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Client Sporton

Certificate No: DAE4-1358_Apr20

CALIBRATION CERTIFICATE

Object DAE4 - SD 000 D04 BN - SN: 1358

Calibration procedure(s) QA CAL-06.v30
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: April 28, 2020

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 (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	03-Sep-19 (No:25949)	Sep-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SE UWS 053 AA 1001	09-Jan-20 (in house check)	In house check: Jan-21
Calibrator Box V2.1	SE UMS 006 AA 1002	09-Jan-20 (in house check)	In house check: Jan-21

	Name	Function
Calibrated by:	Eric Hainfeld	Laboratory Technician

Approved by:	Sven Kühn	Deputy Manager
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Signature

Issued: April 29, 2020

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Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle:* The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
 - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
 - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
 - *Input Offset Measurement:* Output voltage and statistical results over a large number of zero voltage measurements.
 - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
 - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V , full range = -100...+300 mV

Low Range: 1LSB = 61nV , full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	403.411 $\pm$ 0.02% (k=2)	403.452 $\pm$ 0.02% (k=2)	403.463 $\pm$ 0.02% (k=2)
Low Range	3.96158 $\pm$ 1.50% (k=2)	3.98747 $\pm$ 1.50% (k=2)	3.99174 $\pm$ 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	113.5 ° $\pm$ 1 °
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Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	200024.85	-8.32	-0.00
Channel X + Input	20005.36	0.39	0.00
Channel X - Input	-20003.50	2.72	-0.01
Channel Y + Input	200030.06	-2.90	-0.00
Channel Y + Input	20004.14	-0.70	-0.00
Channel Y - Input	-20008.00	-1.63	0.01
Channel Z + Input	200034.52	1.89	0.00
Channel Z + Input	20005.02	0.16	0.00
Channel Z - Input	-20007.28	-0.87	0.00

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	2000.94	0.03	0.00
Channel X + Input	200.94	0.01	0.01
Channel X - Input	-198.93	0.16	-0.08
Channel Y + Input	2000.58	-0.17	-0.01
Channel Y + Input	199.97	-0.81	-0.40
Channel Y - Input	-200.24	-0.99	0.50
Channel Z + Input	2000.83	0.21	0.01
Channel Z + Input	199.97	-0.67	-0.34
Channel Z - Input	-199.90	-0.63	0.32

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	23.26	21.16
	- 200	-21.29	-22.70
Channel Y	200	-27.83	-28.04
	- 200	26.48	26.49
Channel Z	200	-11.47	-11.06
	- 200	9.80	9.70

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	1.92	-3.40
Channel Y	200	8.27	-	3.32
Channel Z	200	9.47	5.42	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15579	16774
Channel Y	16044	14871
Channel Z	16074	16518

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10M Ω

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	0.87	-0.93	1.98	0.46
Channel Y	-0.62	-1.71	0.15	0.38
Channel Z	-0.46	-1.45	0.52	0.39

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9



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Accreditation No.: **SCS 0108**

Client **Sporton**

Certificate No: **EX3-3935_May20**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3935**

Calibration procedure(s) **QA CAL-01.v9, QA CAL-14.v5, QA CAL-23.v5, QA CAL-25.v7**
Calibration procedure for dosimetric E-field probes

Calibration date: **May 27, 2020**

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 (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: CC2552 (20x)	31-Mar-20 (No. 217-03106)	Apr-21
DAE4	SN: 660	27-Dec-19 (No. DAE4-660_Dec19)	Dec-20
Reference Probe ES3DV2	SN: 3013	31-Dec-19 (No. ES3-3013_Dec19)	Dec-20
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	
			Issued: June 1, 2020
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Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3935

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.49	0.53	0.48	± 10.1 %
DCP (mV) ^B	102.6	103.2	102.3	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Max dev.	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	137.0	± 3.3 %	± 4.7 %
		Y	0.0	0.0	1.0		150.1		
		Z	0.0	0.0	1.0		141.6		

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 5).

^B Numerical linearization parameter: uncertainty not required.

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3935

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	44.5
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3935

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	41.9	0.89	10.58	10.58	10.58	0.57	0.80	± 12.0 %
835	41.5	0.90	10.31	10.31	10.31	0.38	0.93	± 12.0 %
900	41.5	0.97	10.16	10.16	10.16	0.40	0.88	± 12.0 %
1750	40.1	1.37	8.60	8.60	8.60	0.27	0.86	± 12.0 %
1900	40.0	1.40	8.35	8.35	8.35	0.24	0.86	± 12.0 %
2000	40.0	1.40	8.25	8.25	8.25	0.34	0.86	± 12.0 %
2300	39.5	1.67	7.86	7.86	7.86	0.35	0.90	± 12.0 %
2450	39.2	1.80	7.60	7.60	7.60	0.33	0.90	± 12.0 %
2600	39.0	1.96	7.43	7.43	7.43	0.37	0.90	± 12.0 %
5250	35.9	4.71	5.04	5.04	5.04	0.40	1.80	± 14.0 %
5600	35.5	5.07	4.76	4.76	4.76	0.40	1.80	± 14.0 %
5750	35.4	5.22	4.67	4.67	4.67	0.40	1.80	± 14.0 %

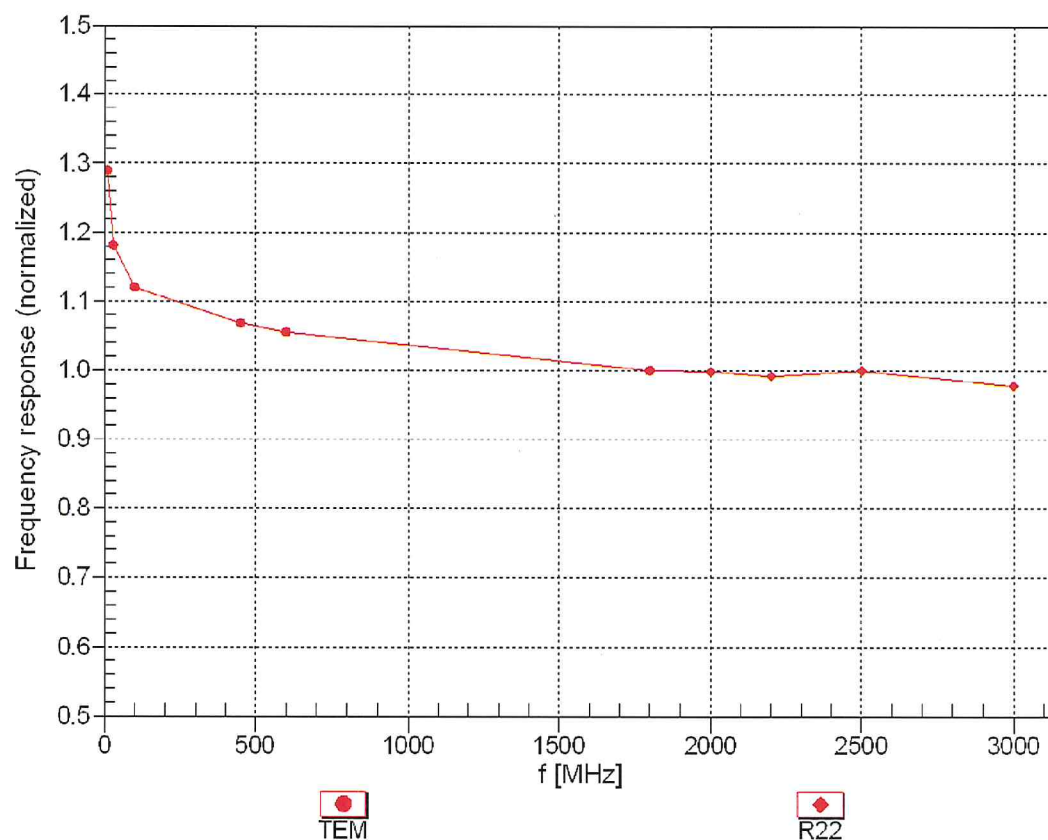
^C Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

^F At frequencies up to 6 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

Frequency Response of E-Field

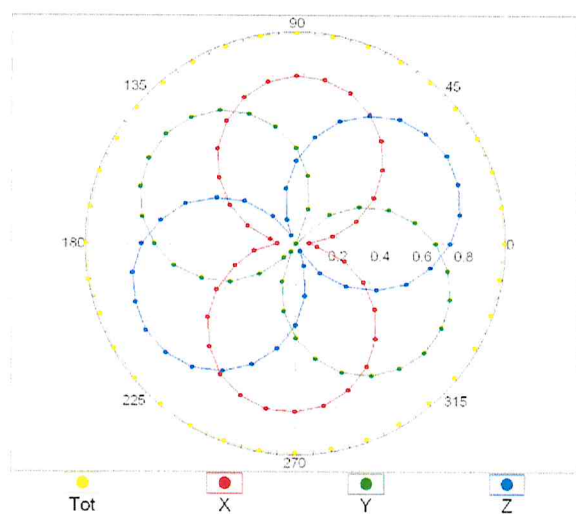
(TEM-Cell:ifi110 EXX, Waveguide: R22)



