In Collaboration with
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CALIBRATION LABORATORY

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Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,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 θ=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:

a) 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
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
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d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization θ=0 (f≤900MHz in TEM-cell; f>1800MHz: waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below ConvF).
- *NORM(f)x,y,z = NORMx,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.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (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.
- *Ax,y,z; Bx,y,z; Cx,y,z;VRx,y,z:*A,B,C 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≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,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±50MHz to±100MHz.
- *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 *NORMx* (no uncertainty required).

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:3748

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (*k*=2)
Norm(μV/(V/m)²)[A]	0.40	0.51	0.44	±10.0%
DCP(mV)[B]	103.3	101.2	101.9	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (*k*=2)
0	CW	X	0.0	0.0	1.0	0.00	156.9	±2.1%
		Y	0.0	0.0	1.0		181.6	
		Z	0.0	0.0	1.0		161.7	

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 E^2-field uncertainty inside TSL (see Page 4).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainly is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:3748

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)	Unct. (*k*=2)
750	41.9	0.89	9.15	9.15	9.15	0.40	0.80	±12.1%
835	41.5	0.90	8.80	8.80	8.80	0.20	1.20	±12.1%
1750	40.1	1.37	7.68	7.68	7.68	0.25	1.00	±12.1%
1900	40.0	1.40	7.35	7.35	7.35	0.25	1.08	±12.1%
2100	39.8	1.49	7.33	7.33	7.33	0.23	1.17	±12.1%
2300	39.5	1.67	7.19	7.19	7.19	0.58	0.70	±12.1%
2450	39.2	1.80	7.00	7.00	7.00	0.60	0.71	±12.1%
2600	39.0	1.96	6.79	6.79	6.79	0.66	0.68	±12.1%
3500	37.9	2.91	6.14	6.14	6.14	0.47	0.97	±13.3%
3700	37.7	3.12	5.95	5.95	5.95	0.46	0.96	±13.3%
3900	37.5	3.32	6.06	6.06	6.06	0.40	1.15	±13.3%
4100	37.2	3.53	5.94	5.94	5.94	0.40	1.20	±13.3%
4200	37.1	3.63	5.85	5.85	5.85	0.40	1.25	±13.3%
4400	36.9	3.84	5.76	5.76	5.76	0.40	1.23	±13.3%
4600	36.7	4.04	5.66	5.66	5.66	0.40	1.35	±13.3%
4800	36.4	4.25	5.60	5.60	5.60	0.40	1.45	±13.3%
4950	36.3	4.40	5.32	5.32	5.32	0.40	1.45	±13.3%
5250	35.9	4.71	5.05	5.05	5.05	0.40	1.50	±13.3%
5600	35.5	5.07	4.64	4.64	4.64	0.45	1.45	±13.3%
5750	35.4	5.22	4.70	4.70	4.70	0.45	1.50	±13.3%

[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of 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 frequency 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 the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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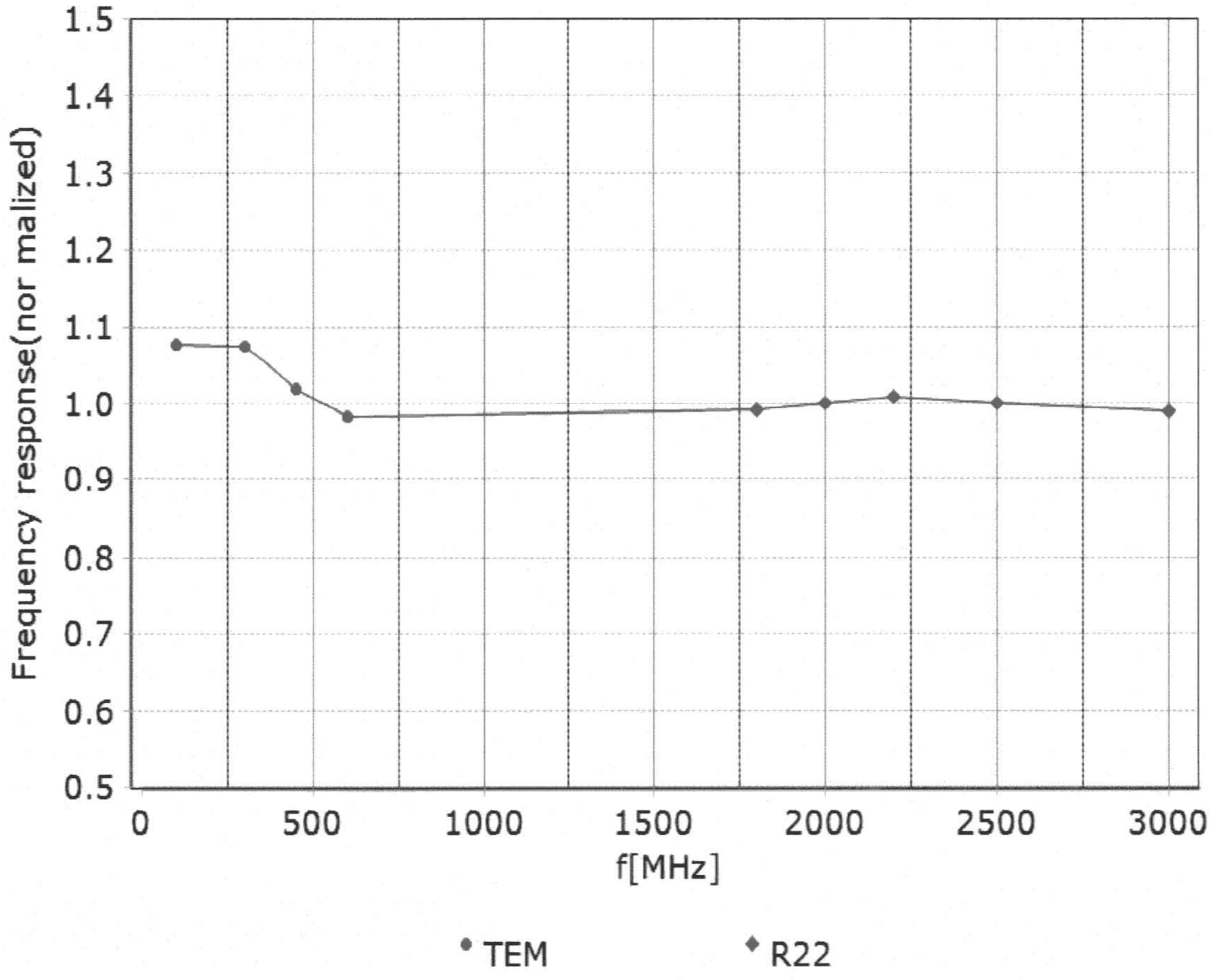
Frequency Response of E-Field
(TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ±7.4% (*k*=2)

