. 2	4.04	R	$\sqrt{3}$	1 M	1 MORLA	2.33	2.3	∞
Phantom and Tissue Para	meters	All	NORT	luc.	6	3	RLA.	MORIL	
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	110 P. H.	1 M	0.03	0.0	8
Liquid conductivity - deviation from target value	E.3.2	4.57	R	$\sqrt{3}$	0.64	0.43	1.69	1.1	∞
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	$\sqrt{3}$	0.64	0.43	1.85	1.2	М
Liquid permittivity - deviation from target value	E.3.2	3.69	R	$\sqrt{3}$	0.6	0.49	1.28	1.0	8
Liquid permittivity - measurement uncertainty	E.3.3	10.0	N	$\sqrt{3}$	0.6	0.49	3.46	2.8	М
Combined Standard Uncertainty	, D	MORLA	RSS	RLAB	in.	RLAE	8.83	8.3	OF
Expanded Uncertainty (95% Confidence interval)	OPLA	AE HO	K=2	, m ^o	LAB	MORLA	17.66	16. 73	3 11



6. SAR MEASUREMENT EVALUATION

6.1 System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave which comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The system check verifies that the system operates within its specifications. It is performed daily or before every SAR measurement. The system check uses normal SAR measurements in the flat section of the phantom with a matched dipole at a specified distance. The system verification setup is shown as below



The validation dipole is placed beneath the flat phantom with the specific spacer in place. The distance spacer is touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The power meter PM1 measures the forward power at the location of the system check dipole connector. The signal generator is adjusted for the desired forward power (250 mW is used for 700 MHz to 3 GHz,100 mW is used for 3.5 GHz to



6 GHz) at the dipole connector and the power meter PM2 is read at that level. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter PM2.

6.2 Validation Results

After system check testing, the SAR result will be normalized to 1W forward input power and compared with the reference SAR value derived from validation dipole certificate report. The deviation of system check should be within 10 %.

Frequency	835MHz(B)	1900MHz(B)	2450MHz(B)	2600MHz(B)
Target value 1W (1g)	10.04 W/Kg	42.36W/Kg	56.13 W/Kg	57.73 W/Kg
Test value 1g (100 mW input power)	0.992 W/Kg (11.04)	4.348 W/Kg (11.04)	5.443 W/Kg (11.05)	5.487 W/Kg (11.05)
Normalized to 1W value(1g)	9.92 W/Kg	43.48 W/Kg	54.43 W/Kg	54.87 W/Kg

Note: System checks the specific test data please see Annex D



7. OPERATIONAL CONDITIONS DURING TEST

7.1 Body-worn Configurations

The body-worn configurations shall be tested with the supplied accessories (belt-clips, holsters, etc.) attached to the device in normal use configuration.

For body-worn and other configurations a flat phantom shall be used which is comprised of material with electrical properties similar to the corresponding tissues.

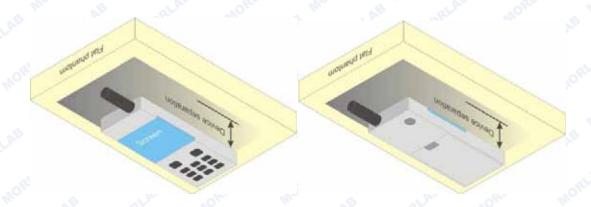


Illustration for Body Worn Position

7.2 Measurement procedure

The Following steps are used for each test position

- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface.
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- 3. Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to 16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
- 4. Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8 * 4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.



7.3 Description of interpolation/extrapolation scheme

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimize measurements errors, but the highest local SAR will occur at the surface of the phantom.

An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1mm step.

The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10 grams and 1 gram requires a very fine resolution in the three dimensional scanned data array.

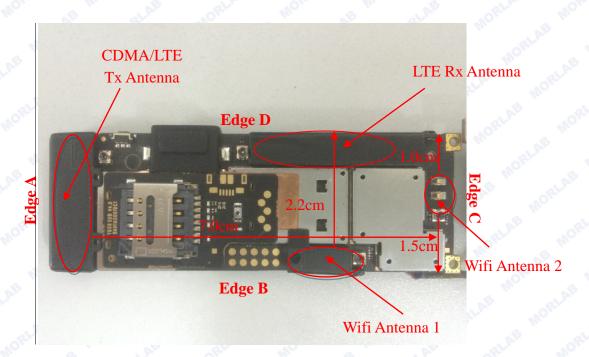


8. HOTSPOT MODE EVALUATION PROCEDURE

The SAR evaluation procedures for Portable Devices with Wireless Router function is according to KDB 941225 D06 Hot Spot SAR v01r01.

SAR must be tested for all surfaces and edges (side) with a transmitting antenna with in 2.5 cm from that surface or edge, at a test separation distance of 10 mm, in the wireless mode that support wireless routing.

Edge configurations:



Assessment	"ORL H	otspot sid	le for SAR	AB	Wo.	20
				VB III.	Test distance	: 15mm
Antennas	Back	Front	Edge A	Edge B	Edge C	Edge D
CDMA/LTE	Yes	Yes	Yes	Yes	No	Yes
WLAN(ANT 1)	Yes	Yes	No	Yes	No	Yes
WLAN(ANT 2)	Yes	Yes	No	Yes	No	Yes



9. Information Related to LTE Test parameter(Per 941225 D05v02r03)

	3 ORLE MOR	Band 25	A.B	RLA	"IOLE"	S VIII	, AB	ORLA.		
	Identify the operating	Tx:1850-	1910 MHz	Rx:1930-	1995 MHz	ar moi				
	frequency range of each LTE	Band 26 Tx: 814 - 849MHz Rx: 859 - 894MHz Band 41								
	transmission FCC band used									
	by the device									
	A TOPLAS	Tx:2496-	2690 MHz	Rx: 2496	-2690 MH	z Mo				
ORE	AB GLAS	Davidos	HILO	S C	hannel Ba	ndwidth	21.	No.		
	ELAS MOEL MO.	Band25	20Mhz	15MHz	10MHz	5MHz	3MHz	1.4MHz		
	AB " ELAB MOR	1	20050/	20025/	20000/	19975/	19965/	19957/		
<i>P</i>	MORLY MO. OF W.	Low	1720	1717.5	1715	1712.5	1711.5	1710.7		
2	3 M TLAS MORLA	VIIO.	20175/	20175/	20175/	20175/	20175/	20175/		
	MOR SE M. STUE	Middle	1732.5	1732.5	1732.5	1732.5	1732.5	1732.5		
	Identify the high, middle and	.6	20300/	20325/	20350/	20375/	20384/	20392/		
	low (L, M, H) channel	High	1745	1747.5	1750	1752.5	1753.5	1754.2		
3	numbers and frequencies	- CLAB	Channel Bandwidth							
	tested in each LTE frequency band	Band26	20Mhz	15MHz	10MHz	5MHz	3MHz	1.4MHz		
	Darid	Low	20850/2	20825/	20800/	20775/	,	0.		
	arue Mostre Mo.		510	2507.2	2505	2502.5	ALAE	ORL		
	DE NO SLAE HOR	- 4	21100/2	21100/	21100/	21100/2	MON	, S		
	TORLE MOTO AE M	Middle	535	2535	2535	535	ORI	1		
	TLAE TOPLE	Mo	21350/2	21375/	21400/	21425/	70 ·	al AB		
	HOT RE IN TLAS	High	560	2562.5	2565	2567.5	/	/		
	Specify the UE category and	The UE	Category is	s 4 and the	uplink me	odulations	used are	QPSK and		
3 111	uplink modulations used	16QAM.								
>	-7.7 OV W			OV	100	.0				
	Descriptions of the LTE	2LAB								
	Descriptions of the LTE transmitter and antenna	MORLAL								
	M S A	MORLAD								
	transmitter and antenna	MORLAD								
	transmitter and antenna implementation & identify whether it is a standalone	MORLAL MORL	E HORL	HORLAR	MORLAE MORLA	E HORLAN	LAE MOR	HORLAE M		
RLA	transmitter and antenna implementation & identify whether it is a standalone transmitter operating		lule has a	primary ar	ntenna for	all LTE&U	MTS band	ds, a Wi-F		
RLA	transmitter and antenna implementation & identify whether it is a standalone transmitter operating independently of other	The mod		primary ar	ntenna for	all LTE&U	MTS band	ds, a Wi-F		
RLAY	transmitter and antenna implementation & identify whether it is a standalone transmitter operating independently of other wireless transmitters in the			primary ar	ntenna for	all LTE&U	MTS band	ds, a Wi-F		
RLA	transmitter and antenna implementation & identify whether it is a standalone transmitter operating independently of other wireless transmitters in the device or sharing hardware			primary ar	ntenna for	all LTE&U	MTS band	ds, a Wi-F		
PLAY	transmitter and antenna implementation & identify whether it is a standalone transmitter operating independently of other wireless transmitters in the device or sharing hardware components and/or			primary ar	ntenna for	all LTE&U	MTS band	ds, a Wi-F		
A MIC	transmitter and antenna implementation & identify whether it is a standalone transmitter operating independently of other wireless transmitters in the device or sharing hardware			primary ar	ntenna for	all LTE&U	MTS band	ds, a Wi-F		



CB III	Voice/data requirements in	report.	ZLAB	٥٠	RLA	More	"B W	CLAP	, 0
	each operating mode and	NORLIN M							"B VILL
aLA	exposure condition with	M. SLAE							RLA
VOL	respect to head and body test	MOIN							LAB
.0	configurations, antenna	AB							MORE
3 411	locations, handset flip-cover	S WILL							
A	or slide positions, antenna	ORLAN							T MIC
. 6	diversity conditions, etc.	MIC AB	اع	AL	MORT	MIC	of the same		21.46
ORL	Identify if Maximum Power	MORIL							AB
	Reduction (MPR) is optional	A 00DD	TO 00	40444		040.00\			MORL
2 1111	or mandatory, i.e. built-in by	As per 3GPP			2	70,	(MADD) (. 01
All	design:	Table 6.2.3-1	: waxir	num P	ower R	eauction	(MPK) I	or Powe	r Class
. 6	only mandatory MPR may be	3	اه	Ab	MORL	W _O			aLAB
ORL	considered during SAR	MORL	Chan	nel 🔝	bandwi	dth /	Transı	mission	A.B
	testing, when the maximum	Modulation	band	width (N _{RB})	· ·		LAB	MPR
6	output power is permanently	Wood did not	1.4	3.0	5	10	15	20	(dB)
Alle	limited by the MPR	al Alb	MHz	MHz	MHz	MHz	MHz	MHz	W _O
6	implemented within the UE;	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤1
ORL	and only for the applicable	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
	RB (resource block)	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
PILC	configurations specified in	MOIN							lu.
AB	LTE standards	A-MPR is sup	ported	by des	ign, but	disable fo	or SAR te	esting.	MOL
~	b) A-MPR (additional MPR)	MOL IN							LAB
109L/h	must be disabled.	10RLA	140 Fr.	.0	III.	ALD B	ORLA	HO!	. 0
	Include the maximum	E ME							ORLAN
MC	average conducted output	MORE							M
AB.	power measured on the	AB							MOE
	required test channels for	MORT IN							AB
RLA	each channel bandwidth and	ORLAL							211
	UL modulation used in each	NIO. D							RLAB
7 🦽	frequency band:	This is include	ed in th	e sectio	on 11 of	this repor	t. "oʻ		Mo.
,B	a) with 1 RB allocated at the	08							, nOF
	low, centred, high end of a	MORL. MI							OB III
QLA!	channel	RLAG							A.L.
10.	b) using 50% RB allocation	Mor							QLAE
	low, centered, high end within	AB OPLIA							Morri
B	a channel	'B W							· OF
	c) using 100% RB allocation	al Property	Jan.	M		3	LA	*OF	M