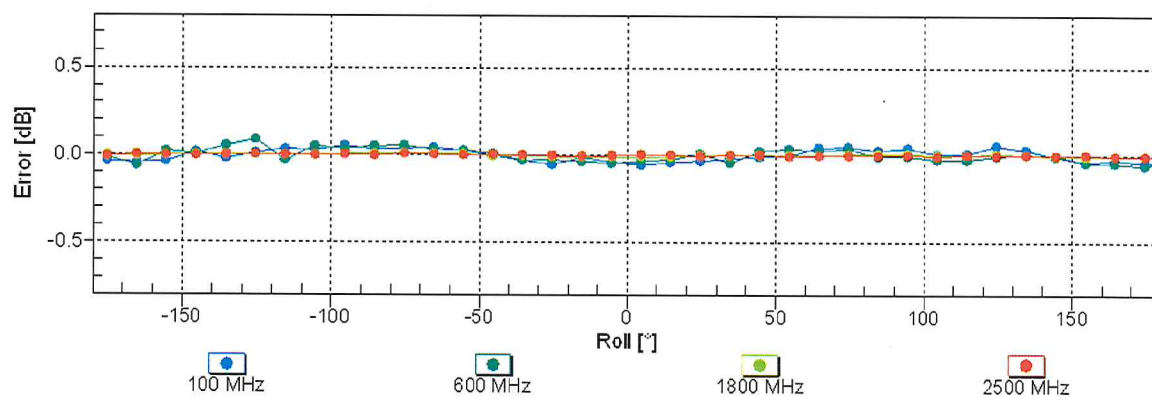
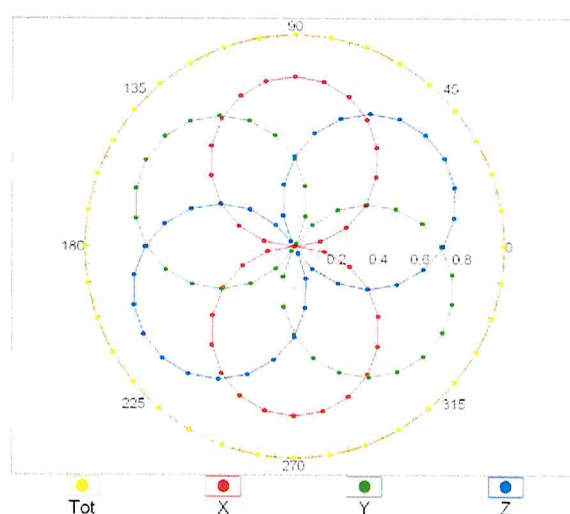
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

Receiving Pattern (ϕ), $\vartheta = 0^\circ$

f=600 MHz,TEM

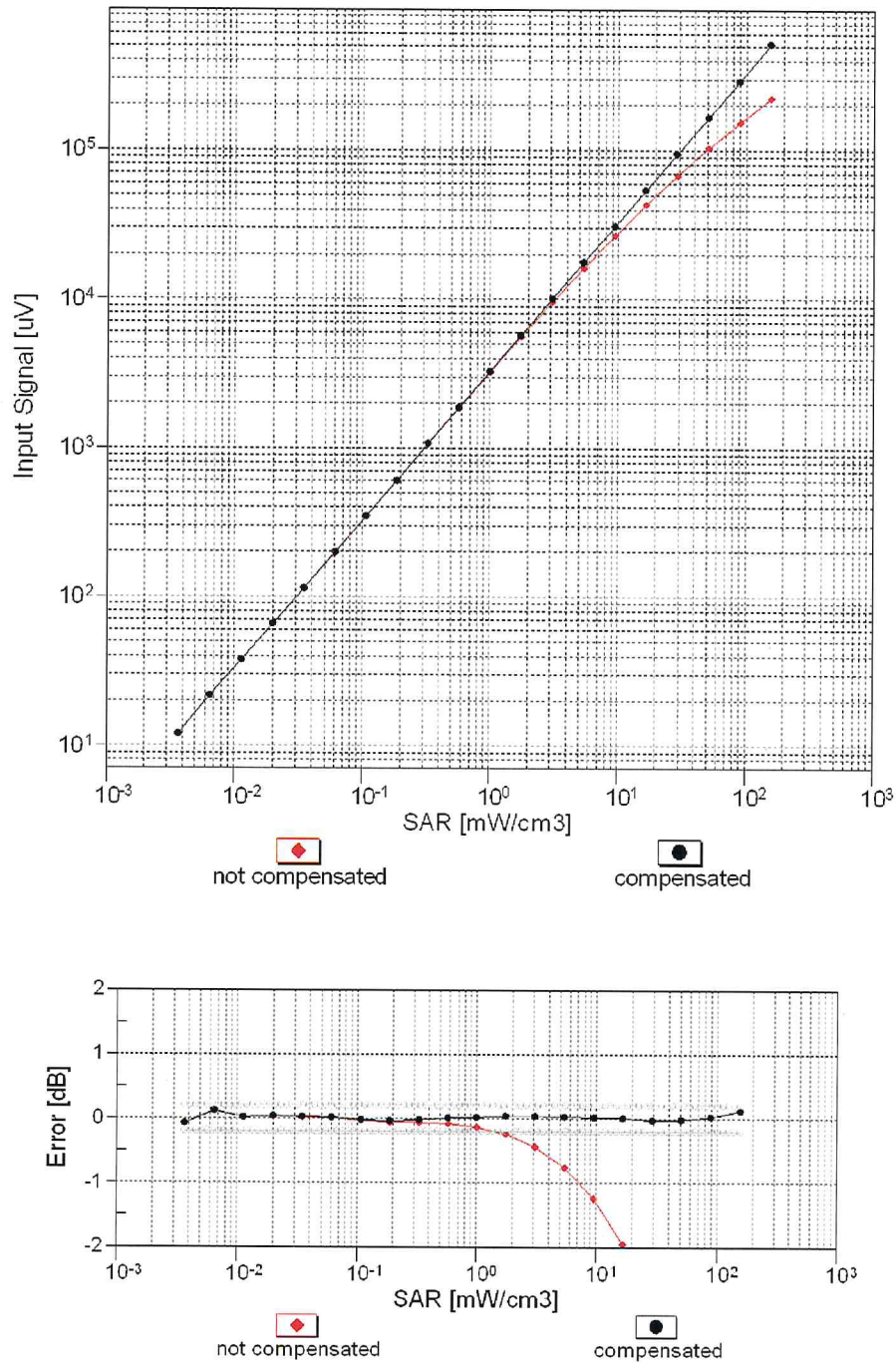


f=1800 MHz,R22



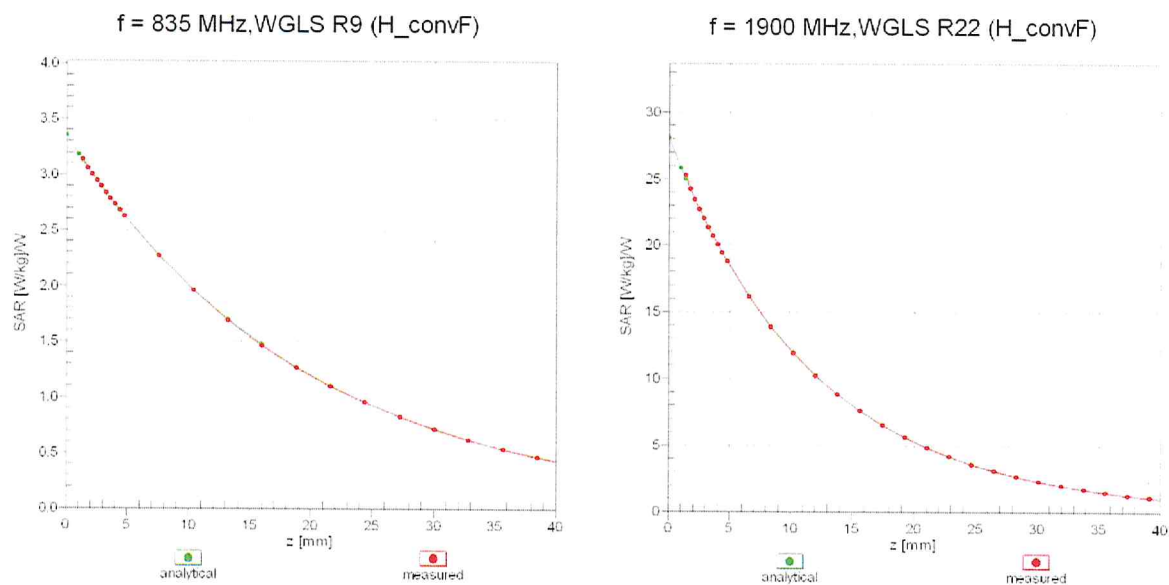
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell , $f_{\text{eval}} = 1900 \text{ MHz}$)



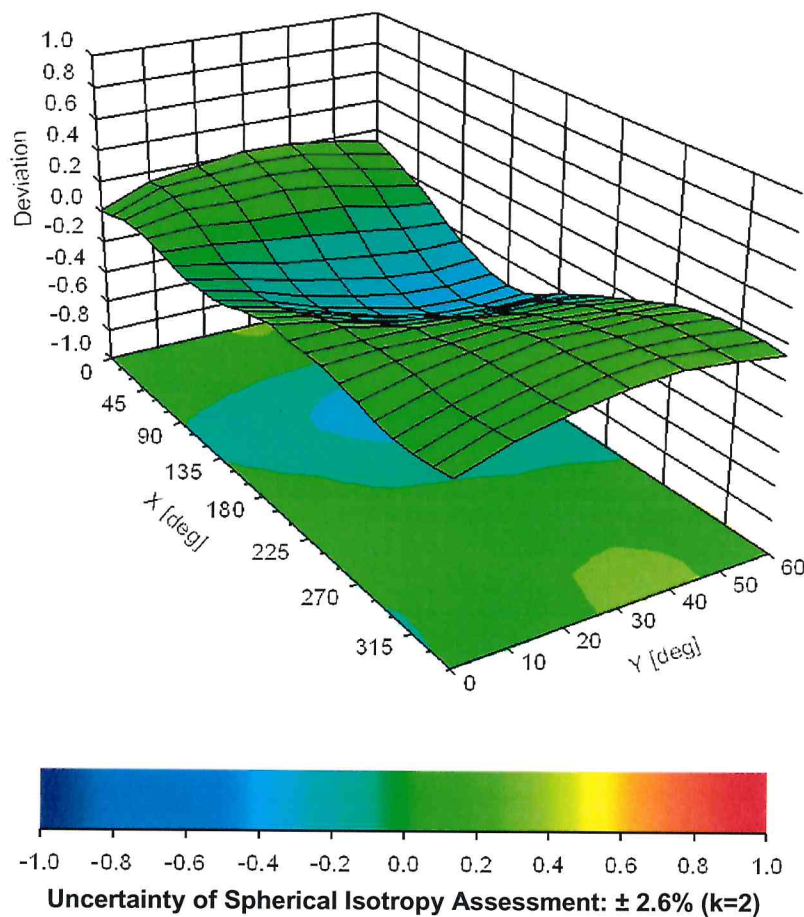
Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), $f = 900 \text{ MHz}$





Appendix E. Conducted RF Output Power Table

The detailed power tables are shown as follows.