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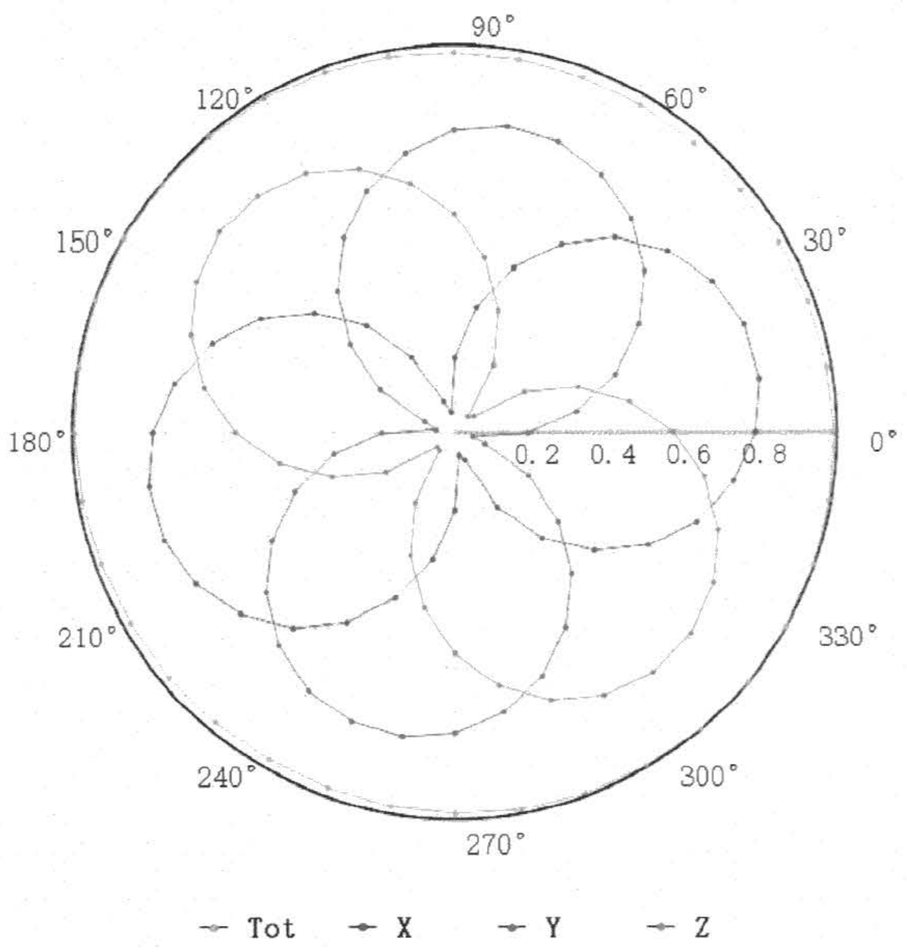
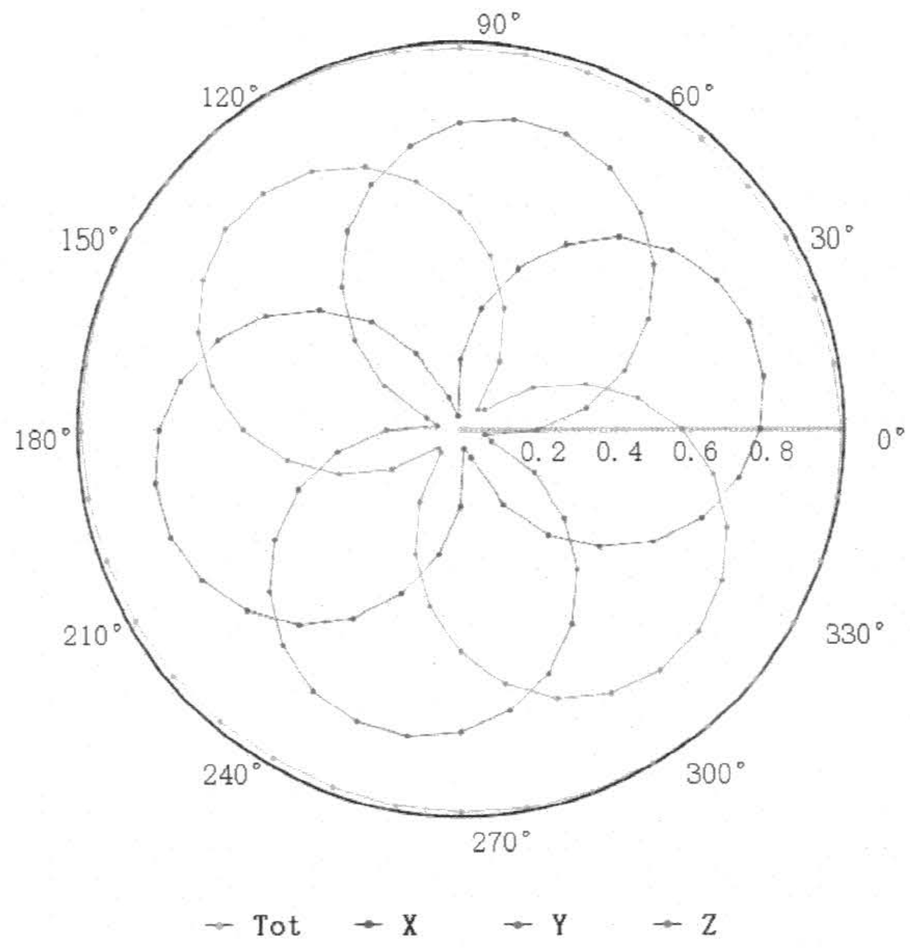
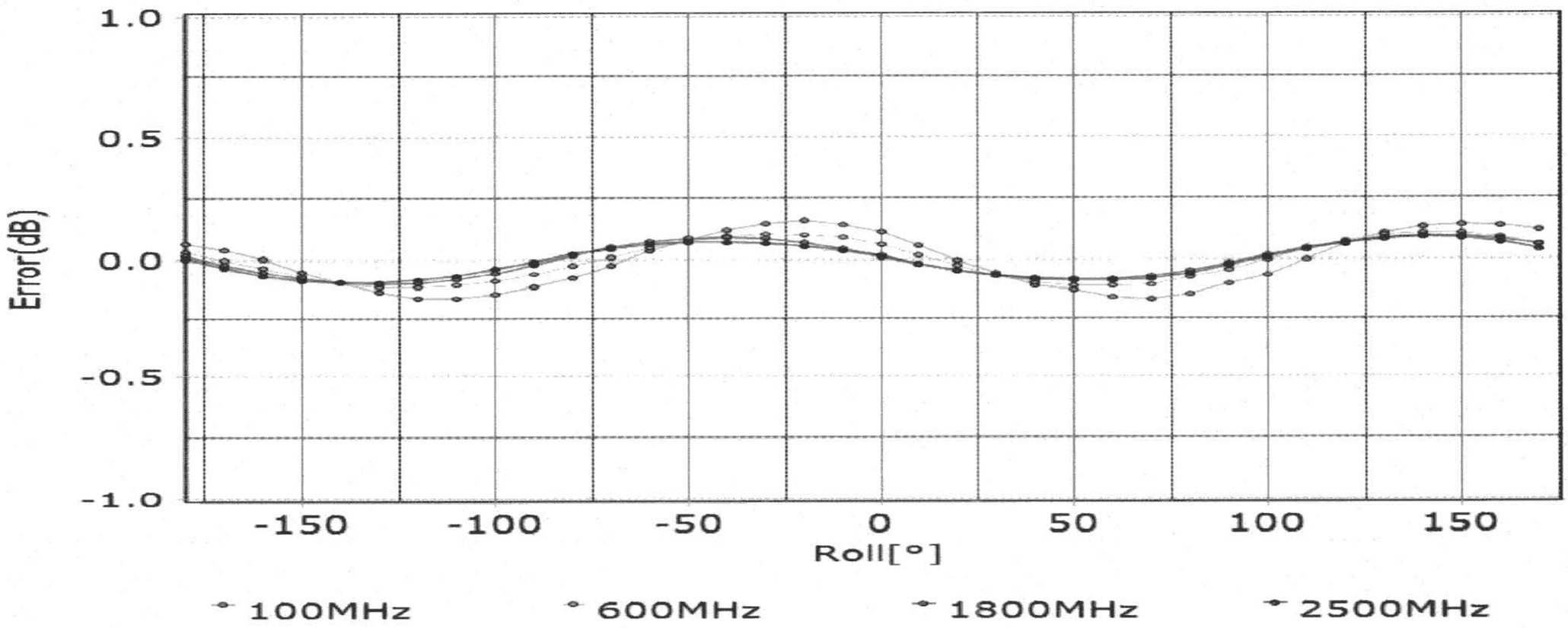
Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM



f=1800 MHz, R22





Uncertainty of Axial Isotropy Assessment: ±1.2% (*k*=2)