AB III	Include the maximum average conducted output	MORLAE MORLAE DE MORLAE MORLAE MORLAE MORLAE DE M
8	power measured for the other wireless mode and frequency bands	This is included in the section 13 of this report.
AB III	Identify the simultaneous transmission conditions for	
NORLA	the voice and data configurations supported by	
10	all wireless modes, device configurations and frequency	
ORLA	bands, for the head and body exposure conditions and device operating	
VE 446	configurations (handset flip or cover positions, antenna diversity conditions etc.)	
ORLA	When power reduction is applied to certain wireless	HOPLAS HOPLAS HOPLAS HOPLAS HOPLAS HOPLAS
AB M	modes to satisfy SAR compliance for simultaneous transmission conditions, other	
ORLA	equipment certification or operating requirements,	
AE MC	include the maximum average conducted output power measured in each	THE MORLE HOLD WORLD IN MORLE HORLE HOLD WOLLD
11	power reduction mode applicable to the	Not applicable.
lor	simultaneous voice/data	
AE ME	transmission configurations for such wireless	
ORLA	configurations and frequency bands; and also include details of the power reduction	
BHIC	implementation and measurement setup	



10. SAR EVALUATION PROCEDURES&POWER MEASUREMENT FOR LTE

"1. QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and *required test channel* combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each *required test channel*. When the *reported* SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and *required test channels* is not required for 1 RB allocation; otherwise, SAR is required for the remaining *required test channels* and only for the RB offset configuration with the highest output power for that channel.6 When the *reported* SAR of a *required test channel* is > 1.45 W/kg, SAR is required for all three RB offset configurations for that *required test channel*.

2. QPSK with 50% RB allocation

The procedures required for 1 RB allocation in 1. are applied to measure the SAR for QPSK with 50% RB allocation.

3. QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output

power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB

allocations and the highest *reported* SAR for 1 RB and 50% RB allocation in 1. and 2. are ≤ 0.8

W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR

is > 1.45 W/kg, the remaining required test channels must also be tested.

Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in sections 1. and 2.and 3. to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> \frac{1}{2}$ dB higher than the same configuration in QPSK or when the *reported* SAR for the QPSK configuration is > 1.45 W/kg.

4. Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section 5.2 to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is $> \frac{1}{2}$ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.



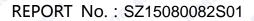
The equivalent channel configuration for the RB allocation, RB offset and modulation etc. Is determined for the smaller channel bandwidth according to the same number of RB allocated in The largest channel bandwidth. For example, 50 RB in 10 MHz channel bandwidth does not apply to 5MHz channel bandwidth; therefore, this cannot be tested in the smaller channel bandwidth. However, 50% RB allocation in 10 MHz channel bandwidth is equivalent to 100% RB allocation in 5 MHz channel bandwidth; therefore, these are the equivalent configurations to be compared to determine the specific channel and configuration in the smaller channel bandwidth that need SAR testing."





LTE BAND 25

Band Width	Channel	Freq.(MHZ)	Modulation	RB Con	Average Power	
		,		RB Size	RB Offset	(dBm)
AB .	21.10	W.	AB	all 1	0	21.03
AE MC	-0	LAB	ORL	1 0	49	23 16
	RLA	"IOK"	ODCK	1	99	23 50
ORL	ORL' MO'	LAB	QPSK	50	0	22 12
III AF	Lalia	Moles	No. Of	50	25	22 31
ORL	Mor	-6	VP OBL.	50	49	22 60
W	AB .	1860	III.	100	0	22 54
LAB	31. 110	.0	al Alb	AL 1 W	0	20 10
ie. Ule	26140	RLA	Oke. W.	1	49	22 35
LAB	20140	Mo.	40.0444	1	99	22 94
MORE	Mr. O.F	RLA	16-QAM	50	0 🐠	20.86
LAP	ORL	MO.	e " LA	50	25	21 20
MORE	M	NB QL	Moke	50	4 9	21 16
.0	LAB	Er. Mo.	0.	100	0	21 49
21.4.	la.	O.B	QLA MC	1 - 1	0	23 59
. 6	LAB	ORL	QPSK	1	49	23.46
RLA	MORE	ME		011	99	23.46
MO.	LAF	ORL		50	0	22 39
M	M	Miles		50	25	22 52
MO	. 6	1882.5		50	49	22 57
20MHz	al Ar		A B	100	0	22 62
NO.	. 6	LAB	OFFLIE	1 4	0	22 74
A.B	26365	MORE LAE N		1	49	22 79
ORL	20000			1	99	22 53
ME	QL.A.	MORE	16-QAM	50	0	21 52
ORLAN	Mor	. 6	E ORLIN	50	25	21 38
MILE	O.B	LAL	MORE	5 0	49	21 77
LAB	ir. Mo	0	AB	100	0	21.60
MIC	o B	QL.A.	Ole W	1.0	0	23.02
LAB	ORLA	MO. B	LAB	1	49	23.45
WOE.	ME AF	RLA	ODCK	1	99	21 37
LAB	ORL	WO.	QPSK	50	0	22.43
MORE	Н	all al	MORE	50	25	22 13
.0	LAB	IIIO I	- G	50	49	22 33
LA ANO	MIC	1905	QLA NO	100	0	22.39
· · · · · · · · · · · · · · · · · · ·	LAB	ORLA	3	1	0	22 60
RLAL	26590	Mr. OB	RLA	-10 ¹⁶ 1	49	22 52
MO.	20000	ORLA	40.0014	1	99	20.96
QLA!	MORL	Me	16-QAM	50	0	20 12
MOL	D. Lu.	AB ORL	WOL.	50	25	20 94
AB .	LA	III.	60	50	49	21.06
21.	L.	AB	RLE	100	0	21 41



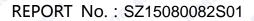


Band Width	Channel	Freq.(MHZ)	Modulation	RB Cor	nfiguration	Average Powe	
		, ,		RB Size	RB Offset	(dBm)	
MORLAR	ORL	Wo.	AB	081	0	21 20	
	ME	QLA!	ORL	1 .	37	23 16	
TAP	ORLAN	MOL	O DOLL	1 082	74	23.40	
MORI	Mo	B 01	QPSK	36	<i>∞</i> 0	21 90	
0	AB L	Erry More	S III	36	18	22 21	
AL	Ser Mc	20	ZLAP	36	35	22 51	
S In	AB	1857.5	OL WILL	75	0	22 47	
QLA.	MORI	MC	aLA	1011	0	20 33	
NOL	26115	ORLAN	More	1 .	37	22.26	
QLA.	20113	MIC	3 40 0 44 1 1	140	74	22 57	
More	0	AB ORL	16-QAM	36	0	21 11	
OB.	LAL	III.C.	3	36	18	21 35	
, MO	O MI	AB	SRL MIC	36	35	21.08	
60	QLA!	"OLT M	20	75	0	21.60	
ORLA	Mo.	AB	ORL	41 ⁰ 1	0	23 33	
ing ve	ZLAP.	, ORL	MC	1 1	37	23 59	
ORL IN	M	S W.	J.B anagrille	1	74	23.22	
MIC		LAL	QPSK	36	0	22 50	
A.B		S. Bu.	CLAE III SPLAE MC	36	18	22 38	
MC		2LAL		36	35	22 52	
15MHz	ORLAN	1882.5	AB	75	- O	22.62	
NORL	Me VB		16-QAM	1 .		22.76	
A.F	26365	MOLO		1 084	37	22.81	
MORLE	20303	20303		1	<i>∞</i> 74	22 74	
e la	LAB	NO.		36	0 4	21.62	
AL	inc.	20		36	18	21 35	
S bu	AB	ORLAN N		36	35	21 73	
QLA!	40R	We To	al All	75	0	21.61	
NO.	I. AB	ORL.	Wo.	1	0 0	23 35	
QLA!	MORLE	Me	B GLA	1.0	37	23.65	
MOL	Par.	AB ORL	ODOK	1	74	21.68	
O.P	LA MO	Mo	QPSK	36	0 411	22 41	
MO	H	AB	JELL MO	36	18	22 10	
O.B	QLA!	"Obr I	.5	36	35	22 44	
ORL	MO	1907.5	RL	75	0	22 32	
N. O.B	QLAL	MORLE	III NE	1 🗥	0.0	22.80	
ORLAN	26615	26615	B Mr.	D ORLAN	1,0	37	22 42
W	20010	AL	40.044	№ 1	74	20 94	
AB	Transition IIIO	MOR W	16-QAM	36	0	21 56	
Mo	3	QLAP.	WC MC	36	18	21 33	
AB	ORL	NO. S. I	AB	36	35	21.03	
ORI	W. B	LAR	ORI	75	0 1	22 36	