Power Level for Receiver on

GSM850		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		125	135	251		125	135	251	
Frequency (MHz)		824.2	836.4	848.8	33.50	824.2	836.4	848.8	24.50
GSM 1 Tx slot		32.36	32.39	32.32		23.36	23.39	23.32	
GPRS 1 Tx slot		32.35	32.38	32.30	33.50	23.35	23.38	23.30	24.50
GPRS 2 Tx slots		31.57	31.60	31.51	32.50	25.57	25.60	25.51	26.50
GPRS 3 Tx slots		29.85	29.85	29.75	30.50	25.59	25.59	25.49	26.24
GPRS 4 Tx slots		28.68	28.69	28.59	29.50	25.68	25.69	25.59	26.46
EDGE 1 Tx slot		26.67	26.65	26.41	27.50	17.67	17.65	17.41	18.50
EDGE 2 Tx slots		25.41	25.34	25.16	26.50	19.41	19.34	19.16	20.50
EDGE 3 Tx slots		23.01	22.90	22.66	23.50	18.75	18.64	18.40	19.24
EDGE 4 Tx slots		21.61	21.71	21.45	22.50	18.81	18.71	18.45	19.50

GSM1900		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		512	661	810		512	661	810	
Frequency (MHz)		1850.2	1880	1909.8	30.50	1850.2	1880	1909.8	21.50
GSM 1 Tx slot		28.76	29.24	28.83		19.76	20.24	19.83	
GPRS 1 Tx slot		28.75	29.23	28.80	30.50	19.75	20.23	19.80	21.50
GPRS 2 Tx slots		28.03	28.50	28.08	29.50	22.03	22.50	22.08	23.50
GPRS 3 Tx slots		26.23	26.50	26.36	27.50	21.97	22.24	22.10	23.24
GPRS 4 Tx slots		25.08	25.45	25.25	26.50	22.08	22.45	22.25	23.66
EDGE 1 Tx slot		24.69	25.11	25.06	26.50	15.69	16.11	16.06	17.50
EDGE 2 Tx slots		23.70	24.12	24.08	25.00	17.70	18.12	18.08	19.00
EDGE 3 Tx slots		21.74	22.14	22.08	23.00	17.48	17.88	17.82	18.74
EDGE 4 Tx slots		20.98	21.08	21.03	22.00	17.98	18.08	18.03	19.00

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		4132	4182	4233	
Rx Channel		9662	9800	9938	24.00	4357	4407	4458	23.00
Frequency (MHz)		1852.4	1880	1907.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	22.61	22.68	22.65	24.00	22.94	23.04	23.01	24.00
3GPP Rel 99	AMR 12.2Kbps	22.62	22.69	22.66	24.00	22.99	23.06	23.04	24.00
3GPP Rel 6	HSDPA Subtest-1	21.58	21.69	21.66	23.00	21.95	21.79	21.82	23.00
3GPP Rel 6	HSDPA Subtest-2	21.59	21.58	21.65	23.00	21.88	21.82	21.83	23.00
3GPP Rel 6	HSDPA Subtest-3	21.06	21.11	21.20	22.50	21.40	21.34	21.35	22.50
3GPP Rel 6	HSDPA Subtest-4	21.07	21.04	21.14	22.50	21.41	21.35	21.33	22.50
3GPP Rel 8	DC-HSDPA Subtest-1	21.55	21.66	21.62	23.00	21.93	21.78	21.79	23.00
3GPP Rel 8	DC-HSDPA Subtest-2	21.56	21.57	21.61	23.00	21.86	21.81	21.80	23.00
3GPP Rel 8	DC-HSDPA Subtest-3	21.03	21.10	21.16	22.50	21.38	21.33	21.32	22.50
3GPP Rel 8	DC-HSDPA Subtest-4	21.04	21.03	21.10	22.50	21.39	21.34	21.30	22.50
3GPP Rel 6	HSUPA Subtest-1	21.69	21.51	21.38	23.00	22.03	22.02	21.81	23.00
3GPP Rel 6	HSUPA Subtest-2	19.78	19.53	19.51	21.00	20.01	19.90	19.97	21.00
3GPP Rel 6	HSUPA Subtest-3	20.67	20.54	20.34	22.00	20.81	20.78	20.71	22.00
3GPP Rel 6	HSUPA Subtest-4	19.82	19.51	19.51	21.00	19.92	19.79	19.79	21.00
3GPP Rel 6	HSUPA Subtest-5	21.70	21.68	21.56	23.00	22.03	21.92	21.90	23.00
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	19.77	19.80	19.78	20.50	19.84	20.02	19.92	20.50

Band 5 (Cellular Band) Part 22H(only on channel required)									
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel				20450	20525	20600	24	0	
Frequency (MHz)				829	836.5	844			
10	QPSK	1	0	22.33	22.53	22.09			
10	QPSK	1	25	22.43	22.43	22.47	23	1	
10	QPSK	1	49	22.16	22.17	22.40			
10	QPSK	25	0	21.65	21.74	21.59			
10	QPSK	25	12	21.42	21.67	21.46	23	1	
10	QPSK	25	25	21.42	21.64	21.38			
10	QPSK	50	0	21.56	21.68	21.48			
10	16QAM	1	0	21.27	21.49	21.35	23	1	
10	16QAM	1	25	21.61	21.54	21.63			
10	16QAM	1	49	21.33	21.49	21.22			
10	16QAM	25	0	20.24	20.72	20.55	22	2	
10	16QAM	25	12	20.39	20.65	20.42			
10	16QAM	25	25	20.39	20.60	20.35			
10	16QAM	50	0	20.31	20.68	20.43	22	2	
10	64QAM	1	0	20.30	20.61	20.44			
10	64QAM	1	25	20.46	20.56	20.64			
10	64QAM	1	49	20.54	20.61	20.37	21	3	
10	64QAM	25	0	19.48	19.96	19.77			
10	64QAM	25	12	19.60	19.89	19.63			
10	64QAM	25	25	19.63	19.84	19.56	21	3	
10	64QAM	50	0	19.56	19.90	19.67			
Channel				20425	20525	20625	24	0	
Frequency (MHz)				826.5	836.5	846.5			
5	QPSK	1	0	22.14	22.40	22.26			
5	QPSK	1	12	22.43	22.32	22.51	23	1	
5	QPSK	1	24	22.24	22.35	22.19			
5	QPSK	12	0	21.27	21.68	21.45			
5	QPSK	12	7	21.40	21.67	21.43	23	1	
5	QPSK	12	13	21.40	21.63	21.41			
5	QPSK	25	0	21.34	21.66	21.39			
5	16QAM	1	0	21.33	21.79	21.46	23	1	
5	16QAM	1	12	21.72	21.43	21.66			
5	16QAM	1	24	21.56	21.60	21.47			
5	16QAM	12	0	20.21	20.63	20.41	22	2	
5	16QAM	12	7	20.34	20.62	20.37			
5	16QAM	12	13	20.33	20.58	20.34			
5	16QAM	25	0	20.31	20.65	20.38	22	2	
5	64QAM	1	0	20.52	20.83	20.56			
5	64QAM	1	12	20.82	20.65	20.91			
5	64QAM	1	24	20.64	20.77	20.58	21	3	
5	64QAM	12	0	19.45	19.86	19.64			
5	64QAM	12	7	19.58	19.84	19.61			
5	64QAM	12	13	19.58	19.83	19.57	21	3	
5	64QAM	25	0	19.56	19.87	19.60			
Channel				20415	20525	20635	24	0	
Frequency (MHz)				825.5	836.5	847.5			
3	QPSK	1	0	22.22	22.21	22.35			
3	QPSK	1	8	22.34	22.32	22.47	23	1	
3	QPSK	1	14	22.30	22.46	22.28			
3	QPSK	8	0	21.26	21.68	21.41			
3	QPSK	8	4	21.34	21.66	21.39	23	1	
3	QPSK	8	7	21.32	21.60	21.41			
3	QPSK	15	0	21.30	21.66	21.40			
3	16QAM	1	0	21.52	21.82	21.55	23	1	
3	16QAM	1	8	21.57	21.99	21.55			
3	16QAM	1	14	21.57	21.69	21.52			
3	16QAM	8	0	20.25	20.65	20.39	22	2	
3	16QAM	8	4	20.34	20.64	20.37			
3	16QAM	8	7	20.33	20.59	20.33			
3	16QAM	15	0	20.30	20.62	20.35	22	2	
3	64QAM	1	0	20.48	20.95	20.69			
3	64QAM	1	8	20.69	20.76	20.68			
3	64QAM	1	14	20.69	20.88	20.66	21	3	
3	64QAM	8	0	19.48	19.88	19.62			
3	64QAM	8	4	19.55	19.87	19.61			
3	64QAM	8	7	19.56	19.81	19.60	21	3	
3	64QAM	15	0	19.50	19.85	19.58			
Channel				20407	20525	20643	24	0	
Frequency (MHz)				824.7	836.5	848.3			
1.4	QPSK	1	0	22.19	22.30	22.30			
1.4	QPSK	1	3	22.33	22.31	22.42	23	1	
1.4	QPSK	1	5	22.19	22.31	22.28			
1.4	QPSK	3	0	22.33	22.30	22.39			
1.4	QPSK	3	1	22.35	22.32	22.47	23	1	
1.4	QPSK	3	3	22.31	22.31	22.39			
1.4	QPSK	6	0	21.30	21.66	21.43			
1.4	16QAM	1	0	21.43	21.73	21.45	23	1	
1.4	16QAM	1	3	21.48	21.87	21.67			
1.4	16QAM	1	5	21.48	21.82	21.47			
1.4	16QAM	3	0	21.26	21.59	21.41	22	2	
1.4	16QAM	3	1	21.27	21.71	21.44			
1.4	16QAM	3	3	21.27	21.56	21.33			
1.4	16QAM	6	0	20.37	20.71	20.51	22	2	
1.4	64QAM	1	0	20.55	20.65	20.67			
1.4	64QAM	1	3	20.58	20.56	20.76			
1.4	64QAM	1	5	20.46	20.67	20.60	22	2	
1.4	64QAM	3	0	20.55	20.89	20.63			
1.4	64QAM	3	1	20.58	20.91	20.72			
1.4	64QAM	3	3	20.55	20.91	20.59	21	3	
1.4	64QAM	6	0	19.53	19.90	19.64			