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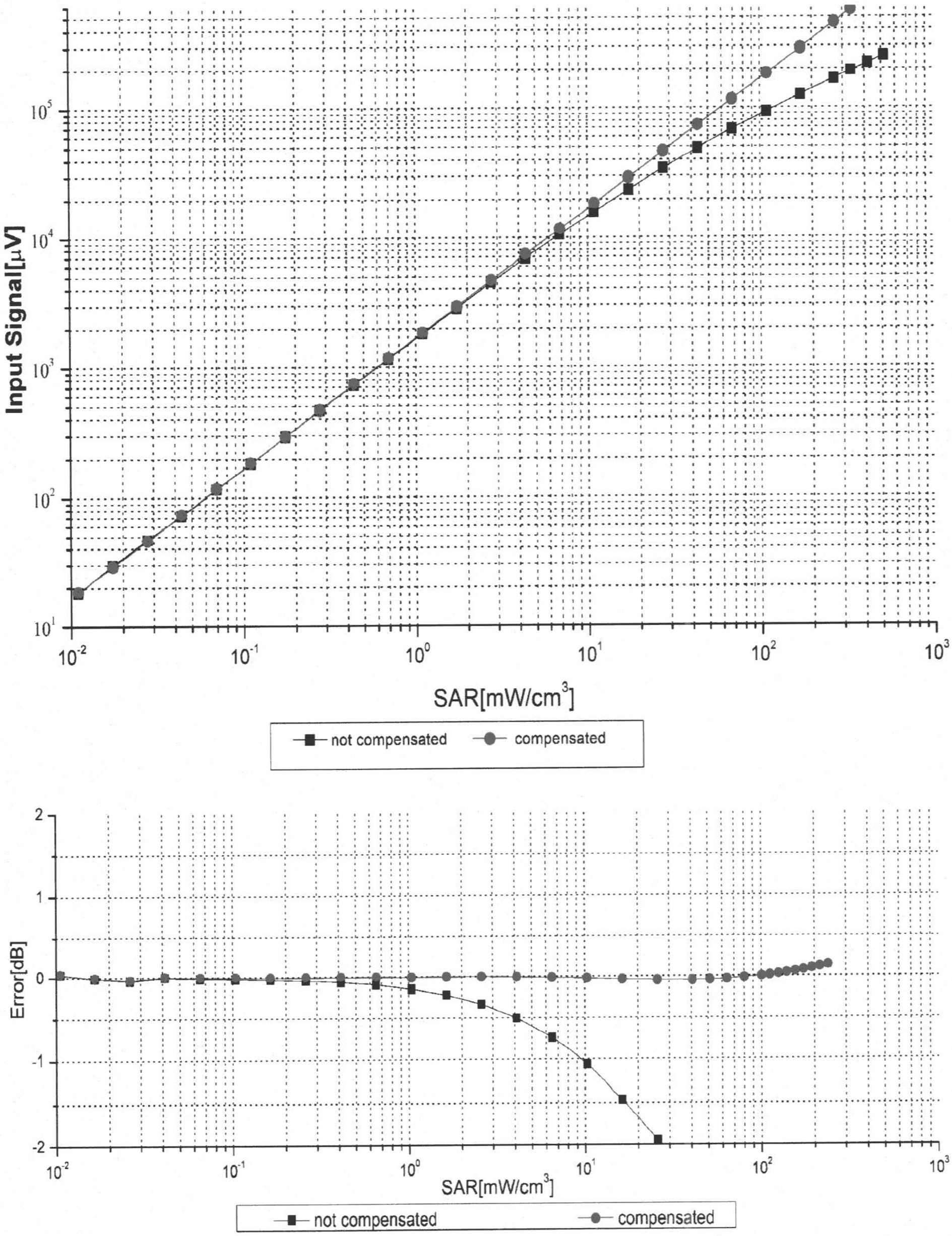
Dynamic Range f(SAR_{head})
(TEM cell, f = 900 MHz)



Uncertainty of Linearity Assessment: ±0.9% (*k*=2)

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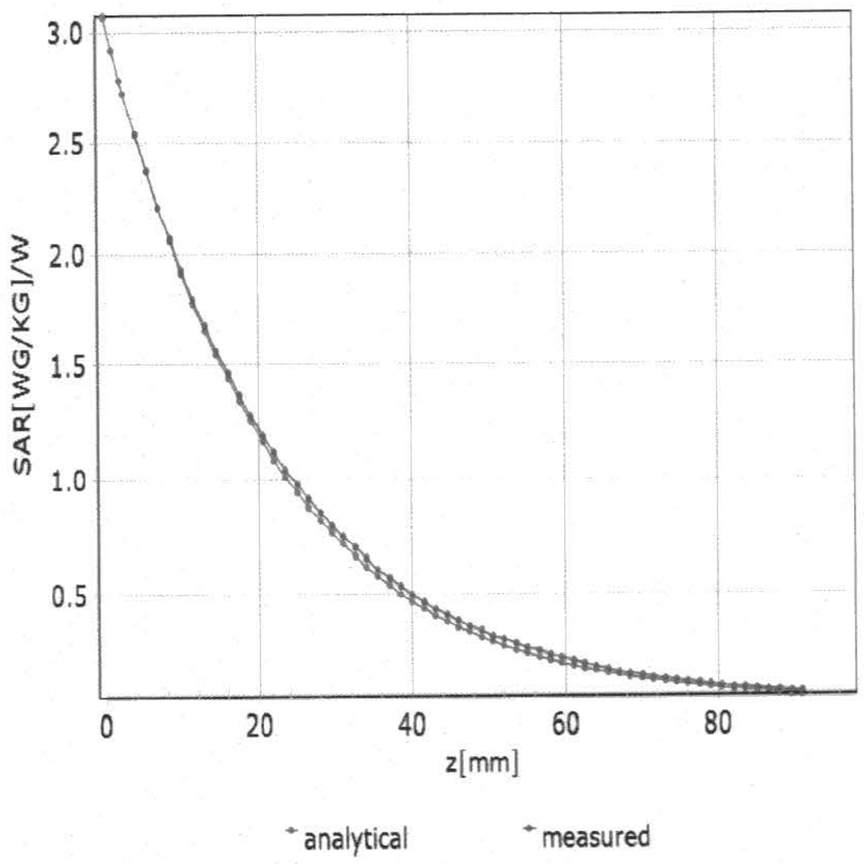
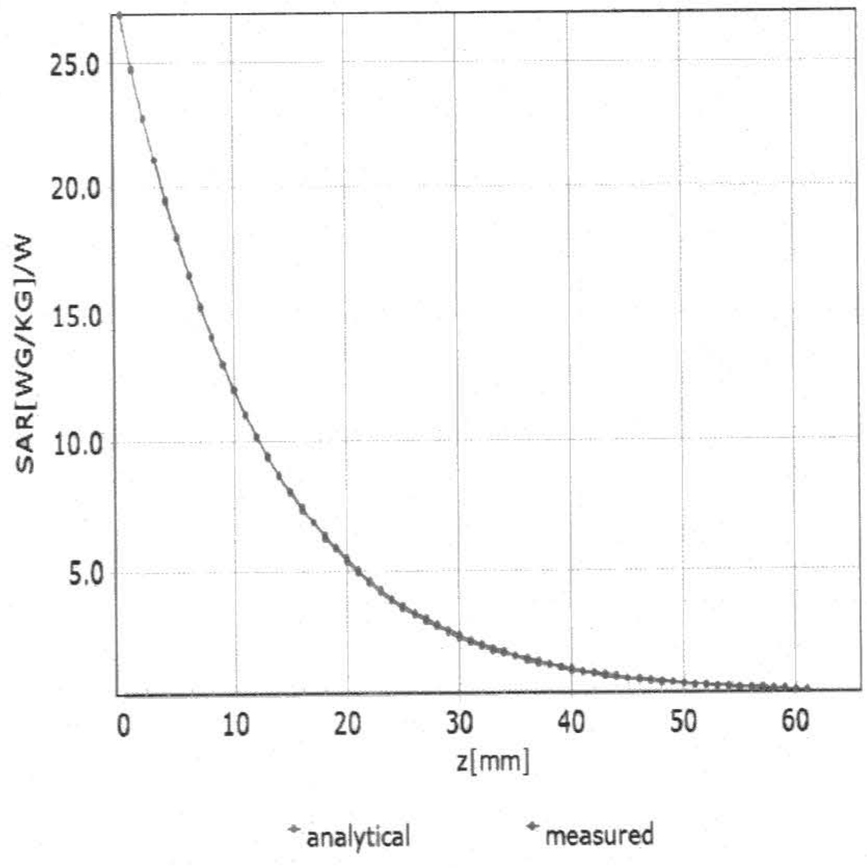
Conversion Factor Assessment