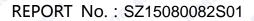


Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Powe
				RB Size	RB Offset	(dBm)
AB	ORL	Wo.	Ale	081	, O	21 49
MORL		2LAL	ORI	1	24	22.08
W. AE		MOLO	a part M	1 081	49	22 56
NORL		S 21	QPSK	25	ॐ 0	21 84
S W	AB L	ET'IL	NI WILL	25	12	21.66
AL		.0	al Alb	25	24	22 36
S bu		1855	Or W	50	0	22 10
2LAP		MO	2LA	1011	0	20.64
NOL	26090	RLL	MOL	1 . 3	24	21 52
. alak	20090	MO	BLALA	1,01	49	21.86
MOL		AB ORL	16-QAM	25	0	20.93
		MO.	-0	25	12	20.51
MO		, A.B	SPLA.	25	24	20.76
20		"OBL	28	50	0	21 20
RLA	110.	D.B	QRL.	410°1	0	23.64
MO.		ORL	Mo.	1 2	24	23 39
RL Lan		U.	B	1,10	49	23 44
Mo		LAD	QPSK	<i>№</i> 25	0	22 57
AB	M NO		AB	25	12	22.62
MC		LAB	ORL	25	24	22 59
10MHz		1882.5	AB	50	100	22 58
ORL		2LAB	*Okr	1 0	0 0	22 90
A.B	26365	MOLE	a Miles	1 084	24	22.45
ORL	20303	3 N	16-QAM	1	2 49	22.78
J. W.		A.A. MORE		25	0 0	21 62
AB		.0	al Alb	25	12	21 71
Miles		QRL.A.	Die We	25	24	21 55
2LAB		MO. TO	ALAB	50	0	21 51
NOF	N. O.B	CRL	"IO"	1 . 0	0 0	23.24
ZLAB		MIC	a alak	1.0 P.L.	24	23.16
MOF		AB GRL	-1010	A 1	49	21 91
.6		Mo.	QPSK	25	The O III	22 39
.m	H	AB	RLA MO	25	12	22.06
20		ORL	20	25	24	22 36
RLA		1910	RLA	50	0	22 35
W. C.		ORE	We E	1 1	0.01	22 43
RLA	26640	No.	B RLA	1/01	24	22 10
MO	20040	LAB ORL	Wo.	№ 1	49	20.78
AB		W. W.	16-QAM	25	0	21 32
MO		2LAB	Okr. W.	25	12	21.09
AB		MOLE. H	O.B	25	24	21 16
ORIL.		AB	ORL	50		22.05





Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Power
				RB Size	RB Offset	(dBm)
LAB	ORL	Mo. S	AB	OP1		21.76
MORIE	MIC OF	2LAL	ORI	1 .	12	22 15
D. DE	RLM	MOL	a m	1 084	24	22.03
, ORL	MO	AB AV	QPSK	12	∞ 0	21 79
S. W.	AB L	The Mole	M	12	6	21.86
LAP	Ser Mc	-3	aLAB .C	12	11.3	21 95
S Mi	AB	1852.5	OL W	25	0	21.83
3LAE	ORL	MO	2 LA	10 ¹ 1	0	21 15
MOL	26065	RLA	MOL	1 .	12	21 23
3LAV	20003	MO	B LA	1.0	24	21 51
MOL	Z W	AB ORL	16-QAM	12	0	20.76
AB	LAE 10	IIIO.	-6	12	6	20.64
.10	In the	, AB	SRLA .IIC	12	11	20.49
.0	3LAB	ORL	20	25	0	20.91
RLA	Mo.	A.B.	-RL	110°1	0	23.44
MO.	LAB	ORL	MO.	1 24	12	23 36
RLA.	Mole	UNIV	B QLA	11/0	24	23.41
M	.0	OFLAD	QPSK	√12	0	22 59
	M			12	6	22 33
MO	.0	aLAB	ORL MC	12	11	22.46
5MHz	RLA	1882.5	Q.B	25		22.60
OIVII IZ	MO. B	1002.3	16-QAM	1		22 33
A.F	20205			1081	12	22 11
ORL	26365				24	22 16
MILE	OB.			12	0 4	21 59
AB O	r. 1110	. 6	CLAP C	12	6	21.63
M	Q.B	QLA.	Oker We	12	11	21 47
A.A.B	ORL	WO.	LAB	25	0	21 57
MORT	40 00	QLA	~ O.	1	0	22 69
LAB	ORL	Mor	3 AF	1,08	12	22 32
MORL	M	aB al	MORI	1	24	21.87
.6	LAB O	Tr. MO.	QPSK	12	0	22 43
A NO	H W	N.B	PLA.	12	6	22.02
- Co - Fr.	LAB	ORL	D	12	11	22 21
RLA	MOR	1912.5	RLA	25	0	22 38
NO.	AB	1012.0	West of	1	0.01	22 10
QLA!	26665	26665	3 SLA	1/01	12	21 22
Mor			AB ORL	"IO"	№ 1	24
NB .		Me	16-QAM	12	0	21.36 21.06
MO	O M	AB	RILL			
.0	ZLA!	"OBT	20	12	6	21 10
J.Ab	10	M. B	21.1	12 25	11	21 03 21 54





Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Powe	
				RB Size	RB Offset	(dBm)	
LAB	ORL	W. B	LAB	1	410°0	21 77	
MORE	M. O.F.	QLA!	MORLE	1	3 7 al	21 94	
I. AF	ORLAN	MOL	ODOK	1	14	21.89	
MORL	Me	d a	QPSK	8	∞ 0	21 11	
G W	AP L	The More	S 10.	8	4	21 23	
AL	in the	S	al Al	8	7.	21 52	
. 6	AB	1851.5	0, 2, 11,	15	0	21 91	
RI.A.	MORI	MIC OF	QL.A.	1	0	20 95	
NOT	26055	ORL. M.	MOL	1	7 7 PL	21 20	
QLA!	20055	Mo	40.0414	1.0	14	<i>∞</i> 21 17	
MOLO	G M.	AB ORL	16-QAM	8	0	20.89	
OB.	ALAL MO	Mo	00	8	A A	20.96	
MO	O U	LAB	ORLE MI	8	7	21 10	
O.B	QLA.	.40R	3	15	0	21.09	
ORLAN	Mo.	The Alb	ORL	410°1	0	23.62	
INC OF	ZLA!	10RF	MC	1 2	7.01	23 30	
ORLAND	MORE	MOL	8 60	ODOK	1110	14	23.44
MIC	NB.	LAL	QPSK	∞ 8	0	22 41	
AB	M	S In.	AB	8	4	22.06	
M		al Al	STAL DEL IN	8	7	22 13	
3MHz	ORLAN	1882.5	AB	15	0	22.63	
NORE	M. O.B.	26365	16-QAM	1	0	22 65	
A.F	26365			1 0	7	22.76	
MORLE	20000			1	№ 1 4	22 50	
e la	LAB	The MORE		8	0	21 43	
AL NO	MIC		QLAL .	8	4.3	21 26	
S Dr.	AB	ORLAN D	Dr. S. Mr.	8	7	21.82	
QLAL	4ORY	Mr. B	alak.	15	0	21 58	
NO.	I. A.B	ORL	Mo.	1	O of the	22 54	
2LAP	MORI	Me	B ZLA	1.0	7	22 44	
MOL	D 40.	AB ARL	OPOK	1	14	22 14	
AB .	LAL	INC	QPSK	8	0 411	21.62	
, alo	Н	AB	SRL MI	8	4	21 38	
0.0	RI.A.	MORE	20	8	7	21 42	
ORL	Mor	1913.5	RLA	15	0	22 37	
n all	26675	MORE	We of	1	0.0	21 44	
ORLAN		26675	0 100	DE SELLE	1	7	21 32
Me		LAL AORL	40.0414	№ 1	14	21 10	
AB	Tr. MO	S W.	16-QAM	8	0	21.03	
Mo	NB .	QLAL.	DEL ME	8	4	21 41	
AB	ORLING	WOL T	, AB	8	7	21.00	
ORL	W. B	A.A.E.	ORIV	15		21 57	





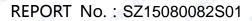
Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Powe
				RB Size	RB Offset	(dBm)
LAB	ORL	410.	AB	081	0	21 98
NORL	MIC OF	3LAP	ORL	1	0 2	22.01
III. AF	ORL.	MOLO	S	1 08	5	21 95
*OBT	MIC	A 1	QPSK	3	ॐ 0	21 98
Z Mr.	AB L	The More	la l	3	IRL 1 W	21.56
LAL	W.C.		2LAB	3	2.3	21 95
S MI	AB	1850.7	OL W	6	0	21 92
3LAP	ORL	MO	21.0.	1	MI O	21 10
MOL	26047	RLA	MOIL	1	2	21 22
T.A.B	26047	MO	B LALP	140	5	21 16
MOLE	M	AB CRI	16-QAM	3	0	21 20
.0	LAB	MO.	.0	3	1 1	21 13
LIN 1110	- W	AB	arl. A.	3	2	21 11
.0	LAB	ORL	- B	6	0	21.06
RLA	MO.	0.0	RL	1	0	23.74
HOLE IN THE	LAF	ORL	MO.	1 2	201	23 35
RLA	"UOLE"	M	E QLA	1/10%	5	23 35
MO.	. 6	LAB	QPSK	√ 3	0	23 47
AB .	M			3	1 0	23 34
MO S M	LAB	ORLAND MI	3	2	23 41	
1.4MHz	QLA.	1882.5	E MOREAE	6	0	22.64
1.41/11/12	MO.			1	0	
ME	00005			1081	2	22 40 22 35
ORLA	26365			1/10/10	- 5 - 5	
Mic	NB.	LAL	16-QAM	60	-0.7	22 36
AB	True Mo	TLAE III	ORLAE	3	0	21.86
MIC	.0			3	2	21 91
AB	RLA	MOL	AB	3	5	21 46
ORL	40	21.1	408	6	0	21 61
M. AB	RLIN	MOLE	S WILL	1	0	22 42
JORL	Mo	A	ORL	1,0	2	22 47
Nu.	AB	LA MORE	QPSK	1	5	22 30
AT O	H WO	.0	2LAB	3	0	22 43
W	AB	RLA	Die W	3	1	22 52
2LAE	ORL	10110	CLAB	3	2	22 32
MOL	I'm O.E	1914.3	" Offi	6	0	22 38
LAB	ORL	Wo.	B LA	1.0	0	21 25
MORE	26683	all al	MOR	1	2	21 31
.0	LAB	WO.	16-QAM	1	5	21.26
A. ANO	MIL	N.B	RLA	3	0	21.06
· · · · · · · · · · · · · · · · · · ·	LAB	ORLE	Dr. W.	3	1	21 43
QLA.	MORE	Mrs all	QLA.	3	2	21 58
VO.	14.		VO.2.	6		21 59