Band 7 (2600MHz Band) Part 27									
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel				20850	21100	21350	24	0	
Frequency (MHz)				2510	2535	2560			
20	QPSK	1	0	22.53	22.66	22.62			
20	QPSK	1	49	22.65	22.39	22.48	23	1	
20	QPSK	1	99	22.48	22.60	22.48			
20	QPSK	50	0	21.51	21.91	21.77			
20	QPSK	50	24	21.67	21.88	21.81	23	1	
20	QPSK	50	50	21.74	21.90	21.78			
20	QPSK	100	0	21.61	21.86	21.79			
20	16QAM	1	0	21.73	21.77	21.65	23	1	
20	16QAM	1	49	21.90	22.01	22.05			
20	16QAM	1	99	21.77	21.82	21.70			
20	16QAM	50	0	20.48	20.81	20.74	22	2	
20	16QAM	50	24	20.66	20.88	20.78			
20	16QAM	50	50	20.70	20.87	20.77			
20	16QAM	100	0	20.55	20.83	20.76	22	2	
20	64QAM	1	0	20.77	20.87	20.72			
20	64QAM	1	49	21.00	20.87	21.08			
20	64QAM	1	99	20.76	20.97	20.87	21	3	
20	64QAM	50	0	19.68	20.06	19.95			
20	64QAM	50	24	19.89	20.08	20.01			
20	64QAM	50	50	19.94	20.09	19.99	20	0	
20	64QAM	100	0	19.81	20.06	20.00			
Channel				20825	21100	21375	24	0	
Frequency (MHz)				2507.5	2535	2562.5			
15	QPSK	1	0	22.30	22.65	22.62			
15	QPSK	1	37	22.32	22.52	22.60	23	1	
15	QPSK	1	74	22.60	22.50	22.29			
15	QPSK	36	0	21.49	21.79	21.75			
15	QPSK	36	20	21.63	21.86	21.84	23	1	
15	QPSK	36	39	21.68	21.91	21.83			
15	QPSK	75	0	21.58	21.84	21.81			
15	16QAM	1	0	21.50	21.95	21.84	23	1	
15	16QAM	1	37	21.87	21.90	21.96			
15	16QAM	1	74	21.80	21.87	21.96			
15	16QAM	36	0	20.45	20.77	20.71	22	2	
15	16QAM	36	20	20.59	20.81	20.77			
15	16QAM	36	39	20.64	20.84	20.78			
15	16QAM	75	0	20.55	20.81	20.80	22	2	
15	64QAM	1	0	20.68	20.98	21.03			
15	64QAM	1	37	21.04	21.07	21.13	22	2	
15	64QAM	1	74	20.96	21.16	21.07			
15	64QAM	36	0	19.68	19.97	19.95	21	3	
15	64QAM	36	20	19.81	20.03	20.02			
15	64QAM	36	39	19.86	20.07	20.02			
15	64QAM	75	0	19.79	20.06	20.02	20	0	
Channel				20800	21100	21400			
Frequency (MHz)				2505	2535	2565	24	0	
10	QPSK	1	0	22.41	22.50	22.38			
10	QPSK	1	25	22.62	22.52	22.48			
10	QPSK	1	49	22.56	22.50	22.38	23	1	
10	QPSK	25	0	21.47	21.82	21.86			
10	QPSK	25	12	21.55	21.88	21.87			
10	QPSK	25	25	21.60	21.85	21.90	23	1	
10	QPSK	50	0	21.51	21.86	21.91			
10	16QAM	1	0	21.59	22.08	21.97			
10	16QAM	1	25	21.86	22.03	22.06	23	1	
10	16QAM	1	49	21.91	21.94	22.01			
10	16QAM	25	0	20.46	20.84	20.83			
10	16QAM	25	12	20.57	20.89	20.86	22	2	
10	16QAM	25	25	20.60	20.84	20.91			
10	16QAM	50	0	20.51	20.85	20.89			
10	64QAM	1	0	20.76	21.19	21.07	22	2	
10	64QAM	1	25	20.97	21.24	21.19			
10	64QAM	1	49	20.85	21.23	21.16			
10	64QAM	25	0	19.69	20.05	20.06	21	3	
10	64QAM	25	12	19.79	20.10	20.09			
10	64QAM	25	25	19.83	20.08	20.13			
10	64QAM	50	0	19.74	20.08	20.12	20	0	
Channel				20775	21100	21425			
Frequency (MHz)				2502.5	2535	2567.5	24	0	
5	QPSK	1	0	22.29	22.65	22.48			
5	QPSK	1	12	22.64	22.61	22.29			
5	QPSK	1	24	22.39	22.31	22.44	23	1	
5	QPSK	12	0	21.41	21.76	21.64			
5	QPSK	12	7	21.49	21.86	21.68			
5	QPSK	12	13	21.49	21.80	21.63	23	1	
5	QPSK	25	0	21.47	21.81	21.65			
5	16QAM	1	0	21.59	21.87	21.65			
5	16QAM	1	12	21.88	21.72	21.86	23	1	
5	16QAM	1	24	21.61	21.90	21.67			
5	16QAM	12	0	20.39	20.74	20.60			
5	16QAM	12	7	20.47	20.85	20.67	22	2	
5	16QAM	12	13	20.48	20.75	20.57			
5	16QAM	25	0	20.49	20.79	20.64			
5	64QAM	1	0	20.86	21.04	20.85	22	2	
5	64QAM	1	12	20.95	21.29	21.03			
5	64QAM	1	24	20.87	21.07	20.85			
5	64QAM	12	0	19.59	19.95	19.80	21	3	
5	64QAM	12	7	19.68	20.05	19.89			
5	64QAM	12	13	19.68	19.98	19.79			
5	64QAM	25	0	19.70	20.02	19.89	20	0	
Channel				20750	21100	21450			

Band 38(only on channel required)									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel				37850	38000	38150	24	0	
Frequency (MHz)				2580	2595	2610			
20	QPSK	1	0	22.71	23.06	23.03			
20	QPSK	1	49	22.73	22.93	23.01	23	1	
20	QPSK	1	99	23.01	22.91	22.70			
20	QPSK	50	0	21.90	22.33	22.16			
20	QPSK	50	24	22.04	22.27	22.25	23	1	
20	QPSK	50	50	22.09	22.32	22.24			
20	QPSK	100	0	21.99	22.25	22.22			
20	16QAM	1	0	21.91	22.36	22.25	23	1	
20	16QAM	1	49	22.28	22.31	22.37			
20	16QAM	1	99	22.21	22.28	22.37			
20	16QAM	50	0	20.86	21.18	21.12	22	2	
20	16QAM	50	24	21.00	21.22	21.18			
20	16QAM	50	50	21.05	21.25	21.19			
20	16QAM	100	0	20.96	21.22	21.21	22	2	
20	64QAM	1	0	21.09	21.39	21.44			
20	64QAM	1	49	21.45	21.48	21.54			
20	64QAM	1	99	21.37	21.57	21.48	21	3	
20	64QAM	50	0	20.09	20.38	20.36			
20	64QAM	50	24	20.22	20.44	20.43			
20	64QAM	50	50	20.27	20.48	20.43	21	3	
20	64QAM	100	0	20.20	20.47	20.43			
Channel				37825	38000	38175	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2577.5	2595	2612.5	24	0	
15	QPSK	1	0	22.82	22.91	22.79			
15	QPSK	1	37	23.03	22.93	22.89	23	1	
15	QPSK	1	74	22.97	22.91	22.79			
15	QPSK	36	0	21.88	22.23	22.27			
15	QPSK	36	20	21.96	22.29	22.28	23	1	
15	QPSK	36	39	22.01	22.26	22.31			
15	QPSK	75	0	21.92	22.27	22.32			
15	16QAM	1	0	22.00	22.49	22.38	23	1	
15	16QAM	1	37	22.27	22.44	22.47			
15	16QAM	1	74	22.32	22.35	22.42			
15	16QAM	36	0	20.87	21.25	21.24	22	2	
15	16QAM	36	20	20.98	21.30	21.27			
15	16QAM	36	39	21.01	21.25	21.32			
15	16QAM	75	0	20.92	21.26	21.30	22	2	
15	64QAM	1	0	21.17	21.60	21.48			
15	64QAM	1	37	21.38	21.65	21.60			
15	64QAM	1	74	21.26	21.64	21.57	21	3	
15	64QAM	36	0	20.10	20.46	20.47			
15	64QAM	36	20	20.20	20.51	20.50			
15	64QAM	36	39	20.24	20.49	20.54	21	3	
15	64QAM	75	0	20.15	20.49	20.53			
Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2575	2595	2615	24	0	
10	QPSK	1	0	22.83	22.82	22.96			
10	QPSK	1	25	22.95	22.93	23.01	23	1	
10	QPSK	1	49	22.91	23.01	22.89			
10	QPSK	25	0	21.87	22.29	22.02			
10	QPSK	25	12	21.95	22.27	22.00	23	1	
10	QPSK	25	25	21.93	22.21	22.02			
10	QPSK	50	0	21.91	22.27	22.01			
10	16QAM	1	0	22.13	22.43	22.16	23	1	
10	16QAM	1	25	22.18	22.60	22.16			
10	16QAM	1	49	22.18	22.30	22.13			
10	16QAM	25	0	20.86	21.26	21.00	22	2	
10	16QAM	25	12	20.95	21.25	20.98			
10	16QAM	25	25	20.94	21.20	20.94			
10	16QAM	50	0	20.91	21.23	20.96	22	2	
10	64QAM	1	0	21.09	21.56	21.30			
10	64QAM	1	25	21.30	21.37	21.29			
10	64QAM	1	49	21.30	21.49	21.27	21	3	
10	64QAM	25	0	20.09	20.49	20.23			
10	64QAM	25	12	20.16	20.48	20.22			
10	64QAM	25	25	20.17	20.42	20.21	21	3	
10	64QAM	50	0	20.11	20.46	20.19			
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2572.5	2595	2617.5	24	0	
5	QPSK	1	0	22.75	23.01	22.87			
5	QPSK	1	12	23.04	22.93	22.99	23	1	
5	QPSK	1	24	22.85	22.96	22.80			
5	QPSK	12	0	21.88	22.29	22.06			
5	QPSK	12	7	22.01	22.28	22.04	23	1	
5	QPSK	12	13	22.01	22.24	22.02			
5	QPSK	25	0	21.95	22.27	22.00			
5	16QAM	1	0	21.94	22.40	22.07	23	1	
5	16QAM	1	12	22.33	22.04	22.27			
5	16QAM	1	24	22.17	22.21	22.08			
5	16QAM	12	0	20.82	21.24	21.02	22	2	
5	16QAM	12	7	20.95	21.23	20.98			
5	16QAM	12	13	20.94	21.19	20.95			
5	16QAM	25	0	20.92	21.26	20.99	22	2	
5	64QAM	1	0	21.13	21.44	21.17			
5	64QAM	1	12	21.43	21.26	21.52			
5	64QAM	1	24	21.25	21.38	21.19	21	3	
5	64QAM	12	0	20.06	20.47	20.25			
5	64QAM	12	7	20.19	20.45	20.22			
5	64QAM	12	13	20.19	20.44	20.18	21	3	
5	64QAM	25	0	20.17	20.48	20.21			