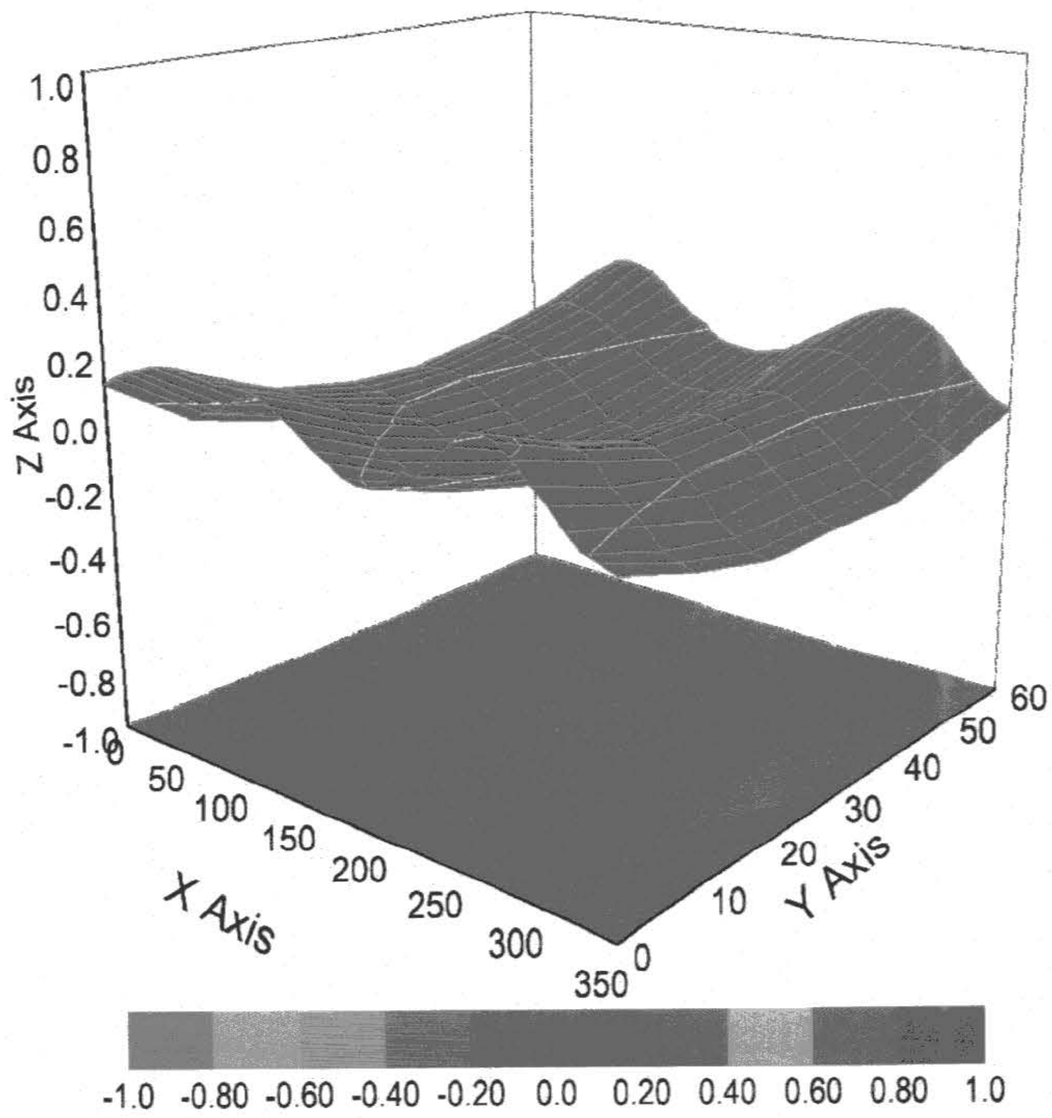
f=750 MHz,WGLS R9(H_convF)



f=1750 MHz,WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: ±3.2% (*k*=2)

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:3748

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	5.7
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	10mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm

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校准
CALIBRATION
CNAS L0570

Client SGS Certificate No: Z21-60031

CALIBRATION CERTIFICATE

Object ES3DV3 - SN : 3204

Calibration Procedure(s) FF-Z11-004-02
Calibration Procedures for Dosimetric E-field Probes

Calibration date: February 10, 2021

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±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	16-Jun-20(CTTL, No.J20X04344)	Jun-21
Power sensor NRP-Z91	101547	16-Jun-20(CTTL, No.J20X04344)	Jun-21
Power sensor NRP-Z91	101548	16-Jun-20(CTTL, No.J20X04344)	Jun-21
Reference 10dBAttenuator	18N50W-10dB	10-Feb-20(CTTL, No.J20X00525)	Feb-22
Reference 20dBAttenuator	18N50W-20dB	10-Feb-20(CTTL, No.J20X00526)	Feb-22
Reference Probe EX3DV4	SN 7307	29-May-20(SPEAG, No.EX3-7307_May20)	May-21
DAE4	SN 1555	25-Aug-20(SPEAG, No.DAE4-1555_Aug20)	Aug-21

Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	23-Jun-20(CTTL, No.J20X04343)	Jun-21
Network Analyzer E5071C	MY46110673	14-Jan-21 (CTTL, No.J21X00232)	Jan -22

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: February 12, 2021

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- *NORM(f)x,y,z = NORMx,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.
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- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- *Ax,y,z; Bx,y,z; Cx,y,z; VRx,y,z:* A,B,C 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≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,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±50MHz to±100MHz.
- *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 *NORMx* (no uncertainty required).

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DASY/EASY – Parameters of Probe: ES3DV3 – SN:3204

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (*k*=2)
Norm(μV/(V/m)²)[A]	1.38	1.29	1.36	±10.0%
DCP(mV)[B]	101.9	102.9	102.2	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (*k*=2)
0	CW	X	0.0	0.0	1.0	0.00	277.9	±2.2%
		Y	0.0	0.0	1.0		265.0	
		Z	0.0	0.0	1.0		273.8	

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 Page 4).
[B] Numerical linearization parameter: uncertainty not required.
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DASY/EASY – Parameters of Probe: ES3DV3 – SN:3204

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)	Unct. (k=2)
750	41.9	0.89	6.60	6.60	6.60	0.40	1.40	±12.1%
835	41.5	0.90	6.37	6.37	6.37	0.41	1.50	±12.1%
1750	40.1	1.37	5.44	5.44	5.44	0.69	1.26	±12.1%
1900	40.0	1.40	5.20	5.20	5.20	0.71	1.26	±12.1%
2300	39.5	1.67	5.00	5.00	5.00	0.90	1.10	±12.1%
2450	39.2	1.80	4.86	4.86	4.86	0.90	1.13	±12.1%
2600	39.0	1.96	4.61	4.61	4.61	0.90	1.15	±12.1%

[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of 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 frequency 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 the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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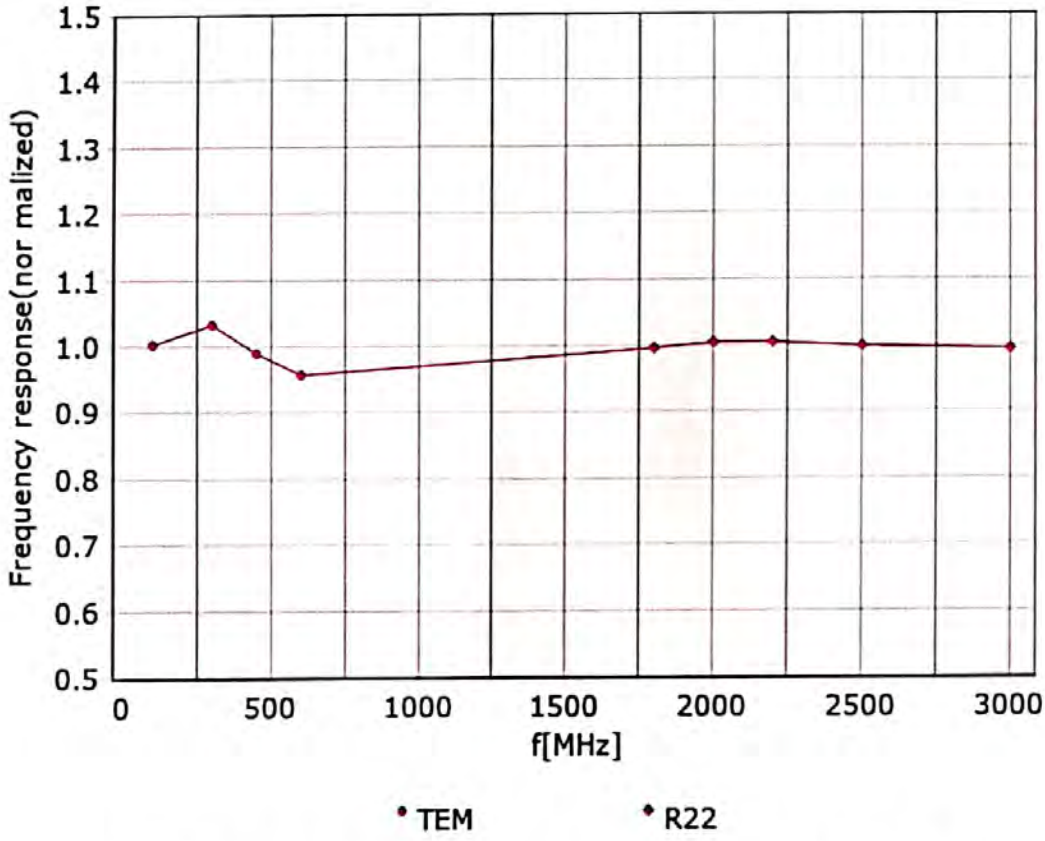
Frequency Response of E-Field
(TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ±7.4% (*k*=2)