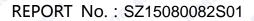
LTE BAND 26

la.	_&		- All	0 18		OFF ME	
Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Powe	
		,O* \	. 9	RB Size	RB Offset	(dBm)	
MORLA		INC ORLAR	MORLAL	1	0	23 25	
				1	37	22 71	
QL.A.		MIC	QPSK	1	74	22 72	
MO.		LAB ORL	MO	36	0	21 94	
AB	al A	Me	oB.	36	18	21 56	
F. 480		AB	ORLIN	36	35	21 82	
NB.		831.5		75	0	22.05	
ORLIN	26865	In. AE	ORLAN	1	0	22 37	
We The		"OBT	We of	1	37	22.06	
ORLAN		0 10	16-QAM	1.0	74	22 11	
Mo		LAP	10 07 1111	36	0	21 53	
AB		S. Mr.	AB	36	18	21 46	
MIC		2LAB	ORL MC	36	35	21 32	
AB	QL.M.	*0h	.0	75	0	21.00	
ORL		LAB	ORL	4101	0	22 75	
M. A.F.	AF TRIAL	MOLE	NI OF	1	37	22 68	
ORL		-8 " N	QPSK	1	74	22 67	
ME		The Work	QF SIX	36		21 91	
AB		.0		36	18	21 53	
M	М	836.5		36	35	21.81	
15MHz				75	10,0	21 97	
WOLE.	26915			1	0	22 43	
LAB		MO.	e LAP	1 081.	37	22 12	
MORE		LAE MOPLAE MORL	16-QAM	1	~ 74	22 ∩4	
.6				36	0 1	21 26	
A				36	18	21 33	
6	LAB			36	35	21 14	
QL.A.	40 ^R	W. B	al Al	75	0	20.86	
NO.	LAB	ORL	Wo.	1	0	23 12	
QLA		Me	B QLA	1.0	37	23.03	
MOL		AB ORL	ODOK	1	74	22 99	
B .		NII.C	QPSK	36	0 411	22 11	
110	H W	AB	RILL MO	36	18	22.09	
OB		"OB" N	20	36	35	22 10	
ORLAN		841.5	RLL	75	0	22 21	
in a		ALAD AORIG	Me "E	1 1	0.0	21.82	
ORLAN	26965	26965	3 11	In B RLA	1,0	37	21.65
ME			AE ORL	10.0111	№ 1	74	21.60
AB		lu.	16-QAM	36	0	21.06	
MO		LAB	OBT. WO	36	18	21 13	
AB		MOL W	A.B	36	35	21 09	
ORI.		AB	ORL.	75	ONLA	21 16	





Band Width	Channel	Freq.(MHZ)	Modulation	RB Configuration		Average Powe
	0.1011101		modulation	RB Size	RB Offset	(dBm)
, AB	OB!	110.	A.B	31	0	23 27
ORL	MO	LAB	ORL	1 .	24	23.56
W. O.E.	RLA	MOLE	a m	1 0 12 1	49	23.29
ORL	MO.	0	QPSK	25	21g 0	22 15
M	AB .	CLA MORE	nn-	25	12	22 49
LAB	F 440		LAB	25	24	22 21
M	O.B	829	Ok. W	50	0	22.28
LAB	00040	023	LA.			
MORE	26840	QLA.	MORLE	1	0	22 37
A.F.	ORLAN	"IO"	a A	1 1	24	22 59
MORL	Me	al al	16-QAM	1.0	49	22 48
S 10.	LAE C	Erry Wolf	S bu	25	0	21 41
LAL	Ser MIC		al Alb	25	12	21 28
S lin	AB	RLA	OL WILL	25	24	21 52
2LAB	102	40		50	0	21 31
HOPLAS MORLAS	RLA	MORE	1	0	22 72	
	ORL	WO.	e LA	1 1	24	22.86
		AB CRL	QPSK	1	49	23.00
	LAB	Er. Mo.		25	0	22.06
LA	NA MILE	o.B	QLA" and	25	12	22 15
	M	ORL	0,	25	24	22 18
10MHz	MORI	836.5	et A	50	0	22.26
MO.	26915	ORL	MOL	1	0	22 53
al.Al	NORL	OF AB MO. MORLA	16-QAM	1.08	24	22 41
MOLO	S. Mr.			1	49	22 59
A .	LAL			25	0 4	21 13
LIV	J. M.	AB	SELLE MO	25	12	21 33
.0	LAB	ORL	.0	25	24	21 09
RLIN	*O/-	M. B	al.h.	50	0	21 23
MC.	LAB	ORL	MO.	1	0	21 29
RL.A.	Mole	NA.	Balla	1.0	24	22 53
Mo.	.6	AB ORL	QPSK	1	49	22 88
NB S	LA MO	la l	QFSK	25	0 411	22 12
I. MO	H	LAB	TEL. MO	25	12	22 20
D.B	RLA	MORE	o.B	25	24	22 03
ORL	Mo.	844	RL	50	0	22 13
W. "B	QLA!	MORIE	III VE	1	0 0	21.85
RL	26990	0 4	B SRLA	1	24	21 78
ME	20330	AL ORL	40.0414	№ 1	49	21.67
AB	Live MO	V. W.	16-QAM	25	0	21 03
MO	.0	J.A.B	Pler Mo	25	12	21 18
AB	RLA	MOK. N	W OF	25	24	21 12
ORI.	Mo. B	AB	ORL	50	0 0	21.06





LTE BAND 26 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Cor	nfiguration	Average Power
		,		RB Size	RB Offset	(dBm)
LAB	ORL	Mo. B	AB	0.00	410°0	23 19
MORL	MIC OF	al.Al	NORL	1	12	23.42
W. O.F.	ORLAN	MOLO	a part M	1 084	24	23 32
NORL	Me	S 01	QPSK	12	ॐ 0	22 52
S bu	AB	The Mole	S Mr.	12	6	22.66
LAL	F We		2LAD	12	11.3	22 18
G M	AB	826.5	OL Y	25	0	22 29
al Al	26815	MC VB	2LA	01	0 4	22 53
MOL	20010	ORL IV	MOL	1 . 9	12	22.43
ZLA!	, ORL	MC	Burnela	1.0	24	22 27
MOL	S. Mr.	AB ORL	16-QAM	12	0	21 56
3	LAE 10	III.O	-6	12	6	21 77
LIP MO	in the	A.B	arlin m	12	11	21 33
.0	2LAB	ORL	.6	25	0	21 11
RLA	Mo.	D.B	QQL.	1	0	23 11
MO.	LAB	ORL	MO.	1 1	12	23.06
RLA	Mole	lu.	E RLA	1110	24	23.13
MO	.0	LAP	QPSK	№ 12		22 34
AB .	all all of	NI NI	A.B	12	6	22 18
Mo	M	2LAB	ORL. MC	12	11	22 44
5MHz	RLA	836.5	AB	25	410	22 19
10 RUI	26915	300.0	16-QAM	III 1	0 0	22.42
M. A.B	20913			1 084	12	22.60
ORL	Mo.			1111	24	22 13
PIL.	AB			12	0 41	21 38
AB O	gr. Mo	.6	ALAIS C	12	6	21 44
M	QB.	-QLA	Die. We	12	-11	21 25
LAB	ORL	110.	LAB	25	0	21 34
MOLE	10.	RL	NO.	1	0	22 95
LAB	ORL	MO.	3 LAP	1.0R	12	22.88
Moles	M	OB GL	MORE	4 1	24	22 97
. O	LAB	r. Mo.	QPSK	12	0 111	22.03
, m	M	AB	RLA MO	12	6	22 11
.0	H	ORL	20	12	11	22.06
RLA	Mole	846.5	RLA	25	0	22.02
Mo.	27015	2 70.0	We.	1	0.01	22 54
RLA	27013	M	B QLA	110	12	22.52
Mo.	.6	LAP ORL	Mo.	№ 1	24	22 15
AB	LA. MO	NOE MO	16-QAM	12	0	21 42
WO.	· 8	LAB	ORL MO	12	6	21 29
NB	RLA	MORE N	N.B	12	11	21 33
	YO.	4.		25		21.06





TE BAND 26 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Co	nfiguration	Average Powe
		,		RB Size	RB Offset	(dBm)
LAB	OPL	WO. B	LAB	0.00		23 35
MORE	ME	al All	MORE	1	3 7 al	23 44
LAF	ORL	MO	ODOK	1 08	14	23 37
MORL	MIC	all all	QPSK	8	ॐ 0	22 16
B	LAP L	Err More	D In.	8	4	22 52
.A.	in in	S	al Al	8	7.0	22.28
. 6	LAB	825.5	0, 2	15	0	22 32
RI.A.	MORI	MC OF	2LA	011	0	22.63
MO.	26805	ORLAN	More	1 .	7 7	22 53
QLA.	20003	Mo	40.0414	1.0	14	22 18
MOL	B In.	LAB ORL	16-QAM	8	0	21 25
NB.	LA.	MIC	S	8	4	21.08
MO	Co Mil	LAB	ORLAN MI	8	7	21 33
60	QLAR.	"Obr		15	0	21 12
ORLA	410.	T. A.B	ORL	10,1	0	23.26
INC. CE	QLA!	"OBT	Mo	1 📣	7.0	23 11
ORLAND	More	8 60	O DOLARIA	110	14	23.03
MIC	20	LALL	QPSK		0	22 16
AB	M 🧬	S Lu.	AB	8	4	22 34
M	S	26915	ORL	8	7	22 19
3MHz	ORLAND		, AB	15	410°0	22 24
NORL	MC VE		"Ober	1		22.76
A.F	26915		16-QAM	1 261	7	22 34
MORLE	20313			1	14	22.08
e la	LAB	The Mole		8	0 4	21 16
AL	PHO PHIC			8	4.3	21 43
S W.	AB	ORLAN	Dr. S. E.	8	7	21 38
QLA!	.40 ^R	MP B	al Al	15	0	21 25
NO.	LA PE	ORL	Wo.	1	O OFFILE	22 90
QLA!	NORL	ME	B QLA	1.0	7	23.06
MOL	. D	AB ARL	ODOK	a 1	14	22 96
AB .	LA.	IN INC.	QPSK	8	0 11	22 10
" MO	H	AB	TRILL ON	8	4	21 96
O.B	RLAL	MORE	OB.	8	7	22 21
ORL	Mo.	847.5	RL	15	0	22.02
AF OF	QLA!	MORLE	W. V.	1 📣	0.00	21.69
ORLAN	27025	. 6	PLL	1/10	7	21.88
W	2.020	LAL	1000	№ 1	14	21.66
AB	T. MO	De Line	16-QAM	8	0	21 12
ME	NB .	AB TANK ORL	Dien Ille	8.0	4	21 25
AB	ORLIN	MOL A	A.B	8	7	21 36
ORE	We C	at All	ORL	15	0	21.03





LTE BAND 26 (Continue)