Band 41 (2.6G Band)										
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				40140	40390	40640	40890	41140	24	0
Frequency (MHz)				2545	2570	2595	2620	2645		
20	QPSK	1	0	23.13	23.21	23.24	23.22	23.19	23	1
20	QPSK	1	49	23.19	23.10	23.12	23.18	23.23		
20	QPSK	1	99	23.02	23.15	23.04	23.19	22.96		
20	QPSK	50	0	22.05	22.46	22.47	22.37	22.10	22	2
20	QPSK	50	24	22.21	22.43	22.37	22.40	22.18		
20	QPSK	50	50	22.28	22.45	22.34	22.34	22.10		
20	QPSK	100	0	22.15	22.41	22.42	22.39	22.13	23	1
20	16QAM	1	0	22.27	22.32	22.21	22.17	22.20		
20	16QAM	1	49	22.44	22.54	22.61	22.27	22.45		
20	16QAM	1	99	22.31	22.37	22.26	22.48	22.18	22	2
20	16QAM	50	0	21.02	21.36	21.30	21.36	21.07		
20	16QAM	50	24	21.20	21.43	21.34	21.37	21.12		
20	16QAM	50	50	21.24	21.42	21.33	21.28	21.05	21	3
20	16QAM	100	0	21.09	21.38	21.32	21.35	21.10		
20	64QAM	1	0	21.31	21.42	21.28	21.63	21.34		
20	64QAM	1	49	21.54	21.42	21.64	21.42	21.61	22	2
20	64QAM	1	99	21.30	21.52	21.43	21.61	21.28		
20	64QAM	50	0	20.22	20.61	20.51	20.55	20.28		
20	64QAM	50	24	20.43	20.63	20.57	20.59	20.33	21	3
20	64QAM	50	50	20.48	20.64	20.55	20.52	20.26		
20	64QAM	100	0	20.35	20.61	20.56	20.59	20.33		
Channel				40115	40378	40640	40903	41165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2542.5	2568.8	2595	2621.3	2647.5	24	0
15	QPSK	1	0	22.84	23.20	23.18	22.96	23.11		
15	QPSK	1	37	22.86	23.07	23.16	23.07	23.08	23	1
15	QPSK	1	74	23.14	23.05	22.85	23.21	23.04		
15	QPSK	36	0	22.03	22.34	22.31	22.43	22.17		
15	QPSK	36	20	22.17	22.41	22.40	22.41	22.15	22	2
15	QPSK	36	39	22.22	22.46	22.39	22.35	22.17		
15	QPSK	75	0	22.12	22.39	22.37	22.41	22.16		
15	16QAM	1	0	22.32	22.50	22.40	22.57	22.31	23	1
15	16QAM	1	37	22.41	22.45	22.52	22.74	22.31		
15	16QAM	1	74	22.34	22.42	22.52	22.44	22.28		
15	16QAM	36	0	20.99	21.32	21.27	21.40	21.15	22	2
15	16QAM	36	20	21.13	21.36	21.33	21.39	21.13		
15	16QAM	36	39	21.18	21.39	21.34	21.34	21.09		
15	16QAM	75	0	21.09	21.36	21.36	21.37	21.11	22	2
15	64QAM	1	0	21.22	21.53	21.59	21.70	21.45		
15	64QAM	1	37	21.58	21.62	21.69	21.51	21.44		
15	64QAM	1	74	21.50	21.71	21.63	21.63	21.42	21	3
15	64QAM	36	0	20.22	20.52	20.51	20.63	20.38		
15	64QAM	36	20	20.35	20.58	20.58	20.62	20.37		
15	64QAM	36	39	20.40	20.62	20.58	20.56	20.36	21	3
15	64QAM	75	0	20.33	20.61	20.58	20.60	20.34		
Channel				40090	40365	40640	40915	41190	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2540	2567.5	2595	2622.5	2650	24	0
10	QPSK	1	0	22.95	23.05	22.94	23.15	23.02		
10	QPSK	1	25	23.16	23.07	23.04	23.07	22.99	23	1
10	QPSK	1	49	23.10	23.05	22.94	23.10	22.95		
10	QPSK	25	0	22.01	22.37	22.42	22.43	22.21		
10	QPSK	25	12	22.09	22.43	22.43	22.42	22.19	23	1
10	QPSK	25	25	22.14	22.40	22.46	22.38	22.17		
10	QPSK	50	0	22.05	22.41	22.47	22.41	22.15		
10	16QAM	1	0	22.13	22.63	22.53	22.54	22.22	23	1
10	16QAM	1	25	22.40	22.58	22.62	22.18	22.42		
10	16QAM	1	49	22.45	22.49	22.57	22.35	22.23		
10	16QAM	25	0	21.00	21.39	21.39	21.38	21.17	22	2
10	16QAM	25	12	21.11	21.44	21.42	21.37	21.13		
10	16QAM	25	25	21.14	21.39	21.47	21.33	21.10		
10	16QAM	50	0	21.05	21.40	21.45	21.40	21.14	22	2
10	64QAM	1	0	21.30	21.74	21.63	21.58	21.32		
10	64QAM	1	25	21.51	21.79	21.75	21.40	21.67		
10	64QAM	1	49	21.39	21.78	21.72	21.52	21.34	21	3
10	64QAM	25	0	20.23	20.60	20.62	20.61	20.40		
10	64QAM	25	12	20.33	20.65	20.65	20.59	20.37		
10	64QAM	25	25	20.37	20.63	20.69	20.58	20.33	21	3
10	64QAM	50	0	20.28	20.63	20.68	20.62	20.36		
Channel				40065	40363	40640	40928	41215	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2537.5	2566.3	2595	2623.80	2652.5	24	0
5	QPSK	1	0	22.83	23.20	23.04	23.10	22.85		
5	QPSK	1	12	23.18	23.16	22.85	23.18	23.01	23	1
5	QPSK	1	24	22.93	22.86	23.00	22.92	23.16		
5	QPSK	12	0	22.10	22.31	22.20	22.49	22.35		
5	QPSK	12	7	22.03	22.41	22.24	22.42	22.22	23	1
5	QPSK	12	13	22.03	22.35	22.19	22.39	22.14		
5	QPSK	25	0	22.01	22.36	22.21	22.43	22.24		
5	16QAM	1	0	22.13	22.42	22.21	22.24	22.11	23	1
5	16QAM	1	12	22.42	22.27	22.42	22.29	22.39		
5	16QAM	1	24	22.15	22.45	22.23	22.24	21.98		
5	16QAM	12	0	21.08	21.29	21.16	21.47	21.31	22	2
5	16QAM	12	7	21.01	21.40	21.23	21.40	21.18		
5	16QAM	12	13	21.02	21.30	21.13	21.35	21.11		
5	16QAM	25	0	21.03	21.34	21.20	21.43	21.19	22	2
5	64QAM	1	0	21.40	21.59	21.41	21.36	21.20		
5	64QAM	1	12	21.49	21.63	21.59	21.31	21.40		
5	64QAM	12	0	21.41	21.62	21.41	21.36	21.13	21	3
5	64QAM	12	0	20.13	20.50	20.36	20.54	20.53		
5	64QAM	12	7	20.22	20.60	20.45	20.52	20.39		
5	64QAM	12	13	20.22	20.53	20.35	20.59	20.32	21	3
5	64QAM	25	0	20.24	20.57	20.45	20.65	20.43		