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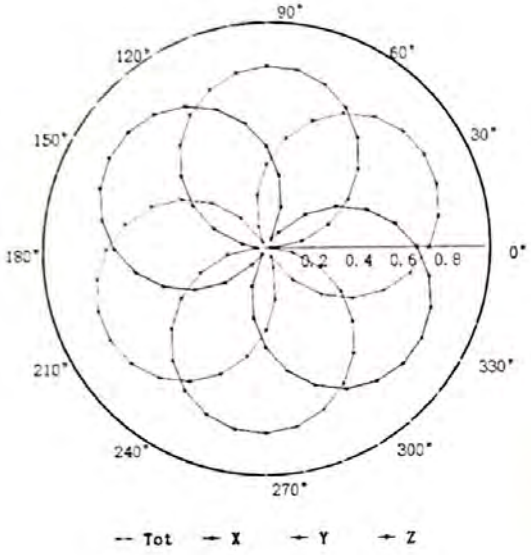
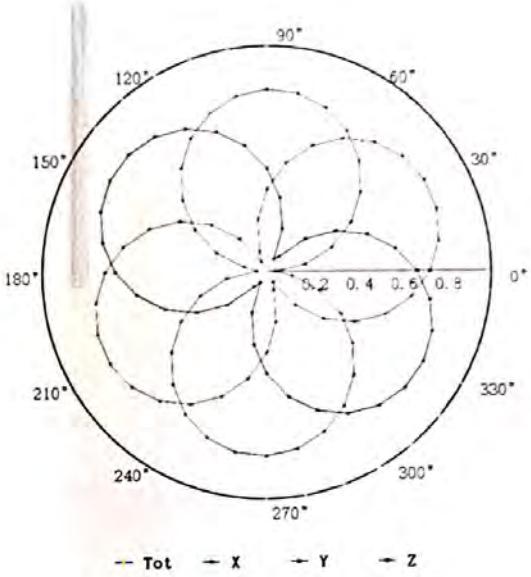
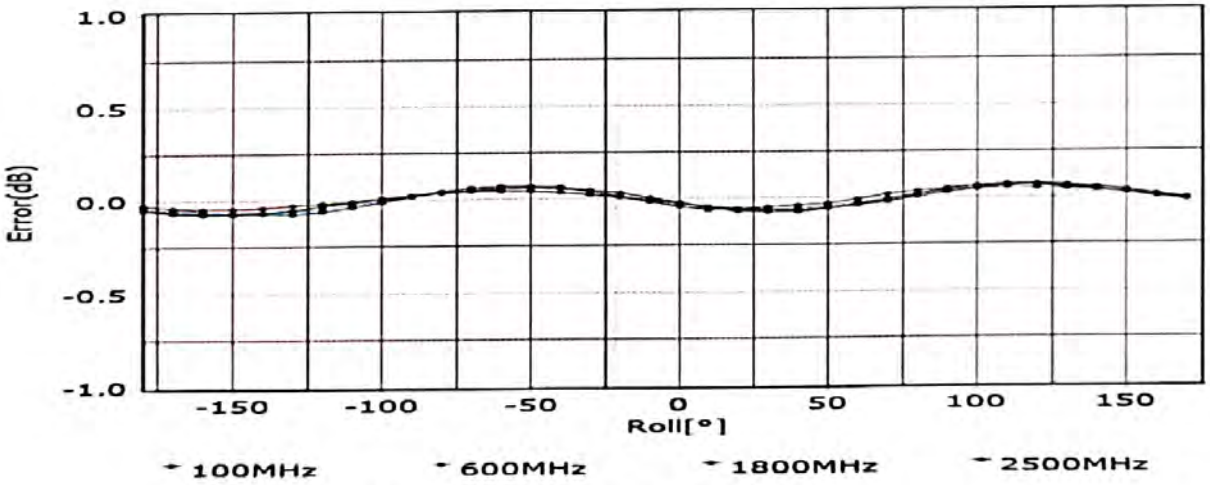
Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM



f=1800 MHz, R22





Uncertainty of Axial Isotropy Assessment: ±1.2% (*k*=2)

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s p e a g
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Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
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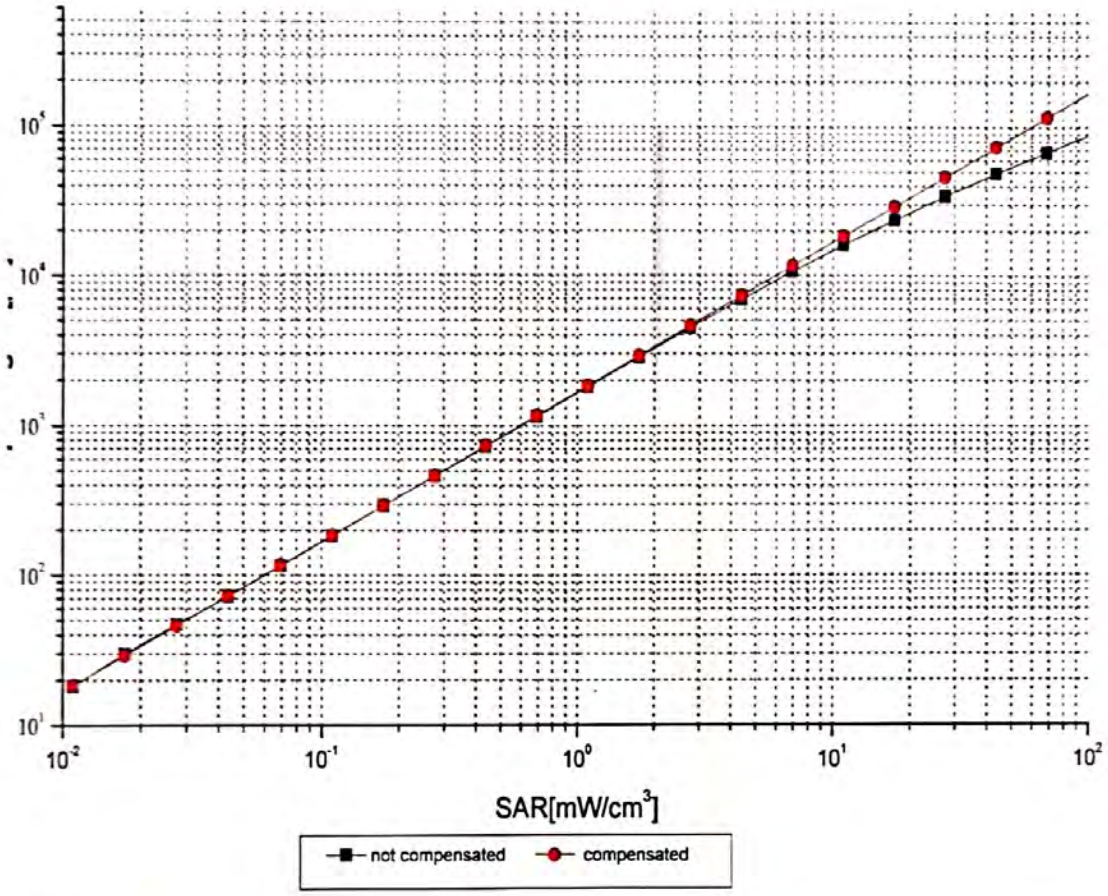
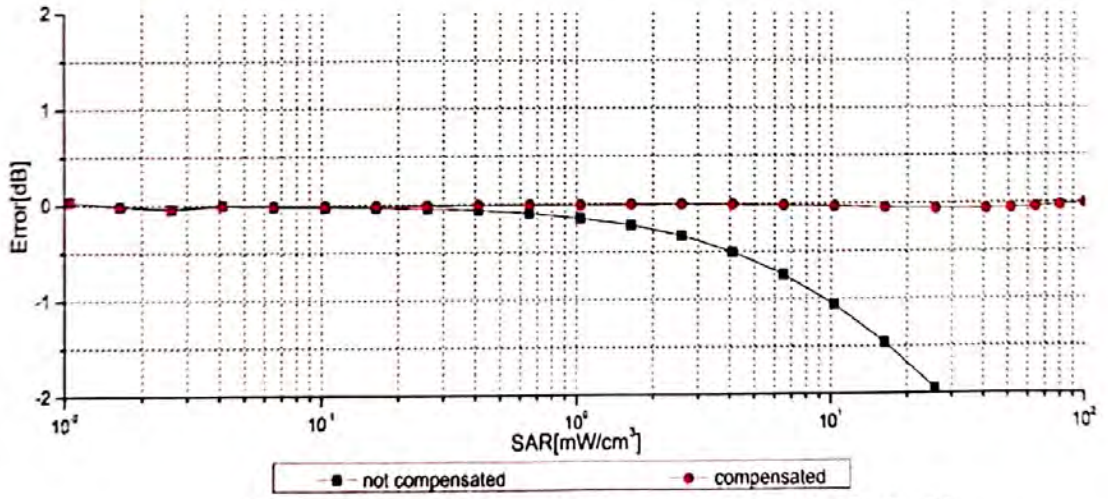
E-mail: cttl@chinattl.com Http://www.chinattl.cn

Dynamic Range f(SAR_{head})
(TEM cell, f = 900 MHz)





Uncertainty of Linearity Assessment: ±0.9% (*k*=2)