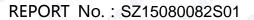
Band Width	Channel	Freq.(MHZ)	Modulation	Modulation RB Co		Average Powe
				RB Size	RB Offset	(dBm)
LAB	ORL	40. 8	AB	091	0	23.28
NORL	MIC OF	2LAP	ORL	1	0 2	23.15
W. AF	RLA	More	S PILL A	1 081	5	23.23
ORL	Mo	AB SLA	QPSK	3	ॐ 0	23.20
S Mr.	AB L	A.M. MOR	NI.	3	IRL 1 W	23.05
LAL	ST. MIC	~3	J.A.B	3	2.3	22.86
S MI	AB	824.7	2 in.	6	0	22 32
2LAP	ORL	MO. TE	2LA	1011	MI O	22 54
MOL	26797	RLA	MOL	1	2	22.42
LAB	20/9/	MO.	B LALA	1401	5	22 33
Mole	W	AB RLP	16-QAM	3	0	21 71
A	LAD	Mo.	.0	3	1 m	21.86
Line	NI NI	, AB	RLA M	3	2	21.52
.6	2LAB	ORL M	_0	6	0	21.45
RLA	40.	D.B.	al	WO 1	0	23.27
MO.	T.A.B	ORL	Mo.	1 📣	2014	23.42
RLA	Mokey	III.	BELA	14100	5	23.62
MO.	.0	LAP ORL	QPSK	√ 3	0	23.25
AB .	M	N. A.	AB.	3	1.0	23.41
r. Mo	.0	LAB	Er. M.	વ	2	23.26
1.4MHz	RLA	836.5	QB.	6	0	22 29
11 11 12	Mo.	000.0	OPE	1		22 53
ME	00045	26915	M. A.	1.081	2	22 44
ORL	26915		ORL	1110	5	22.61
M	DB .	The Works	16-QAM	3	0 4	22.06
AF O	Tr. MO	. 6	ALAE	3	2.0	22.42
M	Q.B	- RLAW M	ler Hu	3	5	22 13
LAB	ORL	Mo, B II.	LAB	6	1110	21 24
MOFF	100	Ql.	*10°	1	0 - 1	22.89
LAB	ORL	Mos	S T. A.	1.08	2	22 91
MORE	M	AB GLA	MORE	4 1	5	22 99
.0	LAB	IIIO.	QPSK	3	0 4	22 95
LA MO	Н	O.B	RIA. MC	3	10.5	22.88
.0	SLAB	ORL M	-8	3	2	23.01
RLA	MORE	848.3	RLAL	40° 6	0	22 10
No.	LAB	0 10.0	We.	1	OOF	21.62
RLA	27022	W. O.	al.A.	1/01	2	21 70
MO	27033	AB ORLA	MO	√9 1	5	21 54
AB	LA	MILE	16-QAM	3	0	21 52
WO.	. 6	LAB	RL	3	1	21 69
60	RLAL	"IOE" III,	.0	3	2	21 24
RL	Wo.	W. VE	RLA	6	0	21 10





LTE BAND 41

Band Width	Channel	Freq.(MHZ)	Modulation	RB Con	figuration	Average Power
	0.10.11.01	, , , , , , , , , , , , , , , , , , , ,		RB Size	RB Offset	(dBm)
AB	ORL.	110.	A.B	1	0	22.05
ORL	ORL ME	LAB	ORL	HIP 1	49	22.82
AF SELLE	MOLO	a Mir	1 opli	99	22.84	
ORL		-B	QPSK	50		21 69
W	AB L	LA MOR	NIL.	50	25	21 53
LAB		.0	OLAB CO	50	49	21.80
M		2506	Ole M	100	0	21 72
ALAB.		11100 2000	2LAB	01	0	21.66
MOL	20750	RLA	Mole	1 . 9	49	21 92
LAF	39750	WO.	e La	140Pt	99	21 48
MOK		AB CEL	16-QAM	50	0	20.75
.0		Fr. MO.	0	50	25	20.69
LIA		AB	-RLA	50 50	49	20 51
.0		*ORL		100	0	20.63
RLA	10.	U.S.	RLA	100	0	20.63
MO.		ORL	Mo.	1 21	49	22.45
RLA		III.	B RLA	1410	99	22 29
MO.		LAB ORL	QPSK	50	0	21.45
A.B	M	NI PILO	O.B	50	25	21 34
", MO		LAB	ORL. MC	50	49	21 53
20MHz		2593	O.B	100	0	21.46
20111112		40620	16-QAM	1 2	0	21 26
M. DE	40000			1 081.7	49	21 40
ORL	40620			All Co	99	21 33
M				50	0	20.58
AB O		. 6		50	25	20.42
M		QLA.	Oler We	50	49	20.64
LAB		Wo. B	LAB	100	0	20.33
MORE	4. 08	ali	anor	1	0	22 19
LAB		MO	S AF	1.082	49	21 93
MORE		all al	MOR	A 1	99	22 30
.0		HO.	QPSK	50	200	20.85
A. ano	H MILE	O.B	RLA MO	50 50	0 25	20.66
- C		ORL	D. W.	50	49	20.76
RLAL		2680	QLA!	100	0	20.75
WO.		2000	Wes.	1 100	0.0%	20.75
QLA!	44.400	Me	B ala	110	49	20.83
More	41490	AB SRL	MOL	- 1 - 3 1	99	20.71
OB.		MIC	16-QAM	4 Y	10.	
"IO		AB	SELLE MIC	50	0	19.81
.3		"OBL" M	29	50 50	25	20 16
		CAL ST	The contract of the contract o	5()	49	19 92





LTE BAND 41 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Cor	nfiguration	Average Power
Barra Wiatir	Grianino	1 1041(111112)	Modulation	RB Size	RB Offset	(dBm)
, Ale	ORIL.	Wo.	, Alb	1	0	22.62
ORL	MO.	3LAB	ORL	III I	37	22.52
In. VE	RLIN	MOL	a m	1 081	74	22.61
ORL	MO	-8 N	QPSK	36	ॐ 0	21.65
M	AB L	The Moles	lu lu	36	18	21 72
LAB	St. Mo	.0	ALAID OF	36	35	21.67
M	A.B	2503.5	Oken Un	75	0	21 70
ZLAB	ORL	1000.0	2LA	01	11100	21 53
MOL	20705	RLA	"IOFC"	1 3	37	21 43
LAB	39725	MO.	e " LA	1.01	74	21.60
Moles	Ulle	AB GL	16-QAM	36	0	20.71
.0	LAB	INO.	. 6	36	18	20.52
LIA MO	M	A.B	RLA MIC	36	35	20.39
.0	2LAB	ORL	0,	75	0	20.51
RLA	40.	U.S.	-QLA	1	0	22 51
Mo.	LAB	ORL	Mo.	1 21	37	22 37
RLA	MOFE	MILE	B RLA	140	74	22.40
MO.	. 6	LAB ORL	QPSK	36	0	21 47
D.B	M	M	Q.B	36	18	21 38
" MO	. 6	LAB	ORL. MC	36	35	21 44
15MHz	RLA	2593	0.B	75	0	21 52
10111112	Mo.	2000	OFF	1		21 42
O.B	40000	LAB MORL	B MC ORLAS	1 084	37	21 59
ORL	40620			1	74	21 32
MILE	NB S		16-QAM	36	0	20.56
AB C	Tr. MO.	. 6	LAB	36	18	20.71
M	0.B	QLA!	Okr. We	36	35	20.28
LAB	ORL	WO.	LAB	75	0	20.37
MORT	III OB	QL.	V/O5	1	0	22 22
LAB	ORLAN	Mor	S AF	1.0	37	21.87
MORY	ME	all all	MORE	4	74	22 35
.0	LAP	MOL	QPSK	36	0	20 84
A.O	H W	AB.	PLA.	36	18	20.53
· Ø	LAB	ORL	D	36 36	35	20.79
RLA	MOR	2682.5	RLA	75	0	20.92
NO.	T.AB	2002.0	West of	1	0.0	20.88
QLA!	44545	W.	3 ala	100	37	20.67
MO	41515	AB ORL	"IO"	√9 1		20.67
NB .	LA	We	16-QAM	36	74	19 93
MO	· Q ///	LAB	PLI.		18	22.7
S	QLA.	"OBE W	.0	36 36	18 35	19 75 40 66
	'VO2	W. P.	al. h	75	0	19.66 19.84





LTE BAND 41 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Cor	nfiguration	Average Powe
Dana Watin	Onao.	1 1091(111112)	Modulation	RB Size	RB Offset	(dBm)
AB	OR.L.	110.	, Alb	31	0	22.72
ORL	MO	LAB	ORL	III I	24	22.62
W. AE	RLIN	MOLE	a m	1 081	49	22.68
ORL	Mo	-B	QPSK	25	<i>№</i> 0	21 53
M	AB L	STA. MOK	W	25	12	21 43
LAB	SIL. MIC	.0	al Alb	25	24	21.66
M	O.B	2501	Oke. III.	50	0	21 nn 21 71
LAB	ORL	11100 200 1	aL Ale	01	M 0	21 34
Mok	20700	RLA	"IOFE"	1 1	24	21 52
T.A.F	39700	Mo.	e " LA	14012	49	21 44
MORE	M	AB al	16-QAM	25	0	20.85
. 6	LAB	Er. Mo.	0		62.7	
LAT	in the	o.B	RLAN	25 25	12	20 42 20 62
Co Tri	LAB	ORL	D. 8 41.	25	24	100
QLA.	108	400	al.A	50	0	20.32
MOL	In. DE	ORLAN	More	1	0	22 41
2LAV	,ORL	MC	G LA	1,01	24	22.36
MOL	July 1	AB ORL	QPSK	1	49	22 29
.6	M	Br. Mo.	.6	25	0	21 53
-MO	IVI MILE	AB	arla and	25	12	21 38
40141	CLAB.	0500	20 1	25	24	21 16
10MHz	Moles	2593	Cat Day	50	0	21 46
Mo.	LAF	ORL	Mo.	1	0	21 62
RLA	40620	MIC	S QLA	1	24	21 43
WO.	. 6	LAB ORL	16-QAM	1	49	21 71
NB .	LA	By We	60	25	G. 0 «	20 37
WO WIO	Q ///	AB	SELL MO	25	12	20 59
3	QLA.	"OBL	NB.	25	24	20.25
ORL IN	401	M. OB	A Line	50	0	20.36
INC. VE	3LAV	JORL	MC	1	0	22 16
RLA	MOL	S W.	BALL	1.0	24	22.07
MIC	.0	LAT TORL	QPSK	1	49	22 31
AB	Lie MO	the state of the s	Qi Oit	25	0 411	20.75
MO	H	2LAB	OBJ. MO	25	12	21.06
A.B	RLA	MOL N	OB	25	24	20.95
ORL	Mo.	2685	ORL.	50	0	20.66
aB	-QLA	MORE	Mr OF	1	0.08	20.73
ORL	41540		ORLIN	1	24	20.86
M	N 10 10	A AORL	16 0 11	№ 1	49	20.39
AP	Tr. MO	S. Mr.	16-QAM	25	0	19 96
MIC	S	QLA.	DEL MC	25	12	20.04
AB	ORLIN	WOL W	AB	25	24	19.86
ORL	We C	LAR	ORIV	50	0	19 77