Power Level for Receiver off

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
	128	189	251		128	189	251	
TX Channel	824.2	836.4	848.8		824.2	836.4	848.8	
Frequency (Mhz)								
GSM 1 Tx slot	32.36	32.39	32.32	33.50	23.36	23.39	23.32	24.50
GPRS 1 Tx slot	32.35	32.38	32.30	33.50	23.35	23.38	23.30	24.50
GPRS 2 Tx slots	31.57	31.60	31.51	32.50	25.57	25.60	25.51	26.50
GPRS 3 Tx slots	29.85	29.85	29.75	30.50	25.59	25.59	25.49	26.24
GPRS 4 Tx slots	28.68	28.69	28.59	29.50	25.68	25.69	25.59	26.50
EDGE 1 Tx slot	26.67	26.65	26.41	27.50	17.67	17.65	17.41	18.50
EDGE 2 Tx slots	25.41	25.34	25.16	26.50	19.41	19.34	19.16	20.50
EDGE 3 Tx slots	23.01	22.90	22.66	23.50	18.75	18.64	18.40	19.24
EDGE 4 Tx slots	21.81	21.71	21.45	22.50	18.81	18.71	18.45	19.50

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
TX Channel	1850.2	1860	1909.8		1850.2	1860	1909.8	
Frequency (Mhz)								
GSM 1 Tx slot	27.06	27.15	27.14	28.00	18.06	18.15	18.14	19.00
GPRS 1 Tx slot	27.12	27.16	27.15	28.00	18.12	18.16	18.15	19.00
GPRS 2 Tx slots	26.19	26.22	26.24	27.00	20.19	20.22	20.24	21.00
GPRS 3 Tx slots	24.17	24.21	24.28	25.00	19.91	19.95	20.02	20.74
GPRS 4 Tx slots	23.09	23.14	23.22	24.00	20.09	20.14	20.22	21.00
EDGE 1 Tx slot	22.56	22.97	22.91	24.00	13.56	13.97	13.91	15.00
EDGE 2 Tx slots	21.56	21.97	21.96	22.50	15.56	15.97	15.96	16.50
EDGE 3 Tx slots	19.57	20.02	19.93	20.50	15.31	15.76	15.67	16.24
EDGE 4 Tx slots	18.84	18.93	18.91	19.50	15.84	15.93	15.91	16.50

Band	WCDMA II			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
	9262	9400	9538		4132	4162	4233	
TX Channel	9662	9600	9938		4357	4407	4458	
Rx Channel	1852.4	1860	1907.6		826.4	836.4	846.6	
Frequency (Mhz)								
3GPP Rel 99	16.90	17.03	16.91	18.50	22.94	23.04	23.01	24.00
3GPP Rel 99	17.02	17.05	16.99	18.50	22.99	23.05	23.04	24.00
3GPP Rel 6	16.00	15.91	15.99	17.50	21.95	21.79	21.82	23.00
3GPP Rel 6	15.97	15.83	15.94	17.50	21.88	21.82	21.83	23.00
3GPP Rel 6	15.51	15.48	15.46	17.00	21.40	21.34	21.35	22.50
3GPP Rel 6	15.54	15.45	15.44	17.00	21.41	21.35	21.33	22.50
3GPP Rel 8	15.92	15.93	15.99	17.50	21.93	21.78	21.79	23.00
3GPP Rel 8	16.03	15.81	15.93	17.50	21.86	21.81	21.80	23.00
3GPP Rel 8	15.55	15.41	15.48	17.00	21.38	21.33	21.32	22.50
3GPP Rel 8	15.54	15.48	15.52	17.00	21.39	21.34	21.30	22.50
3GPP Rel 6	15.92	15.91	16.03	17.50	22.03	22.02	21.81	23.00
3GPP Rel 6	14.11	14.05	14.18	15.50	20.01	19.90	19.97	21.00
3GPP Rel 6	15.18	15.03	14.98	16.50	20.81	20.78	20.71	22.00
3GPP Rel 6	14.11	14.18	14.21	15.50	19.92	19.79	19.79	21.00
3GPP Rel 6	15.80	15.70	15.70	17.50	22.03	21.92	21.90	23.00
3GPP Rel 7	14.34	14.46	14.30	15.00	19.84	20.02	19.92	20.50

Band 5 (Celluar Band) Part 22H(only on channel required)									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel				20450	20525	20600	24	0	
Frequency (MHz)				829	836.5	844			
10	QPSK	1	0	22.33	22.53	22.09	23	1	
10	QPSK	1	25	22.43	22.43	22.47			
10	QPSK	1	49	22.16	22.17	22.40			
10	QPSK	25	0	21.65	21.74	21.59			
10	QPSK	25	12	21.42	21.67	21.46	23	1	
10	QPSK	25	25	21.42	21.64	21.38			
10	QPSK	50	0	21.56	21.68	21.48			
10	16QAM	1	0	21.27	21.49	21.35			
10	16QAM	1	25	21.61	21.54	21.63	22	2	
10	16QAM	1	49	21.33	21.49	21.22			
10	16QAM	25	0	20.24	20.72	20.55			
10	16QAM	25	12	20.39	20.65	20.42			
10	16QAM	25	25	20.39	20.60	20.35	22	2	
10	16QAM	50	0	20.31	20.68	20.43			
10	64QAM	1	0	20.30	20.61	20.44			
10	64QAM	1	25	20.46	20.56	20.64			
10	64QAM	1	49	20.54	20.61	20.37	21	3	
10	64QAM	25	0	19.48	19.96	19.77			
10	64QAM	25	12	19.60	19.89	19.63			
10	64QAM	25	25	19.63	19.84	19.56			
10	64QAM	50	0	19.56	19.90	19.67	24	0	
Channel				20425	20525	20625			
Frequency (MHz)				826.5	836.5	846.5	23	1	
5	QPSK	1	0	22.14	22.40	22.26			
5	QPSK	1	12	22.43	22.32	22.51	23	1	
5	QPSK	1	24	22.24	22.35	22.19			
5	QPSK	12	0	21.27	21.68	21.45			
5	QPSK	12	7	21.40	21.67	21.43			
5	QPSK	12	13	21.40	21.63	21.41	23	1	
5	QPSK	25	0	21.34	21.66	21.39			
5	16QAM	1	0	21.33	21.79	21.46			
5	16QAM	1	12	21.72	21.43	21.66			
5	16QAM	1	24	21.56	21.60	21.47	22	2	
5	16QAM	12	0	20.21	20.63	20.41			
5	16QAM	12	7	20.34	20.62	20.37			
5	16QAM	12	13	20.33	20.58	20.34			
5	16QAM	25	0	20.31	20.65	20.38	22	2	
5	64QAM	1	0	20.52	20.83	20.56			
5	64QAM	1	12	20.82	20.65	20.91			
5	64QAM	1	24	20.64	20.77	20.58			
5	64QAM	12	0	19.45	19.86	19.64	21	3	
5	64QAM	12	7	19.58	19.84	19.61			
5	64QAM	12	13	19.58	19.83	19.57			
5	64QAM	25	0	19.56	19.87	19.60			
Channel				20415	20525	20635	24	0	
Frequency (MHz)				825.5	836.5	847.5			
3	QPSK	1	0	22.22	22.21	22.35	23	1	
3	QPSK	1	8	22.34	22.32	22.47			
3	QPSK	1	14	22.30	22.46	22.28			
3	QPSK	8	0	21.26	21.68	21.41			
3	QPSK	8	4	21.34	21.66	21.39	23	1	
3	QPSK	8	7	21.32	21.60	21.41			
3	QPSK	15	0	21.30	21.66	21.40			
3	16QAM	1	0	21.52	21.82	21.55			
3	16QAM	1	8	21.57	21.99	21.55	22	2	
3	16QAM	1	14	21.57	21.89	21.52			
3	16QAM	8	0	20.25	20.65	20.39			
3	16QAM	8	4	20.34	20.64	20.37			
3	16QAM	8	7	20.33	20.59	20.33	22	2	
3	16QAM	15	0	20.30	20.62	20.35			
3	64QAM	1	0	20.48	20.95	20.69			
3	64QAM	1	8	20.69	20.76	20.68			
3	64QAM	1	14	20.69	20.88	20.66	21	3	
3	64QAM	8	0	19.48	19.88	19.62			
3	64QAM	8	4	19.55	19.87	19.61			
3	64QAM	8	7	19.56	19.81	19.60			
3	64QAM	15	0	19.50	19.85	19.58	24	0	
Channel				20407	20525	20643			
Frequency (MHz)				824.7	836.5	848.3	23	1	
1.4	QPSK	1	0	22.19	22.30	22.30			
1.4	QPSK	1	3	22.33	22.31	22.42	24	0	
1.4	QPSK	1	5	22.19	22.31	22.28			
1.4	QPSK	3	0	22.33	22.30	22.39			
1.4	QPSK	3	1	22.35	22.32	22.47			
1.4	QPSK	3	3	22.31	22.31	22.39	23	1	
1.4	QPSK	6	0	21.30	21.66	21.43			
1.4	16QAM	1	0	21.43	21.73	21.45			
1.4	16QAM	1	3	21.48	21.87	21.67			
1.4	16QAM	1	5	21.48	21.82	21.47	22	2	
1.4	16QAM	3	0	21.26	21.59	21.41			
1.4	16QAM	3	1	21.27	21.71	21.44			
1.4	16QAM	3	3	21.27	21.56	21.33			
1.4	16QAM	6	0	20.37	20.71	20.51	22	2	
1.4	64QAM	1	0	20.55	20.65	20.67			
1.4	64QAM	1	3	20.58	20.56	20.76			
1.4	64QAM	1	5	20.46	20.67	20.60			
1.4	64QAM	3	0	20.55	20.89	20.63	21	3	
1.4	64QAM	3	1	20.58	20.91	20.72			
1.4	64QAM	3	3	20.55	20.91	20.59			
1.4	64QAM	6	0	19.53	19.90	19.64			