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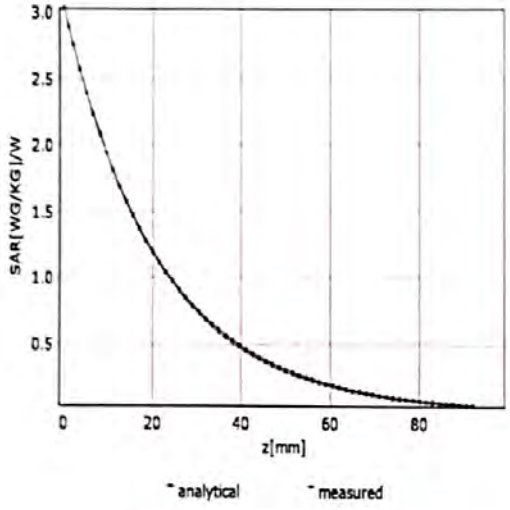
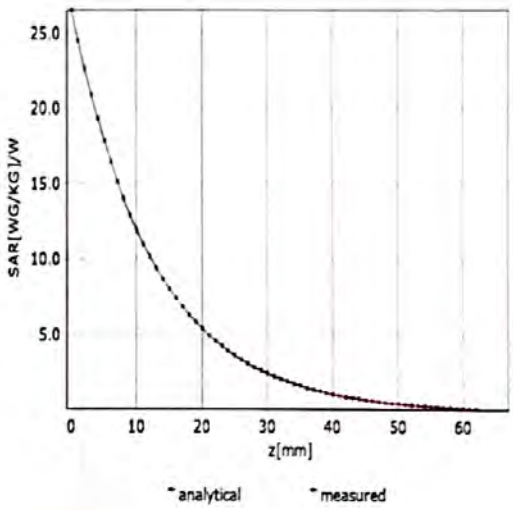
Conversion Factor Assessment

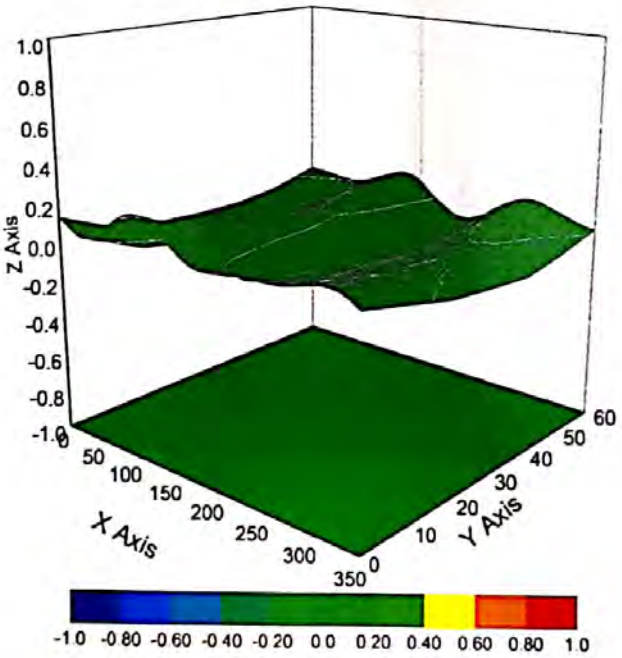
f=750 MHz,WGLS R9(H_convF)



f=1750 MHz,WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: ±3.2% (*k*=2)

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E-mail: cttl@chinattl.com Http://www.chinattl.cn

DASY/EASY – Parameters of Probe: ES3DV3 – SN:3204

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	142.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	10mm
Tip Diameter	4mm
Probe Tip to Sensor X Calibration Point	2mm
Probe Tip to Sensor Y Calibration Point	2mm
Probe Tip to Sensor Z Calibration Point	2mm
Recommended Measurement Distance from Surface	3mm

Dipole D750V3 SN 1160				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-05-22	-29.1	/	51.8	/
2020-05-21	-29.4	1.03%	52.2	0.4Ω

Dipole D835V2 SN 4d105				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-12-17	-26.0	/	49.5	/
2020-12-16	-27.0	3.85%	51.4	1.9Ω

Dipole D1750V2 SN 1149				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-05-21	-31.8	/	47.6	/
2020-05-20	-32.3	1.57%	48.9	1.3Ω

Dipole D1900V2 SN 5d028				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-12-17	-22.2	/	51.2	/
2020-12-16	-23.0	3.60%	53.3	2.1Ω

Dipole D2450V2 SN 733				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-12-17	-27.2	/	52.2	/
2020-12-16	-27.8	2.21%	53.4	1.2Ω

Dipole D2600V2 SN 1125				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-05-20	-25.7	/	48.9	/
2020-05-19	-26.6	3.50%	50.8	1.9Ω

Dipole D3700V2 SN 1046				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-09-06	-28.2	/	43.3	/
2020-09-05	-29.1	3.19%	44.7	1.4Ω

Dipole D3900V2 SN 1026					
Head Liquid					
Frequency(MHz)	Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
3900	2019-09-03	-23.4	/	46.7	/
	2020-09-02	-24.2	3.42%	47.8	1.1Ω
4100	2019-09-03	-21.7	/	59.0	/
	2020-09-02	-22.2	2.30%	59.6	0.6Ω

Dipole D5GHzV2 SN 1165				
5250MHz Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-12-20	-25.5	/	45.2	/
2020-12-19	-26.3	3.14%	47.1	1.9Ω
5600MHz Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-12-20	26.8	/	52.0	/
2020-12-19	-27.6	2.99%	53.7	1.7Ω
5750MHz Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-12-20	-27.5	/	50.0	/
2020-12-19	-28.4	3.27%	52.6	2.6Ω

Appendix E

Conducted RF Output Power Table

1 Measurement of RF conducted Power
1.1 Conducted Power of Main Antenna (Ant1)
1.2 Conducted Power of Main Antenna (Ant2)
1.3 Conducted Power of Main Antenna (Ant4)
2 Conducted Power of NR Antenna
2.1 Conducted Power of NR Antenna (Ant1)
2.2 Conducted Power of NR Antenna (Ant2)
2.3 Conducted Power of NR Antenna (Ant4)
3 Conducted Power of Uplink CA and Downlink CA
3.1 Uplink LTE CA Conducted Power of Ant1
3.2 Uplink LTE CA Conducted Power of Ant4
3.3 Downlink LTE CA Conducted Power of Ant1
3.4 Downlink LTE CA Conducted Power of Ant4
4 Conducted Power of WiFi and BT
4.1 Conducted Power of WiFi
4.2 Conducted Power of BT