LTE BAND 41 (Continue)

Band Width	Channel	Freq.(MHZ)	Modulation	RB Cor	nfiguration	Average Powe
				RB Size	RB Offset	(dBm)
ALA DE	ORL	Mo. S	AB	- P1	WO.0	22 41
MORL		QL.A.F	MORLE	1 6	12	22 32
II.		MOL	O DOLLA	1081	24	22 51
MORLE		al al	QPSK	12	<i>ॐ</i> 0	21 43
D Liv	AB L	Erra Mole	S. U.	12	6	21 38
AL		S	QLAL NO	12	11	21 16
6		2498.5	2,0	25	0	21 56
QLA!		MP VB	21 has	1	0	21 38
NO.	39675	ORLAN	MOL	1 .	12	21 42
QLA!	39073	INC	40.044	1.0	24	21 26
MOL		AB ORL	16-QAM	12	0	20.48
NB .		luc luc	S	12	6	20.39
MO		LAB	JRL MO	12	11	20.75
D.B	QLA!	*OP**	_0	25	4010	20.61
ORLA	Mo.	All	ORL	1 1	0	22.42
AF AF		MORL	ME	1 1	12	22 38
ORLAN			ODOK	1	24	22 24
Me		AB BLAN MORE	QPSK	1 2	0	21 52
AB	M 2593	M NO	LAB	12	6	21 39
Me		QLA.	OLE WILL	12	11	21.08
5MHz		2593	AB	25	410,0	21 33
OPL		40620	MORE	Mile 1	0 0	21 37
LAB	40620		16-QAM	1.081.	12	21 26
MORE	.0020			1	24	21 69
6		Bright		12	0 1	20.42
AL		O.B	al All	12	6 🌣	20.83
. 6		ORL	D	12	11	20.63
RLAI	40PL	We The	al Al	25	0	20.29
No.		ORL	WO.	1	0	22 16
RLA		MIC	3 RLA	10	12	21 93
MO		AB ORL	QPSK	1	24	22 42
AB C	LA	IN INC.	QFSN	12	0 44	20 91
"INO	H	LAB	DRL. MO	12	6	20.73
AB		MOK. W	O.B	12	11	20.62
ORL		2687.5	ORL.	25	0	20.71
n. O.B		MORE	W. OE	1	OORL	20.69
ORL	41565	لله الله	ORLE	10	12	20.74
M	41303	The Works	16-QAM	ॐ 1	24	20 59
A.B		**************************************	10-QAIVI	12	0	19.86
Man		RLA	Die. Hills	12	6	19.66
LAB		Mo.	ALAE	12	11	19 92
OF	In B	al A	*O/v	25		19 57



11. MEASUREMENT OF CONDUCTED OUTPUT POWER

CDMA 1xRTT Conducted power

		Frequency	Output
Band	Channel	(MHz)	Power
ODA44	1013	824.7	28.75
CDMA	384	836.52	28.76
BC 0	777	848.31	28.56
EVDO of LA	1013	824.7	26.78
EVDO 0	384	836.52	26.94
BC 0	777	848.31	26.97
MO. VE	1013	824.7	28.14
EVDO A	384	836.52	28.61
BC 0	777	848.31	28.26
ODNAA	25	1851.25	26.81
CDMA	600	1880.0	26.84
BC 1	1175	1908.75	26.89
E\/DO 0	25	1851.25	26.71
EVDO 0	600	1880.0	26.71
BC 1	1175	1908.75	26.96
E)/DO 4	25	1851.25	26.54
EVDO A	600	1880.0	26.52
BC 1	1175	1908.75	26.79
CDMA	450	817.25	28.34
BC 10	500	818.50	28.62
Subclass 2	550	819.75	28.31
EVDO 0	450	817.25	28.60
BC 10	500	818.50	28.58
Subclass 2	550	819.75	28.32
EVDO A	450	817.25	28.31
BC 10	500	818.50	28.60
Subclass 2	550	819.75	28.57



Pand	Channal	Frequency	Output
Band	Channel	(MHz)	Power
CDMA	650	822.25	28.64
BC 10	660	822.50	28.67
Subclass 3	670	822.75	28.57
EVDO 0	650	822.25	28.72
BC 10	660	822.50	28.66
Subclass 3	670	822.75	28.59
EVDO A	650	822.25	28.62
BC 10	660	822.50	28.62
Subclass 3	670	822.75	28.64

2. Wifi average output power(ATN1)

David	Oharan	Frequency	(Output Power(dE	Bm)
Band	Channel	(MHz)	802.11b	802.11g	802.11n 20
Mo as	1 _{al} Ab	2412	14.08	12.34	9.50
Wifi	6	2437	13.59	11.94	9.21
	11	2462	16.19	14.13	11.55

			Output
Band	Channel	Frequency	Power(dBm)
		(MHz)	802.11n40
LAB	3	2422	9.12
Wifi	6	2437	9.31
	9	2452	9.97



3. Wifi average output power(ANT2)

Daniel	Chanal	Frequency	С	Output Power(dE	Bm)
Band	Channel	(MHz)	802.11b	802.11g	802.11n20
e w	10	2412	14.03	11.91	9.42
Wifi	6	2437	13.51	11.46	9.21
MC AB	11	2462	14.56	11.88	9.64

	-	. V.	
Band	Channel	Frequency	Output Power(dBm)
	G.I.G.III.G.	(MHz)	802.11n40
2LAF	3	2422	7.59
Wifi	6	2437	8.08
alae .o	9 410	2452	8.22

4. Wifi MIMO 2x2 average output power

		Fraguency	Output Power(dBm)
Band	d Channel Frequency (MHz)		MIMO 2x2
		(1411 12)	802.11n20
ALMORE	1 1111	2422	12.47
Wifi	Wifi 6		12.22
MORL	11 🧀	2452	13.71

The state of the s			76. 10.
		Frequency	Output Power(dBm)
Band	Channel	(MHz)	MIMO 2x2
		(**** :=/	802.11n40
NO.	3	2422	11.43
Wifi	6	2437	11.54
B W	9	2452	12.19



12. TEST RESULTS LIST

Summary of Measurement Results (CDMA BC0 Band)

emperature: 21.0~23.8	°C, humidity: 54~60%	ó.	MC AB	RLAL	MORIL	Mo
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	Plot No.
E MO LAB	ORLAN MIC	1013	0.910	1.059	0.964	0
	Back upward	384	0.959	1.057	1.014	410
	MORE	777	0.836	1.081	0.904	B
CDMA	ORLAS	1013	0.847	1.059	0.897	0
Body	Face upward	384	0.807	1.057	0.853	OFLA
(15mm Separation)	ORLA	777	0.789	1.081	0.853	
	Edge A	10RLIN	0.320	LAB	0.346	1110
	Edge B	384	0.211	1.081	0.228	B
	Edge D	Mole	0.149		0.161	.0
I ORL	40, 70 m.	1013	0.843	1.052	0.887	ORLA
	Back upward	384	0.859	1.014	0.871	
EVDO 0	E ME SLAE	777	0.789	1.007	0.795	MO
Body (15mm Separation)	Face upward	I TLAB	0.707	MOL	0.717	B
	Edge A	204	0.248	1.014	0.251	.0
	Edge B	384	0.205	1.014	0.208	ORLA
	Edge D	No.	0.229		0.232	



Summary of Measurement Results (CDMA BC1 Band)

emperature: 21.0~23.8°	C, humidity: 54~60%	6.	ELAB	ORLA	WOLF. B.	
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	Plot No.
AB GLAB	ORLAN MOR	25	1.063	1.045	1.136	-LAP
	Back upward	600	1.038	1.037	1.154	O.
	MOL SE IN	1175	1.192	1.026	1.223	.0
CDMA	S JORL	25	1.274	1.045	1.331	8 111.
Body	Face upward	600	1.268	1.037	1.314	
(15mm Separation)	ORLE	1175	1.315	1.026	1.349	al.AF
	Edge A	NIO,	0.413	RLAB	0.424	0.
	Edge B	1175	0.159	1.026	0.163	.,0
	Edge D	MO. AB	0.141		0.145	0
"OEF" MO.	AB RLA	25	0.927	1.069	0.991	
	Back upward	600	1.148	1.069	1.227	al Ale
	QLAS OF	1175	1.013	1.009	1.022	0,
EVDO 0	MO. OB	25	0.844	1.069	0.902	
Body	Face upward	600	1.053	1.069	1.126	0
(15mm Separation)	OB III	1175	0.968	1.009	0.977	
3 ME	Edge A	(B)	0.344	Mo	0.347	2LAB
	Edge B	1175	0.128	1.009	0.129	0.
	Edge D	LAB	0.101		0.102	~



Summary of Measurement Results (CDMA BC10 Subclass 3 Band)

Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	Plot No.
S HONG IN	OFLAE MORLE	650	1.083	1.086	1.176	, AP
AL MORL S N	Back upward	660	1.148	1.079	1.239	ORL
ALAB ORLAN	MORE M	670	1.013	1.104	1.118	
CDMA	S ORLAN	650	0.844	1.086	0.917	e la
Body	Face upward	660	1.049	1.079	1.132	
(15mm Separation)	ORLA	670	0.956	1.104	1.055	aLA!
	Edge A	JEEL HO	0.355	1.079	0.383	0,0
ELAB MORLE	Edge B	660	0.279	1.079	0.301	
O. DE WALL	Edge D	MO	0.137	1.079	0.148	B
"OLF" ILO	as ala	650	1.090	1.067	1.163	
E RLAP	Back upward	660	0.989	1.081	1.069	al Al
MO. OB	ELAB AN	670	1.008	1.099	1.108	0.
EVDO 0	MO. NE	650	0.941	1.067	1.004	0
Body	Face upward	660	0.874	1.081	0.945	8
(15mm Separation)	OB M. SLA	670	0.856	1.099	0.941	
E MORLAE N	Edge A	A	0.284	1.081	0.307	TLAP
	Edge B	650	0.201	1.081	0.217	0.
	Edge D	AB	0.224	1.081	0.242	



Note:

- 1. The test distance separation refer to User Manual.
- 2. When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy the following conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v05r02)
 - ≤ 0.8 W/kg and transmission band ≤ 100 MHz
 - ≤ 0.6 W/kg and, 100 MHz < transmission bandwidth ≤ 200 MHz
 - ≤ 0.4 W/kg and transmission band > 200 MHz
- 3. IEEE Std 1528-2013 require the middle channel to be tested first. This generally applies to wireless devices that are designed to operate in technologies with tight tolerances for maximum output power variations across channels in the band. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.
- 4. Per KDB 447498, when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg and peak SAR is less than 1.6W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.