Band 7 (2600MHz Band) Part 27									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel				20850	21100	21350			
Frequency (MHz)				2510	2535	2560			
20	QPSK	1	0	17.53	17.58	17.55	19	0	
20	QPSK	1	49	17.32	17.15	17.35			
20	QPSK	1	99	17.44	17.42	17.53			
20	QPSK	50	0	16.10	16.25	16.16	18	1	
20	QPSK	50	24	16.15	16.06	16.22			
20	QPSK	50	50	16.17	16.00	16.19			
20	QPSK	100	0	16.17	16.20	16.15	18	1	
20	16QAM	1	0	16.35	16.35	16.25			
20	16QAM	1	49	16.66	16.38	16.71			
20	16QAM	1	99	16.53	16.22	16.32	17	2	
20	16QAM	50	0	15.18	15.13	15.23			
20	16QAM	50	24	15.28	15.14	15.31			
20	16QAM	50	50	15.27	15.07	15.27	17	2	
20	16QAM	100	0	15.25	15.10	15.24			
20	64QAM	1	0	15.22	15.06	15.07			
20	64QAM	1	49	15.50	15.30	15.45	17	2	
20	64QAM	1	99	15.23	15.02	15.06			
20	64QAM	50	0	14.20	14.10	14.22			
20	64QAM	50	24	14.19	14.08	14.21	16	3	
20	64QAM	50	50	14.23	14.07	14.28			
20	64QAM	100	0	14.20	14.10	14.20			
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2507.5	2535	2562.5			
15	QPSK	1	0	17.09	17.35	17.05	19	0	
15	QPSK	1	37	17.33	17.26	17.23			
15	QPSK	1	74	17.33	17.23	17.13			
15	QPSK	36	0	16.17	16.03	16.17	18	1	
15	QPSK	36	20	16.18	16.01	16.23			
15	QPSK	36	39	16.19	16.01	16.22			
15	QPSK	75	0	16.15	16.03	16.19	18	1	
15	16QAM	1	0	16.46	16.40	16.49			
15	16QAM	1	37	16.68	16.50	16.77			
15	16QAM	1	74	16.31	16.27	16.39	17	2	
15	16QAM	36	0	15.21	15.08	15.24			
15	16QAM	36	20	15.27	15.09	15.28			
15	16QAM	36	39	15.20	15.07	15.27	17	2	
15	16QAM	75	0	15.28	15.09	15.29			
15	64QAM	1	0	15.33	15.16	15.20			
15	64QAM	1	37	15.53	15.46	15.42	17	2	
15	64QAM	1	74	15.23	15.13	15.33			
15	64QAM	36	0	14.22	14.09	14.24			
15	64QAM	36	20	14.21	14.08	14.28	16	3	
15	64QAM	36	39	14.18	14.01	14.29			
15	64QAM	75	0	14.18	14.02	14.20			
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2505	2535	2565			
10	QPSK	1	0	17.17	17.03	17.18	19	0	
10	QPSK	1	25	17.27	17.13	17.37			
10	QPSK	1	49	17.11	16.96	17.23			
10	QPSK	25	0	16.16	16.04	16.22	18	1	
10	QPSK	25	12	16.17	16.07	16.26			
10	QPSK	25	25	16.16	16.03	16.23			
10	QPSK	50	0	16.18	16.02	16.20	18	1	
10	16QAM	1	0	16.45	16.45	16.58			
10	16QAM	1	25	16.46	16.53	16.73			
10	16QAM	1	49	16.31	16.37	16.53	17	2	
10	16QAM	25	0	15.23	15.17	15.31			
10	16QAM	25	12	15.29	15.15	15.36			
10	16QAM	25	25	15.26	15.10	15.33	17	2	
10	16QAM	50	0	15.29	15.13	15.29			
10	64QAM	1	0	15.32	15.29	15.36			
10	64QAM	1	25	15.48	15.35	15.48	17	2	
10	64QAM	1	49	15.29	15.19	15.46			
10	64QAM	25	0	14.21	14.14	14.22			
10	64QAM	25	12	14.30	14.10	14.23	16	3	
10	64QAM	25	25	14.32	14.06	14.33			
10	64QAM	50	0	14.21	14.09	14.29			
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2502.5	2535	2567.5			
5	QPSK	1	0	17.12	16.91	17.12	19	0	
5	QPSK	1	12	17.22	17.11	17.29			
5	QPSK	1	24	17.04	16.89	17.15			
5	QPSK	12	0	16.18	16.02	16.23	18	1	
5	QPSK	12	7	16.18	16.02	16.28			
5	QPSK	12	13	16.11	15.97	16.23			
5	QPSK	25	0	16.14	15.99	16.24	18	1	
5	16QAM	1	0	16.45	16.21	16.38			
5	16QAM	1	12	16.65	16.45	16.53			
5	16QAM	1	24	16.34	16.19	16.35	17	2	
5	16QAM	12	0	15.26	15.02	15.34			
5	16QAM	12	7	15.30	15.07	15.39			
5	16QAM	12	13	15.20	15.03	15.29	17	2	
5	16QAM	25	0	15.25	15.08	15.35			
5	64QAM	1	0	15.36	15.21	15.31			
5	64QAM	1	12	15.55	15.23	15.57	16	3	
5	64QAM	1	24	15.27	15.16	15.41			
5	64QAM	12	0	14.29	14.09	14.27			
5	64QAM	12	7	14.27	14.23	14.32	16	3	
5	64QAM	12	13	14.18	13.99	14.30			
5	64QAM	25	0	14.22	14.22	14.20			

Band 38(only on channel required)									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel				37850	38000	38150	21	0	
Frequency (MHz)				2580	2595	2610			
20	QPSK	1	0	20.44	20.75	20.28	20	1	
20	QPSK	1	49	20.58	20.50	20.45			
20	QPSK	1	99	20.37	20.30	20.26			
20	QPSK	50	0	19.56	19.44	19.42			
20	QPSK	50	24	19.56	19.47	19.47			
20	QPSK	50	50	19.53	19.42	19.37	20	1	
20	QPSK	100	0	19.63	19.55	19.46			
20	16QAM	1	0	19.47	19.34	19.31			
20	16QAM	1	49	19.72	19.66	19.61			
20	16QAM	1	99	19.42	19.33	19.33			
20	16QAM	50	0	18.56	18.47	18.46	19	2	
20	16QAM	50	24	18.57	18.50	18.47			
20	16QAM	50	50	18.52	18.44	18.42			
20	16QAM	100	0	18.64	18.57	18.51			
20	64QAM	1	0	18.51	18.37	18.33			
20	64QAM	1	49	18.69	18.68	18.63	19	2	
20	64QAM	1	99	18.43	18.35	18.34			
20	64QAM	50	0	17.75	17.65	17.65	18	3	
20	64QAM	50	24	17.77	17.70	17.67			
20	64QAM	50	50	17.72	17.63	17.59			
20	64QAM	100	0	17.91	17.86	17.79			
Channel				37825	38000	38175	21	0	
Frequency (MHz)				2577.5	2595	2612.5			
15	QPSK	1	0	20.63	20.50	20.43	20	1	
15	QPSK	1	37	20.73	20.66	20.53			
15	QPSK	1	74	20.63	20.45	20.43			
15	QPSK	36	0	19.76	19.67	19.60			
15	QPSK	36	20	19.78	19.68	19.62			
15	QPSK	36	39	19.76	19.62	19.57	20	1	
15	QPSK	75	0	19.64	19.52	19.52			
15	16QAM	1	0	19.68	19.49	19.47			
15	16QAM	1	37	19.78	19.66	19.57			
15	16QAM	1	74	19.62	19.50	19.49			
15	16QAM	36	0	18.65	18.56	18.51	19	2	
15	16QAM	36	20	18.66	18.59	18.53			
15	16QAM	36	39	18.64	18.52	18.53			
15	16QAM	75	0	18.60	18.52	18.55			
15	64QAM	1	0	18.71	18.55	18.47			
15	64QAM	1	37	18.84	18.71	18.59	19	2	
15	64QAM	1	74	18.67	18.53	18.48			
15	64QAM	36	0	17.93	17.84	17.80	18	3	
15	64QAM	36	20	17.97	17.86	17.82			
15	64QAM	36	39	17.91	17.81	17.80			
15	64QAM	75	0	17.84	17.77	17.80			
Channel				37800	38000	38200	21	0	
Frequency (MHz)				2575	2595	2615			
10	QPSK	1	0	20.69	20.56	20.53	20	1	
10	QPSK	1	25	20.64	20.57	20.46			
10	QPSK	1	49	20.66	20.55	20.50			
10	QPSK	25	0	19.67	19.63	19.60			
10	QPSK	25	12	19.71	19.63	19.59			
10	QPSK	25	25	19.68	19.62	19.59	20	1	
10	QPSK	50	0	19.62	19.50	19.53			
10	16QAM	1	0	19.69	19.60	19.57			
10	16QAM	1	25	19.54	19.58	19.52			
10	16QAM	1	49	19.67	19.58	19.56			
10	16QAM	25	0	18.72	18.63	18.61	19	2	
10	16QAM	25	12	18.75	18.67	18.60			
10	16QAM	25	25	18.71	18.59	18.61			
10	16QAM	50	0	18.65	18.53	18.52			
10	64QAM	1	0	18.71	18.60	18.58			
10	64QAM	1	25	18.62	18.62	18.53	19	2	
10	64QAM	1	49	18.69	18.59	18.55			
10	64QAM	25	0	17.93	17.82	17.82			
10	64QAM	25	12	17.97	17.87	17.79			
10	64QAM	25	25	17.92	17.81	17.81			
10	64QAM	50	0	17.84	17.72	17.75	18	3	
Channel				37776	38000	38225			
Frequency (MHz)				2572.5	2595	2617.5	21	0	
5	QPSK	1	0	20.57	20.44	20.38			
5	QPSK	1	12	20.67	20.60	20.55	20	1	
5	QPSK	1	24	20.53	20.45	20.39			
5	QPSK	12	0	19.74	19.65	19.55			
5	QPSK	12	7	19.77	19.75	19.61			
5	QPSK	12	13	19.74	19.63	19.57			
5	QPSK	25	0	19.65	19.57	19.56	20	1	
5	16QAM	1	0	19.65	19.51	19.45			
5	16QAM	1	12	19.86	19.68	19.62			
5	16QAM	1	24	19.60	19.50	19.44			
5	16QAM	12	0	18.65	18.54	18.50			
5	16QAM	12	7	18.70	18.63	18.56	19	2	
5	16QAM	12	13	18.66	18.53	18.51			
5	16QAM	25	0	18.69	18.63	18.57			
5	64QAM	1	0	18.67	18.57	18.48			
5	64QAM	1	12	18.93	18.72	18.66			
5	64QAM	1	24	18.64	18.55	18.46	19	2	
5	64QAM	12	0	17.91	17.79	17.72			
5	64QAM	12	7	17.95	17.87	17.80			
5	64QAM	12	13	17.91	17.76	17.76			
5	64QAM	25	0	17.88	17.83	17.77			