1 Measurement of RF conducted Power

1.1 Conducted Power of Main Antenna (Ant1)

1.1.1 Conducted Power of GSM

GSM 850 Receiver on										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GSM(GMSK)	GSM	32.92	32.95	32.94	33.50	-9.19	23.73	23.76	23.75	24.31
GPRS/EGPRS (GMSK)	1 TX Slot	32.52	32.62	32.60	33.50	-9.19	23.33	23.43	23.41	24.31
	2 TX Slots	30.59	30.51	30.58	32.50	-6.18	24.41	24.33	24.40	26.32
	3 TX Slots	28.59	28.58	28.65	30.50	-4.42	24.17	24.16	24.23	26.08
	4 TX Slots	27.61	27.61	27.65	29.50	-3.17	24.44	24.44	24.48	26.33
EGPRS(8PSK)	1 TX Slot	27.44	27.45	27.38	27.50	-9.19	18.25	18.26	18.19	18.31
	2 TX Slots	26.41	26.38	26.29	26.50	-6.18	20.23	20.20	20.11	20.32
	3 TX Slots	24.23	24.14	24.06	24.50	-4.42	19.81	19.72	19.64	20.08
	4 TX Slots	23.12	23.00	23.04	23.50	-3.17	19.95	19.83	19.87	20.33
GSM 850 Sensor off&Sensor on&Receiver off										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GSM(GMSK)	GSM	32.54	32.59	32.55	33.00	-9.19	23.35	23.40	23.36	23.81
GPRS/EGPRS (GMSK)	1 TX Slot	32.18	32.11	32.15	33.00	-9.19	22.99	22.92	22.96	23.81
	2 TX Slots	30.03	30.13	30.14	32.00	-6.18	23.85	23.95	23.96	25.82
	3 TX Slots	28.14	28.04	28.11	30.00	-4.42	23.72	23.62	23.69	25.58
	4 TX Slots	27.12	27.15	27.12	29.00	-3.17	23.95	23.98	23.95	25.83
EGPRS(8PSK)	1 TX Slot	27.02	27.13	27.02	27.50	-9.19	17.83	17.94	17.83	18.31
	2 TX Slots	26.10	26.04	26.01	26.50	-6.18	19.92	19.86	19.83	20.32
	3 TX Slots	23.86	23.81	23.76	24.50	-4.42	19.44	19.39	19.34	20.08
	4 TX Slots	22.81	22.80	22.77	23.50	-3.17	19.64	19.63	19.60	20.33
GSM 1900 Receiver on										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		512	661	810			512	661	810	
GSM(GMSK)	GSM	29.56	29.52	29.54	30.50	-9.19	20.37	20.33	20.35	21.31
GPRS/EGPRS (GMSK)	1 TX Slot	29.61	29.62	29.70	30.50	-9.19	20.42	20.43	20.51	21.31
	2 TX Slots	28.78	28.87	28.88	29.50	-6.18	22.60	22.69	22.70	23.32
	3 TX Slots	26.80	26.90	26.99	27.50	-4.42	22.38	22.48	22.57	23.08
	4 TX Slots	25.46	25.53	25.52	26.50	-3.17	22.29	22.36	22.35	23.33
EGPRS(8PSK)	1 TX Slot	24.39	24.45	24.41	26.00	-9.19	15.20	15.26	15.22	16.81
	2 TX Slots	23.03	23.08	23.15	24.50	-6.18	16.85	16.90	16.97	18.32
	3 TX Slots	20.55	20.59	20.50	22.50	-4.42	16.13	16.17	16.08	18.08
	4 TX Slots	19.14	19.07	19.11	21.00	-3.17	15.97	15.90	15.94	17.83
GSM 1900 Sensor off&Sensor on&Receiver off										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		512	661	810			512	661	810	
GSM(GMSK)	GSM	25.02	25.04	25.07	25.50	-9.19	15.83	15.85	15.88	16.31
GPRS/EGPRS (GMSK)	1 TX Slot	24.96	25.00	24.99	25.50	-9.19	15.77	15.81	15.80	16.31
	2 TX Slots	22.64	22.67	22.67	24.50	-6.18	16.46	16.49	16.49	18.32
	3 TX Slots	20.52	20.58	20.68	22.50	-4.42	16.10	16.16	16.26	18.08
	4 TX Slots	19.67	19.76	19.70	21.50	-3.17	16.50	16.59	16.53	18.33
EGPRS(8PSK)	1 TX Slot	19.52	19.58	19.68	21.00	-9.19	10.33	10.39	10.49	11.81
	2 TX Slots	17.56	17.57	17.61	19.50	-6.18	11.38	11.39	11.43	13.32
	3 TX Slots	15.59	15.58	15.59	17.50	-4.42	11.17	11.16	11.17	13.08
	4 TX Slots	14.43	14.49	14.52	16.00	-3.17	11.26	11.32	11.35	12.83

Table 1： Conducted Power of GSM

1.1.2 Conducted Power of WCDMA

WCDMA Band II Receiver off&Sensor off&Receiver on					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	22.99	22.67	22.55	23.50
	12.2kbps AMR	22.58	22.63	22.61	23.50
HSDPA	Subtest 1	22.19	22.13	22.18	23.00
	Subtest 2	21.98	22.11	22.00	23.00
	Subtest 3	21.76	21.66	21.84	22.50
	Subtest 4	21.54	21.49	21.41	22.50
HSUPA	Subtest 1	22.27	22.23	22.07	23.00
	Subtest 2	20.00	19.98	19.95	21.00
	Subtest 3	20.20	20.88	21.04	22.00
	Subtest 4	20.00	19.44	19.67	21.00
	Subtest 5	22.17	22.04	21.98	23.00
DC-HSDPA	Subtest 1	22.15	22.04	22.08	23.00
	Subtest 2	22.13	22.05	21.96	23.00
	Subtest 3	21.52	21.66	21.74	22.50
	Subtest 4	20.20	20.11	20.04	20.50
HSPA+	Subtest 4	19.18	19.15	19.02	19.50
WCDMA Band II Sensor on					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	19.71	19.73	19.68	20.50
	12.2kbps AMR	19.60	19.62	19.59	20.50
HSDPA	Subtest 1	19.22	19.15	19.15	20.00
	Subtest 2	18.97	19.10	19.05	20.00
	Subtest 3	18.76	18.66	18.84	19.50
	Subtest 4	18.54	18.47	18.41	19.50
HSUPA	Subtest 1	19.28	19.24	19.04	20.00
	Subtest 2	17.05	16.99	16.96	18.00
	Subtest 3	17.23	17.86	18.02	19.00
	Subtest 4	17.01	16.45	16.65	18.00
	Subtest 5	19.15	19.02	19.00	20.00
DC-HSDPA	Subtest 1	19.16	19.09	19.07	20.00
	Subtest 2	19.14	19.06	18.96	20.00
	Subtest 3	18.51	18.64	18.70	19.50
	Subtest 4	17.22	17.11	17.02	17.50
HSPA+	Subtest 4	16.03	16.05	16.01	16.50

WCDMA Band IV Receiver off&Sensor off&Receiver on					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	23.42	23.44	23.55	24.50
	12.2kbps AMR	23.32	23.35	23.42	24.50
HSDPA	Subtest 1	23.20	23.13	23.20	24.00
	Subtest 2	22.97	23.10	23.04	24.00
	Subtest 3	22.78	22.71	22.82	23.50
	Subtest 4	22.54	22.49	22.45	23.50
HSUPA	Subtest 1	23.27	23.22	23.03	24.00
	Subtest 2	21.02	21.02	20.96	22.00
	Subtest 3	21.20	21.88	22.05	23.00
	Subtest 4	21.00	20.49	20.66	22.00
	Subtest 5	23.16	23.05	23.00	24.00
DC-HSDPA	Subtest 1	23.20	23.08	23.03	24.00
	Subtest 2	23.11	23.08	22.98	24.00
	Subtest 3	22.51	22.67	22.74	23.50
	Subtest 4	21.25	21.14	21.05	21.50
HSPA+	Subtest 4	20.17	20.16	20.01	20.50
WCDMA Band IV Sensor on					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	18.10	18.08	18.14	19.50
	12.2kbps AMR	18.02	18.04	18.05	19.50
HSDPA	Subtest 1	18.22	18.17	18.19	19.00
	Subtest 2	17.97	18.07	18.00	19.00
	Subtest 3	17.81	17.71	17.84	18.50
	Subtest 4	17.53	17.48	17.43	18.50
HSUPA	Subtest 1	18.26	18.25	18.08	19.00
	Subtest 2	16.00	16.01	15.96	17.00
	Subtest 3	16.25	16.88	17.03	18.00
	Subtest 4	16.03	15.49	15.70	17.00
	Subtest 5	18.15	18.04	18.01	19.00
DC-HSDPA	Subtest 1	18.15	18.04	18.08	19.00
	Subtest 2	18.15	18.07	17.96	19.00
	Subtest 3	17.54	17.69	17.70	18.50
	Subtest 4	16.22	16.11	16.00	16.50
HSPA+	Subtest 4	15.21	15.05	14.98	15.50

WCDMA Band V Receiver off&Sensor off&Receiver on					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	23.38	23.30	23.45	24.50
	12.2kbps AMR	23.28	23.21	23.34	24.50
HSDPA	Subtest 1	23.08	22.99	23.05	24.00
	Subtest 2	22.86	22.99	22.90	24.00
	Subtest 3	22.66	22.60	22.67	23.50
	Subtest 4	22.39	22.34	22.35	23.50
HSUPA	Subtest 1	23.14	23.09	22.91	24.00
	Subtest 2	20.91	20.88	20.85	22.00
	Subtest 3	21.10	21.76	21.91	23.00
	Subtest 4	20.89	20.36	20.51	22.00
	Subtest 5	23.01	22.91	22.85	24.00
DC-HSDPA	Subtest 1	23.07	22.98	22.90	24.00
	Subtest 2	23.01	22.98	22.84	24.00
	Subtest 3	22.38	22.53	22.61	23.50
	Subtest 4	21.11	21.00	20.90	21.50
HSPA+	Subtest 4	20.08	20.03	19.95	20.50
WCDMA Band V Sensor on					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	20.70	20.56	20.69	22.00
	12.2kbps AMR	20.64	20.50	20.61	22.00
HSDPA	Subtest 1	20.48	20.36	20.44	21.50
	Subtest 2	20.22	20.35	20.25	21.50
	Subtest 3	20.02	20.00	20.06	21.00
	Subtest 4	19.75	19.74	19.74	21.00
HSUPA	Subtest 1	20.50	20.45	20.26	21.50
	Subtest 2	18.29	18.23	18.24	19.50
	Subtest 3	19.21	19.15	19.28	20.50
	Subtest 4	18.28	17.72	17.88	19.50
	Subtest 5	20.41	20.28	20.25	21.50
DC-HSDPA	Subtest 1	20.45	20.36	20.28	21.50
	Subtest 2	20.36	20.38	20.22	21.50
	Subtest 3	19.78	19.90	19.99	21.00
	Subtest 4	18.46	18.36	18.26	19.00
HSPA+	Subtest 4	17.52	17.39	17.20	18.00