Summary of Measurement Results (LTE Band 25 bandwidth 20MHz with QPSK 1RB)

Phantom	Device Test	Device Test	SAR(W/Kg),	Scaling	Scaled SAR	Plo
Configurations	Positions	channel	1g Peak	Factor	(W/Kg), 1g	No
E TAB	ORLAN MORE	26140	1.034	1.000	1.034	aLA!
MOL	Back upward	26365	1.143	1.002	1.145	0,
QLAE AORLA	MOL VE W	26590	1.028	1.012	1.040	
OF THE ST	ID NORL.	26140	0.958	1.000	0.958	8 6
Body (15mm Separation)	Face upward	26365	0.967	1.002	0.969	
(15mm Separation)	ORL, MO.	26590	0.917	1.012	0.928	QLA!
CELAE MO. MORLAE	Edge A	26140	0.489	1.000	0.489	O.
	Edge B	26140	0.247	1.000	0.247	-40
o all	Edge D	26140	0.168	1.000	0.168	0

Summary of Measurement Results (LTE Band 25 bandwidth 20MHz with QPSK 50RB)

Temperature: 21.0~23.8°	C, humidity: 54~60%	6. 10 10	W. STUE	ORLA	More	B W.
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	Plot No.
AB ME TRIAR	Back upward	AB AN	0.727	ORLA	0.797	
MORL DELL MOV	Face upward	MORL	0.708		0.776	W.
Body (15mm Separation)	Edge A	26140	0.354	1.096	0.388	
(15mm Separation)	Edge B	"MO"	0.249		0.273	AB
	Edge D	LLAP MOF	0.184		0.202	ORL



Summary of Measurement Results (LTE Band 25 bandwidth 20MHz with QPSK 50RB)

Temperature: 21.0~23.8°	C, humidity: 54~60%	6.	LAB	ORLAN	WOLES OF	illo.
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	Plot No.
Body	Back upward	20005	0.714	1 and MO	0.733	2LAB
(15mm Separation)	Face upward	26365	0.698	1.026	0.716	O.

Additional LTE test requirement for 16QAM

Not required.

Additional LTE test requirement for other bandwidth



Summary of Measurement Results (LTE Band 26 bandwidth 15MHz with QPSK 1RB)

Temperature: 21.0~23.8°	C, humidity: 54~60%	6.	NAB .	ORLA	WOLES E	No.
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	Plot No.
AB GLAS	Back upward	10	0.708	MO	0.750	6
III NOW NE	Face upward	O'ELLE MO	0.640		0.678	0,
Body (15mm Separation)	Edge A	26865	0.259	1.059	0.274	.01
(15mm Separation)	Edge B	MOL	0.206		0.218	8
	Edge D	ORLAN	0.191		0.202	

Summary of Measurement Results (LTE Band 26 bandwidth 15MHz with QPSK 36RB)

Temperature: 21.0~23.8°	5, Harrianty: 54~007	8	OPLI	410	- G N	6
Phantom	Device Test	Device Test	SAR(W/Kg),	Scaling	Scaled SAR	Plot
Configurations	Positions	channel	1g Peak	Factor	(W/Kg), 1g	No.
AB GLAR	Back upward	all the	0.628	ORLA	0.687	
MORL Dodge	Face upward	MORL	0.607		0.664	Mo
Body (15mm Separation)	Edge A	26865	0.227	1.094	0.248	
(15mm Separation)	Edge B	MO.	0.201		0.220	o.B
	Edge D	LAP AOF	0.164		0.179	ORL

Additional LTE test requirement for 16QAM

Not required.

Additional LTE test requirement for other bandwidth

Not required.

Additional LTE test requirement for 20MHz with QPSK 100RB

Not required.





Summary of Measurement Results (LTE Band 41 bandwidth 20MHz with QPSK 1RB)

Temperature: 21.0~23.8°0	C, humidity: 54~60%	ó.	AB	ORLAN	WOLE W	
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	Plot No.
AB GLAD	Back upward	AB (1)	0.342	MO	0.355	LAB
The More AB	Face upward	NATURE INC.	0.413		0.429	0,
Body	Edge A	40620	0.434	1.038	0.450	,0 ^R
(15mm Separation)	Edge B	MOL	0.258		0.268	8
JORLA MON	Edge D	ORLIN	0.231		0.240	

Summary of Measurement Results (LTE Band 41 bandwidth 20MHz with QPSK 50RB)

Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	Plot No.
AB AR GLAR	Back upward	OB THE	0.289	ORLA	0.303	
NORL! Day NO.	Face upward	MORLIN	0.384		0.402	Mo
Body (15mm Separation)	Edge A	39750	0.401	1.047	0.420	
(15mm Separation)	Edge B	MO.	0.234		0.245	NB
	Edge D	LAE TOP	0.218		0.228	ORL

Additional LTE test requirement for 16QAM

Not required.

Additional LTE test requirement for other bandwidth

Not required.

Additional LTE test requirement for 20MHz with QPSK 100RB

Not required.





Note:

- 1. IEEE Std 1528-2013 require the middle channel to be tested first. This generally applies to wireless devices that are designed to operate in technologies with tight tolerances for maximum output power variations across channels in the band. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.
- 2. Per KDB 447498, when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg and peak SAR is less than 1.6W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.
- 3. The WCDMA mode is test with 12.2kbps RMC and TPC set to all "1", if maximum SAR for 12.2kbps RMC is ≤ 75% of the SAR limit (i.e. 1.2W/Kg 1g) and maximum average output of each RF channel with HSDPA/HSUPA active is less than 1/4 dB higher than that measured without HSDPA/HSUPA using 12.2kbps RMC, according to KDB 941225D01v02, SAR is not required for this handset with HSPA capabilities. This module supports 3GPP release R7 HSPA+ using QPSK only without 16QAM in the uplink. So PBA is not required for HSPA+.



Summary of Measurement Results (WLAN 802.11b Band ANT 1)

Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Duty Cycle	Scaling Factor (Duty Cycle)	Scaling Factor (Power)	Scaled SAR (W/Kg), 1g	Plot No.
OKT. III.	Back upward	RLAR	0.238	Wo	AB TO	LAB	0.257	9
Body	Front upward	110	0.134	00.40/	4.000	4.074	0.145	NORL
(15mm	Edge B	11	0.124	99.4%	1.006	1.074	0.134	7
Separation)	Edge D	AB III	0.109	OPL	MO.		0.118	47

Summary of Measurement Results (WLAN 802.11b Band ANT 2)

Temperature: 21	.0~23.8°C, humid	dity: 54~60%	. 110	- (c)	ZLAB	ORLA	MOR	197
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Duty Cycle	Scaling Factor (Duty Cycle)	Scaling Factor (Power)	Scaled SAR (W/Kg), 1g	Plot No.
MORE	Back upward	ORL	0.201	S W	LAB	ORLAN	0.224	Me
Body	Front upward	SHIP	0.104	The same of the same of	MORE S	4.407	0.116	4
(15mm	Edge B	11	0.108	99.4%	1.006	1.006	0.120	AB
Separation)	Edge D	AB	0.094	MORE	a me		0.105	le.

Summary of Measurement Results (WLAN 802.11n20 MIMO 2x2)

Temperature: 21	.0~23.8°C, humi	dity: 54~60%	nO ^R	, all	RLA	MORE	We	AB.
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Duty Cycle	Scaling Factor (Duty Cycle)	Scaling Factor (Power)	Scaled SAR (W/Kg), 1g	Plot No.
Body	Back upward	AB	0.228	~	A SLAB	ORLA	0.245	AB W
(15mm	Front upward	11	0.161	99.4%	1.006	1.069	0.173	RL
Separation)	Edge B	ORLA	0.121		LAE OF		0.130	aLP.



Notes:

- 1. The EUT has two WLAN Tx antennas, but only 802.11n support MIMO 2x2
- 2. SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:
- 3. When the reported SAR of the highest measured maximum output power channel for the 0.8 W/kg, no further SAR testing is required for 802.11b DSSS exposure configuration is in that exposure configuration.
 - 2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.
- 2.4 GHz 802.11 g/n OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed.
- For held-to-ear and hotspot operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is 0.4 W/kg, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is 0.8 W/kg or all test positions are measured.
- 5. Justification for test configurations for WLAN per KDB Publication 248227 D01DR02-41929 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR.