Band 41 (2.6G Band)										
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				40140	40390	40640	40890	41140	21	0
Frequency (MHz)				2545	2570	2595	2620	2645		
20	QPSK	1	0	20.77	20.56	20.89	20.40	20.87	20	1
20	QPSK	1	49	20.77	20.60	20.67	20.70	20.72		
20	QPSK	1	99	20.71	20.59	20.44	20.41	20.45		
20	QPSK	50	0	19.87	19.70	19.96	19.62	19.89		
20	QPSK	50	24	19.94	19.77	19.69	19.60	19.59		
20	QPSK	50	50	19.95	19.79	19.64	19.54	19.56	19	2
20	QPSK	100	0	19.87	19.79	19.88	19.64	19.61		
20	16QAM	1	0	19.55	19.46	19.33	19.26	19.24		
20	16QAM	1	49	19.73	19.68	19.60	19.55	19.53		
20	16QAM	1	99	19.46	19.43	19.30	19.23	19.35		
20	16QAM	50	0	18.62	18.47	18.40	18.40	18.34	18	3
20	16QAM	50	24	18.73	18.55	18.47	18.40	18.35		
20	16QAM	50	50	18.71	18.57	18.39	18.33	18.35		
20	16QAM	100	0	18.71	18.54	18.46	18.40	18.36		
20	64QAM	1	0	18.60	18.42	18.30	18.23	18.21		
20	64QAM	1	49	18.68	18.56	18.66	18.52	18.51	19	2
20	64QAM	1	99	18.51	18.40	18.26	18.22	18.32		
20	64QAM	50	0	17.89	17.76	17.68	17.66	17.61	18	3
20	64QAM	50	24	18.00	17.82	17.72	17.67	17.62		
20	64QAM	50	50	17.99	17.83	17.64	17.61	17.63		
20	64QAM	100	0	17.96	17.91	17.84	17.76	17.74		
Channel				40115	40378	40640	40903	41165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2542.5	2568.8	2595	2621.3	2647.5		
15	QPSK	1	0	20.87	20.77	20.65	20.63	20.54	21	0
15	QPSK	1	37	20.78	20.78	20.87	20.79	20.73		
15	QPSK	1	74	20.67	20.76	20.63	20.57	20.59		
15	QPSK	36	0	19.98	19.80	19.74	19.75	19.63		
15	QPSK	36	20	19.68	19.50	19.44	19.45	19.33		
15	QPSK	36	39	19.71	19.54	19.50	19.42	19.37	20	1
15	QPSK	75	0	19.72	19.55	19.44	19.37	19.40		
15	16QAM	1	0	19.69	19.49	19.40	19.37	19.28		
15	16QAM	1	37	19.71	19.53	19.40	19.37	19.32		
15	16QAM	1	74	19.73	19.68	19.59	19.50	19.55		
15	16QAM	36	0	18.34	18.25	18.19	18.09	18.15	19	2
15	16QAM	36	20	18.34	18.18	18.08	18.07	17.96		
15	16QAM	36	39	18.39	18.22	18.15	18.06	18.03		
15	16QAM	75	0	18.40	18.19	18.08	18.01	18.03		
15	64QAM	1	0	18.42	18.25	18.15	18.09	18.01		
15	64QAM	1	37	18.58	18.38	18.27	18.22	18.10	19	2
15	64QAM	1	74	18.58	18.42	18.37	18.27	18.32		
15	64QAM	36	0	17.41	17.42	17.24	17.15	17.23	18	3
15	64QAM	36	20	17.71	17.54	17.45	17.44	17.34		
15	64QAM	36	39	17.78	17.60	17.52	17.42	17.38		
15	64QAM	75	0	17.78	17.58	17.43	17.39	17.40		
Channel				18.07	17.85	17.77	17.71	17.65		
Frequency (MHz)				2540	2567.5	2595	2622.5	2650		
10	QPSK	1	0	20.83	20.72	20.64	20.67	20.56	21	0
10	QPSK	1	25	20.87	20.68	20.60	20.59	20.64		
10	QPSK	1	49	20.85	20.80	20.65	20.55	20.64		
10	QPSK	25	0	19.88	19.73	19.66	19.67	19.65		
10	QPSK	25	12	19.94	19.77	19.73	19.67	19.67		
10	QPSK	25	25	19.94	19.76	19.64	19.62	19.65	20	1
10	QPSK	50	0	19.90	19.74	19.60	19.58	19.65		
10	16QAM	1	0	19.94	19.78	19.70	19.72	19.63		
10	16QAM	1	25	19.91	19.73	19.64	19.63	19.63		
10	16QAM	1	49	19.91	19.84	19.70	19.62	19.68		
10	16QAM	25	0	18.93	18.78	18.70	18.69	18.67	19	2
10	16QAM	25	12	18.72	18.51	18.48	18.40	18.42		
10	16QAM	25	25	18.70	18.51	18.40	18.33	18.37		
10	16QAM	50	0	18.67	18.53	18.40	18.35	18.39		
10	64QAM	1	0	18.40	18.55	18.45	18.47	18.42		
10	64QAM	1	25	18.68	18.51	18.41	18.40	18.41	19	2
10	64QAM	1	49	18.70	18.58	18.47	18.41	18.48		
10	64QAM	25	0	17.93	17.76	17.68	17.67	17.67		
10	64QAM	25	12	17.71	17.52	17.44	17.39	17.40		
10	64QAM	25	25	17.70	17.53	17.38	17.32	17.36		
10	64QAM	50	0	17.66	17.49	17.36	17.29	17.35	18	3
Channel				40065	40353	40640	40928	41215		
Frequency (MHz)				2537.5	2568.3	2595	2623.0	2652.5		
5	QPSK	1	0	20.68	20.58	20.48	20.49	20.47	21	0
5	QPSK	1	12	20.88	20.75	20.66	20.63	20.82		
5	QPSK	1	24	20.78	20.58	20.54	20.45	20.53		
5	QPSK	12	0	19.89	19.71	19.60	19.58	19.66		
5	QPSK	12	7	19.98	19.73	19.68	19.64	19.68		
5	QPSK	12	13	19.92	19.72	19.61	19.54	19.65	20	1
5	QPSK	25	0	19.93	19.69	19.65	19.58	19.61		
5	16QAM	1	0	19.87	19.69	19.57	19.59	19.59		
5	16QAM	1	12	19.95	19.86	19.77	19.71	19.93		
5	16QAM	1	24	19.85	19.65	19.58	19.62	19.62		
5	16QAM	12	0	18.86	18.66	18.60	18.53	18.61	19	2
5	16QAM	12	7	18.95	18.70	18.66	18.57	18.67		
5	16QAM	12	13	18.90	18.67	18.61	18.51	18.60		
5	16QAM	25	0	18.98	18.73	18.68	18.61	18.68		
5	64QAM	1	0	18.95	18.75	18.64	18.65	18.59		
5	64QAM	1	12	18.79	18.66	18.55	18.51	18.76	19	2
5	64QAM	1	24	18.65	18.43	18.37	18.29	18.30		
5	64QAM	12	0	17.89	17.68	17.60	17.54	17.64		
5	64QAM	12	7	17.96	17.71	17.66	17.56	17.70		
5	64QAM	12	13	17.93	17.69	17.63	17.52	17.62		
5	64QAM	25	0	17.95	17.71	17.66	17.60	17.64	18	3

2.4GHz WLAN		Ant 1				
2.4GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11b 1Mbps	1	2412	16.63	17.50	100.00
		6	2437	16.63	17.50	
		11	2462	16.59	17.50	
	802.11g 6Mbps	1	2412	16.26	17.50	96.97
		6	2437	16.67	17.50	
		11	2462	16.40	17.50	
	802.11n-HT20 MCS0	1	2412	16.19	17.50	96.24
		6	2437	16.59	17.50	
		11	2462	16.33	17.50	

Bluetooth BR/EDR					
Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	9.50	8.12	8.05
	CH 39	2441	10.04	8.30	8.31
	CH 78	2480	10.28	8.71	8.74
Tune-up Limit			11	9.5	9.5

Bluetooth LE 4.0				
Mode	Channel	Frequency (MHz)	Average power (dBm)	
			GFSK	
LE	CH 00	2402	-2.95	
	CH 19	2440	-2.05	
	CH 39	2480	-2.60	
Tune-up Limit			0	

Bluetooth LE 5.0			
Mode	Channel	Frequency (MHz)	Average power (dBm)
			1Mbps
LE	CH 00	2402	-2.94
	CH 19	2440	-2.06
	CH 39	2480	-2.60
Tune-up Limit			0