Table 2： Conducted Power of WCDMA

1.1.3 Conducted Power of LTE

LTE Band 2 Receiver on				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18607	18900	19193	
1.4MHz	QPSK	1	0	23.07	23.03	23.04	24.50
		1	2	23.28	22.99	23.11	24.50
		1	5	23.23	22.98	23.17	24.50
		3	0	23.07	23.09	23.18	24.50
		3	2	23.15	23.11	23.09	24.50
		3	3	23.24	23.16	23.22	24.50
		6	0	22.80	22.61	22.61	23.50
	16QAM	1	0	22.84	23.08	22.98	23.50
		1	2	22.92	22.56	23.09	23.50
		1	5	22.54	22.74	23.05	23.50
		3	0	22.77	22.60	22.69	23.50
		3	2	22.75	22.56	22.76	23.50
		3	3	22.67	22.62	22.63	23.50
		6	0	21.71	21.70	21.65	22.50
	64QAM	1	0	21.67	21.76	21.69	22.50
		1	2	21.68	21.80	21.69	22.50
		1	5	21.70	21.64	21.54	22.50
		3	0	21.76	21.56	21.73	22.50
		3	1	21.64	21.69	21.71	22.50
		3	3	21.50	21.50	21.46	22.50
		6	0	20.70	20.79	20.77	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18615	18900	19185	
3MHz	QPSK	1	0	23.17	23.07	23.05	24.50
		1	7	23.21	23.21	23.08	24.50
		1	14	23.18	23.16	23.13	24.50
		8	0	22.58	22.61	22.60	23.50
		8	4	22.62	22.58	22.63	23.50
		8	7	22.65	22.57	22.60	23.50
		15	0	22.66	22.57	22.61	23.50
	16QAM	1	0	22.52	23.08	22.93	23.50
		1	7	22.94	22.71	22.68	23.50
		1	14	23.01	22.77	22.67	23.50
		8	0	21.74	21.65	21.67	22.50
		8	4	21.71	21.63	21.71	22.50
		8	7	21.62	21.67	21.71	22.50
		15	0	21.73	21.57	21.61	22.50
	64QAM	1	0	21.57	21.63	21.58	22.50
		1	7	21.67	21.58	21.71	22.50
		1	14	21.58	21.46	21.58	22.50
		8	0	20.50	20.75	20.67	21.50
		8	4	20.69	20.58	20.68	21.50
		8	7	20.52	20.52	20.47	21.50
		15	0	20.74	20.75	20.78	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18625	18900	19175	
5MHz	QPSK	1	0	23.11	23.19	23.16	24.50
		1	13	23.20	23.11	23.24	24.50
		1	24	23.24	23.17	23.11	24.50
		12	0	22.62	22.63	22.67	23.50

		12	6	22.60	22.57	22.64	23.50
		12	13	22.77	22.56	22.57	23.50
		25	0	22.59	22.62	22.66	23.50
		1	0	22.63	23.16	22.96	23.50
		1	13	22.79	23.10	23.03	23.50
		1	24	22.96	23.12	22.93	23.50
	16QAM	12	0	21.53	21.60	21.72	22.50
		12	6	21.69	21.63	21.63	22.50
		12	13	21.74	21.53	21.58	22.50
		25	0	21.73	21.69	21.72	22.50
		1	0	21.62	21.50	21.61	22.50
		1	13	21.76	21.75	21.70	22.50
		1	24	21.47	21.67	21.60	22.50
	64QAM	12	0	20.56	20.57	20.62	21.50
		12	6	20.53	20.50	20.71	21.50
		12	13	20.47	20.64	20.71	21.50
		25	0	20.54	20.48	20.50	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18650	18900	19150	
		1	0	23.05	23.25	23.08	24.50
		1	25	23.16	23.21	23.11	24.50
		1	49	23.13	23.05	23.19	24.50
	QPSK	25	0	22.53	22.65	22.59	23.50
		25	13	22.63	22.61	22.62	23.50
		25	25	22.72	22.54	22.60	23.50
		50	0	22.63	22.54	22.63	23.50
		1	0	22.73	22.78	22.58	23.50
		1	25	22.49	22.81	22.61	23.50
		1	49	22.73	22.84	23.07	23.50
10MHz	16QAM	25	0	21.54	21.63	21.54	22.50
		25	13	21.58	21.74	21.60	22.50
		25	25	21.71	21.55	21.61	22.50
		50	0	21.58	21.55	21.65	22.50
		1	0	21.50	21.43	21.51	22.50
		1	25	21.61	21.49	21.55	22.50
		1	49	21.62	21.67	21.44	22.50
	64QAM	25	0	20.50	20.62	20.47	21.50
		25	13	20.50	20.55	20.77	21.50
		25	25	20.66	20.59	20.43	21.50
		50	0	20.78	20.78	20.77	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18675	18900	19125	
		1	0	23.03	22.99	23.23	24.50
		1	38	22.97	23.07	23.29	24.50
		1	74	23.07	22.97	23.01	24.50
	QPSK	36	0	22.53	22.58	22.59	23.50
		36	18	22.57	22.57	22.60	23.50
		36	39	22.67	22.52	22.51	23.50
		75	0	22.65	22.58	22.62	23.50
15MHz		1	0	23.05	23.11	22.82	23.50
		1	38	22.67	22.78	22.91	23.50
		1	74	22.84	22.38	22.98	23.50
	16QAM	36	0	21.56	21.64	21.62	22.50
		36	18	21.60	21.61	21.66	22.50
		36	39	21.65	21.54	21.58	22.50
		75	0	21.63	21.59	21.62	22.50
	64QAM	1	0	21.63	21.75	21.65	22.50

		1	38	21.52	21.71	21.66	22.50
		1	74	21.79	21.66	21.52	22.50
		36	0	20.59	20.58	20.53	21.50
		36	18	20.45	20.58	20.69	21.50
		36	39	20.61	20.65	20.73	21.50
		75	0	20.53	20.52	20.76	21.50
Bandwidth	Modulation	RB size	RB offset	Channel 18700	Channel 18900	Channel 19100	Tune up
20MHz	QPSK	1	0	23.21	23.22	23.02	24.50
		1	50	23.13	23.21	23.11	24.50
		1	99	22.93	23.11	23.11	24.50
		50	0	22.47	22.73	22.67	23.50
		50	25	22.59	22.64	22.64	23.50
		50	50	22.64	22.50	22.64	23.50
		100	0	22.56	22.52	22.62	23.50
	16QAM	1	0	22.93	22.98	22.51	23.50
		1	50	22.63	22.58	22.88	23.50
		1	99	23.04	22.88	22.47	23.50
		50	0	21.42	21.70	21.58	22.50
		50	25	21.60	21.65	21.63	22.50
		50	50	21.67	21.49	21.58	22.50
		100	0	21.50	21.49	21.60	22.50
	64QAM	1	0	21.42	21.48	21.69	22.50
		1	50	21.56	21.59	21.53	22.50
		1	99	21.57	21.69	21.75	22.50
		50	0	20.66	20.73	20.49	21.50
		50	25	20.50	20.55	20.60	21.50
		50	50	20.45	20.56	20.69	21.50
		100	0	20.51	20.76	20.46	21.50

LTE Band 2 Receiver off&Sensor off				**Conducted Power(dBm)**			
Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193	Tune up
1.4MHz	QPSK	1	0	22.20	22.19	22.25	23.50
		1	2	22.31	22.36	22.25	23.50
		1	5	22.28	22.20	22.13	23.50
		3	0	22.23	22.15	22.30	23.50
		3	2	22.28	22.31	22.31	23.50
		3	3	22.28	22.35	22.25	23.50
		6	0	22.33	22.35	22.26	23.50
	16QAM	1	0	22.25	22.30	22.11	23.50
		1	2	22.32	22.31	22.27	23.50
		1	5	22.21	22.19	22.28	23.50
		3	0	22.25	22.11	22.17	23.50
		3	2	22.35	22.27	22.33	23.50
		3	3	22.24	22.22	22.23	23.50
		6	0	21.71	21.70	21.65	22.50
	64QAM	1	0	21.79	21.65	21.82	22.50
		1	2	21.82	21.65	21.81	22.50
		1	5	21.85	21.54	21.68	22.50
		3	0	21.89	21.41	21.85	22.50
		3	1	21.74	21.56	21.86	22.50
		3	3	21.61	21.39	21.56	22.50
		6	0	20.83	20.68	20.91	21.50