6. Scaling Factor calculation

Band	Tune-up power tolerance(dBm)	SAR test channel Power (dBm)	Scaling Factor
AB	RIAN MORE ME	28.75	1.059
CDMA BC0	Max output power =28(+1/-2)	28.76	1.057
	MORL MO. AB IN TRIAB	28.66	1.081
NO.	THE HORE MO	26.78	1.052
EVDO 0	Max output power =26(+1/-2)	26.94	1.014
BC 0	RLAD MORL MO. AB	26.97	1.007
MORE W	AB RIAB MORE W	26.71	1.069
CDMA BC1	Max output power =26(+1/-2)	26.54	1.112
	S I RIAL MORL MO.	26.89	1.026
STATE OF STATE	THE AE SLAD MORE	26.71	1.069
EVDO 0	Max output power =26(+1/-2)	26.71	1.069
BC 1	NE TIME MORLE W	26.96	1.009
CDMA BC10	HO OF CLAP	28.64	1.086
	Max output power =28/(+1/-2)	28.67	1.079
Subclass 3	HOP AE HE GLAS TOPLE	28.57	1.104
EVDO 0	alde lost the ve	28.72	1.067
BC 10	Max output power =28(+1/-2)	28.66	1.081
Subclass 3	HOW AE IN TLAE	28.59	1.099
Mo.	S SLAP TORL MC	23.50	1.000
TE DANIDOS	Max output power =23+-0.5(1RB)	23.49	1.002
LTE BAND25	ALAE SORLE MOR AE IN	23.45	1.012
(QPSK)	Max output power =22.5+-0.5(50RB)	22.60	1.096
	Max output power =22+-0.5(100RB)	22.39	1.026
LTE BAND26	Max output power =23.5+-0.5(1RB)	23.75	1.059
(QPSK)	Max output power =22+-0.5(25RB)	22.11	1.094
TE BAND41	Max output power =22+-0.5(1RB)	22.84	1.038
(QPSK)	Max output power =21.5+-0.5(50RB)	21.80	1.047
802.11b ANT1	Max output power =16+-0.5	16.19	1.074
802.11b ANT2	Max output power =14.5+-0.5	14.56	1.107
802.11n20 MIMO 2x2	Max output power =13.5+-0.5	13.71	1.069



13. REPEATED SAR MEASUREMENT

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

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

			Meas.S	SAR(W/kg)	Largest to	
Band	Test Position	Test Channel	Original	Repeated	Smallest SAR Ratio	
CDMA BC0	Back upward	CLAB JOR	0.959	0.963	1.004	
CDIVIA BCU	Face upward	384	0.807	0.814	1.008	
EVDO BC0	Back upward	ORLA	0.859	0.842	1.020	
CDMA BC1	Back upward	S III	1.192	1.189	1.003	
CDIVIA DC I	Face upward	MOK	1.315	1.298	1.013	
CDMA BC 1 repeated	Face upward	1175	1.298	1.308	1.008	
E)/DO DO4	Back upward	ORLAN	1.013	1.020	1.007	
EVDO BC1	Face upward	S ME	0.969	0.973	1.004	
CDMA DC40	Back upward	660	1.148	1.140	1.007	
CDMA BC10	Face upward	660	1.049	1.041	1.008	
EVDO BC10	Back upward	GEO.	0.989	0.980	1.009	
EVDO BC10	Face upward	650	0.941	0.948	1.007	
LTE Bond 25	Back upward	26265	1.143	1.150	1.006	
LTE Band 25	Face upward	26365	0.969	0.960	1.009	



14 MULTIPLE TRANSMITTERS EVALUATION

Stand-alone SAR

Test distance: 10	JOEL INC	AB RIAL MORE MIC AB	CLAB
Band	Highest power(mW) per tune up	1-g SAR test threshold	Test required?
WIFI(802.11b)	16.19	[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]	Yes
WIFI(MIMO2x2)	13.71	• [√f(GHz)] ≤ 3.0 for 1-g SAR	Yes

Simultaneous SAR

al P	ORLA	Simultaneous	transmission conditions	ION E WILLIAM
Oke	W	WAN	WLAN	Cum of MANANIS
#	LTE Data	CDMA	802.11b/g/n	Sum of WWAN& WLAN
1	× ×	LAE ORLA	×	×
2	3 ORLA	×	×	×
3	E W LAS	X	×	× 11012
4	× don	SINE	X NOW	×

Note:

- 1. When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the Wi-Fi transmitter and another WWAN transmitter. Both transmitter often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions. The "Portable Hotspot" feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal.
- 2. The hotspot SAR result may overlap with the body-worn accessory SAR requirements, per KDB 941225 D06, the more conservative configurations can be considered, thus excluding some unnecessary body-worn accessory SAR tests.
- 3. GSM supports voice and data transmission, though not simultaneously. WCDMA supports voice and data transmission simultaneously.



- 4. Simultaneous Transmission SAR evaluation is not required for BT and WiFi, because the software mechanism have been incorporated to guarantee that the WLAN and Bluetooth transmitters would not simultaneously operate.
- Per KDB 447498D01v05r01, Simultaneous Transmission SAR Evaluation procedures is as followed:
 - Step 1: If sum of 1 g SAR < 1.6 W/kg, Simultaneous SAR measurement is not required.
 - Step 2: If sum of 1 g SAR > 1.6 W/kg, ratio of SAR to peak separation distance for pair of transmitters calculated.
 - Step 3: If the ratio of SAR to peak separation distance is ≤ 0.04, Simultaneous SAR measurement is not required.
 - Step 4: If the ratio of SAR to peak separation distance is > 0.04, Simultaneous SAR measurement is required and simultaneous transmission SAR value is calculated.

(The ratio is determined by: (SAR1 + SAR2) ^ 1.5/Ri ≤ 0.04,

Ri is the separation distance between the peak SAR locations for the antenna pair in mm)

6. Sum of the SAR for CDMA BC0+WiFi

RF Exposure Test		Simultaneous Tra	nsmission Scenario	Max ∑1-g	SPLSR	
condition position	CDMA	WiFi	SAR(W/Kg)	(Yes/ No)		
RLAD	Back upward	1.014	0.238	1.252	No	
Face upwar	Face upward	0.897	0.134	1.031	No	
Dody	Edge A	0.346	1082 / 110	0.346	No	
Body	Edge B	0.228	0.124	0.352	No	
Edge C	alab / north	100	1	No		
2LAB	Edge D	0.161	0.109	0.270	No	



7. Sum of the SAR for CDMA BC1+Wi-Fi

RF Exposure	Test	Simultaneous Tran	nsmission Scenario	Max ∑1-g	SPLSR
condition	condition position	GPRS1900	WiFi	SAR(W/Kg)	(Yes/ No)
Back upward Face upward	1.223	0.238	1.461	No	
	Face upward	1.349	0.134	1.483	No
Body RLA	Edge A	0.424	RLP / MOR	0.424	∮ No △
Body	Edge B	0.163	0.124	0.287	No
	Edge C	AE / CRLA	107	10	No
	Edge D	0.145	0.109	0.254	No

8. Sum of the SAR for CDMA BC10+Wi-Fi

RF Exposure	Test	Simultaneous Trar	nsmission Scenario	Max ∑1-g	SPLSR
condition posit	position	WCDMA850	WiFi	SAR(W/Kg)	(Yes/ No)
Dir.	Back upward	1.239	0.238	1.477	No
	Face upward	1.132	0.134	1.266	No
Dody	Edge A	0.383	100	0.383	No
Body	Edge B	0.301	0.124	0.425	No
00 II.	Edge C	ORL / MO	1 alab	10R1	No
ORLAN	Edge D	0.148	0.109	0.257	No

9. Sum of the SAR for LTE Band 25+Wi-Fi

RF Exposure	Test	Simultaneous Transmission Scenario		Max ∑1-g	SPLSR	
condition position	position	LTE Band 2	WiFi	SAR(W/Kg)	(Yes/No)	
-	Back upward	1.145	0.238	1.383	No	
	Face upward	0.969	0.134	1.103	No	
Pody	Edge A	0.489	- 1 LE	0.489	No	
Body	Edge B	0.247	0.124	0.371	No	
S MC LAF	Edge C	More / S Mr	1 1 CEL	1011	No	
MORL	Edge D	0.168	0.109	0.277	No	



10. Sum of the SAR for LTE Band 26+Wi-Fi

RF Exposure	Test	Simultaneous Transmission Scenario		Max ∑1-g	SPLSR	
condition	position	LTE Band 26	WiFi	SAR(W/Kg)	(Yes/ No)	
Body	Back upward	0.750	0.238	0.988	No	
	Face upward	0.678	0.134	0.812	○ No	
	Edge A	0.274	1 60	0.274	No	
	Edge B	0.218	0.124	0.342	No	
	Edge C	Ogn / W	at / ala		No	
	Edge D	0.202	0.109	0.311	No	

11. Sum of the SAR for LTE Band 41+Wi-Fi

RF Exposure	Test	Simultaneous Transmission Scenario		Max ∑1-g	SPLSR	
condition	position	LTE Band 41	WiFi	SAR(W/Kg)	(Yes/ No)	
Body	Back upward	0.355	0.238	0.593	No	
	Face upward	0.429	0.134	0.563	No	
	Edge A	0.450	1 1 LAB	0.450	No	
	Edge B	0.268	0.124	0.392	No	
	Edge C	Mo. 1 28 W	LAP / ORL	10	No	
	Edge D	0.240	0.109	0.349	No	

Note:

The Sum of the SAR is not greater than 1.6W/Kg SPLSR assessment is not required.



- 15. ANNEX A GENERAL INFORMATION
- 16. ANNEX B PHOTOGRAPHS OF THE EUT
- 17. ANNEX C PLOTS OF SAR TEST RESULTS
- 18. ANNEX D SYSTEM PERFORMANCE CHECK DATA





15. ANNEX A GENERAL INFORMATION

1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.	
Department:	Morlab Laboratory	
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China	
Responsible Test Lab Manager:	Mr. Su Feng	
Telephone:	+86 755 36698555	
Facsimile:	+86 755 36698525	

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.	
AP ARL MC	Morlab Laboratory	
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang	
	Road, Block 67, BaoAn District, ShenZhen, GuangDong	
	Province, P. R. China	



3. List of Test Equipments

No.	Instrument	Туре	Cal. Date	Cal. Due
MOZLA!	PC	Dell (Pentium IV 2.4GHz, SN:X10-23533)	(n.a)	(n.a)
2	Network Emulator	Aglient (8960, SN:10752)	2015-2-21	1year
3	Network Analyzer	Agilent(E5071B ,SN:MY42404762)	2015-9-26	1year
4	Voltmeter	Keithley (2000, SN:1000572)	2015-9-24	1year
5	Signal Generator	Rohde&Schwarz (SMP_02)	2015-9-24	1year
6	Power Amplifier	PRANA (Ap32 SV125AZ)	2015-9-24	1year
7	Power Meter	Agilent (E4416A, SN:MY45102093)	2015-5-07	1year
8	Power Sensor	Agilent (N8482A, SN:MY41091706)	2015-5-07	1year
9	Directional coupler	Giga-tronics(SN:1829112)	2015-9-24	1year
10	Probe	Satimo (SN:SN 37/08 EP80)	2015-8-17	1year
11	Dielectric Probe Kit	Agilent (85033E)	2015-9-24	1year
12	Phantom	Satimo (SN:SN_36_08_SAM62)	2015-9-24	1year
13	Liquid Satimo(Last Calibration: 2015-10-16 to 2015-10-17)		N/A	N/A
14	Dipole 835MHz	Satimo (SN 20/08 DIPC 99)	2014-9-22	3year
15	Dipole 1750MHz	Satimo (SN 30/13 DIP1G750-260)	2014-9-22	3year
16	Dipole 1900MHz	Satimo (SN 30/13 DIP1G900-261)	2014-9-22	3year
17	Dipole 2450MHz	Satimo (SN 30/13 DIP2G450-263)	2014-9-22	3year
18	Dipole 2600MHz	Satimo (SN 30/13 DIP2G600-265)	2014-9-22	3year

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