

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	15972	16183
Channel Y	15900	16376
Channel Z	16167	15841

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	1.19	0.18	2.38	0.46
Channel Y	0.15	-1.39	1.24	0.47
Channel Z	0.36	-1.22	1.42	0.42

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

IMPORTANT NOTICE



USAGE OF THE DAE4

The DAE unit is a delicate, high precision instrument and requires careful treatment by the user. There are no serviceable parts inside the DAE. Special attention shall be given to the following points:

Battery Exchange: The battery cover of the DAE4 unit is fixed using a screw, over tightening the screw may cause the threads inside the DAE to wear out.

Shipping of the DAE: Before shipping the DAE to SPEAG for calibration, remove the batteries and pack the DAE in an antistatic bag. This antistatic bag shall then be packed into a larger box or container which protects the DAE from impacts during transportation. The package shall be marked to indicate that a fragile instrument is inside.

E-Stop Failures: Touch detection may be malfunctioning due to broken magnets in the E-stop. Rough handling of the E-stop may lead to damage of these magnets. Touch and collision errors are often caused by dust and dirt accumulated in the E-stop. To prevent E-stop failure, the customer shall always mount the probe to the DAE carefully and keep the DAE unit in a non-dusty environment if not used for measurements.

Repair: Minor repairs are performed at no extra cost during the annual calibration. However, SPEAG reserves the right to charge for any repair especially if rough unprofessional handling caused the defect.

DASY Configuration Files: Since the exact values of the DAE input resistances, as measured during the calibration procedure of a DAE unit, are not used by the DASY software, a nominal value of 200 MOhm is given in the corresponding configuration file.

Important Note:

Warranty and calibration is void if the DAE unit is disassembled partly or fully by the Customer.

Important Note:

Never attempt to grease or oil the E-stop assembly. Cleaning and readjusting of the E-stop assembly is allowed by certified SPEAG personnel only and is part of the annual calibration procedure.

Important Note:

To prevent damage of the DAE probe connector pins, use great care when installing the probe to the DAE. Carefully connect the probe with the connector notch oriented in the mating position. Avoid any rotational movement of the probe body versus the DAE while turning the locking nut of the connector. The same care shall be used when disconnecting the probe from the DAE.



Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client **Tejet (Auden)**

Certificate No: DAE4-1226_May20

CALIBRATION CERTIFICATE

Object: DAE4 - SD 000 D04 BM - SN: 1226

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

Calibration date: May 15, 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 $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
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

Calibrated by: Name
Eric Hainfeld Function
Laboratory Technician

Signature

Approved by: Sven Kühn Deputy Manager

Issued: May 15, 2020

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

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 = 61 nV , full range = -1.....+3mV

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

Calibration Factors	X	Y	Z
High Range	404.644 $\pm$ 0.02% (k=2)	404.410 $\pm$ 0.02% (k=2)	404.128 $\pm$ 0.02% (k=2)
Low Range	3.98010 $\pm$ 1.50% (k=2)	4.00441 $\pm$ 1.50% (k=2)	3.98517 $\pm$ 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	283.5 ° $\pm$ 1 °
---	-------------------

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	200036.25	2.48	0.00
Channel X + Input	20007.54	2.38	0.01
Channel X - Input	-20005.86	0.51	-0.00
Channel Y + Input	200033.61	-0.21	-0.00
Channel Y + Input	20003.31	-1.72	-0.01
Channel Y - Input	-20007.95	-1.52	0.01
Channel Z + Input	200035.07	1.43	0.00
Channel Z + Input	20004.81	-0.10	-0.00
Channel Z - Input	-20007.44	-1.01	0.01

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	2000.93	0.16	0.01
Channel X + Input	200.14	-0.66	-0.33
Channel X - Input	-199.83	-0.71	0.36
Channel Y + Input	2000.72	0.15	0.01
Channel Y + Input	199.44	-1.19	-0.59
Channel Y - Input	-200.55	-1.29	0.65
Channel Z + Input	2000.71	0.18	0.01
Channel Z + Input	200.02	-0.61	-0.31
Channel Z - Input	-199.97	-0.66	0.33

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	5.07	2.90
	- 200	-2.74	-4.97
Channel Y	200	-8.89	-9.14
	- 200	7.09	6.94
Channel Z	200	-7.29	-7.53
	- 200	5.53	5.89

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	-	2.16	-3.66
Channel Y	200	8.16	-	3.69
Channel Z	200	9.32	5.65	-

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	16032	12468
Channel Y	15897	17438
Channel Z	16001	15611

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	-0.38	-1.14	0.42	0.38
Channel Y	-0.09	-1.14	0.85	0.39
Channel Z	-0.31	-1.86	1.00	0.41

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



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Client **Sporton**

Certificate No: **EX3-3819_Apr20**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3819**

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: **April 30, 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 $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104775	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: MY41496087	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: April 30, 2020
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: SCS 0108

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta \approx 0$ 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 $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values; i.e., the uncertainties of NORM_{x,y,z} does not affect the E^2 -field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z} = NORM_{x,y,z} * frequency_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3819

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.46	0.41	0.46	± 10.1 %
DCP (mV) ^B	104.6	101.5	102.0	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB/ μV	C	D dB	VR mV	Max dev.	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	156.7	± 3.5 %	± 4.7 %
		Y	0.0	0.0	1.0		148.5		
		Z	0.0	0.0	1.0		139.2		

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:3819

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	113.9
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:3819

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	9.64	9.64	9.64	0.52	0.80	± 12.0 %
835	41.5	0.90	9.39	9.39	9.39	0.50	0.80	± 12.0 %
900	41.5	0.97	9.26	9.26	9.26	0.39	0.96	± 12.0 %
1750	40.1	1.37	8.43	8.43	8.43	0.34	0.80	± 12.0 %
1900	40.0	1.40	8.10	8.10	8.10	0.37	0.80	± 12.0 %
2000	40.0	1.40	7.95	7.95	7.95	0.30	0.88	± 12.0 %
2300	39.5	1.67	7.66	7.66	7.66	0.32	0.90	± 12.0 %
2450	39.2	1.80	7.42	7.42	7.42	0.38	0.90	± 12.0 %
2600	39.0	1.96	7.22	7.22	7.22	0.38	0.90	± 12.0 %
3300	38.2	2.71	6.91	6.91	6.91	0.20	1.20	± 14.0 %
3500	37.9	2.91	6.84	6.84	6.84	0.25	1.20	± 14.0 %
3700	37.7	3.12	6.75	6.75	6.75	0.25	1.25	± 14.0 %
3900	37.5	3.32	6.40	6.40	6.40	0.30	1.60	± 14.0 %
4100	37.2	3.53	6.39	6.39	6.39	0.30	1.60	± 14.0 %
4400	36.9	3.84	6.07	6.07	6.07	0.30	1.60	± 14.0 %
4600	36.7	4.04	5.98	5.98	5.98	0.30	1.70	± 14.0 %
4800	36.4	4.25	5.88	5.88	5.88	0.45	1.80	± 14.0 %
4950	36.3	4.40	5.72	5.72	5.72	0.45	1.80	± 14.0 %
5250	35.9	4.71	5.02	5.02	5.02	0.40	1.80	± 14.0 %
5600	35.5	5.07	4.56	4.56	4.56	0.40	1.80	± 14.0 %
5750	35.4	5.22	4.63	4.63	4.63	0.40	1.80	± 14.0 %

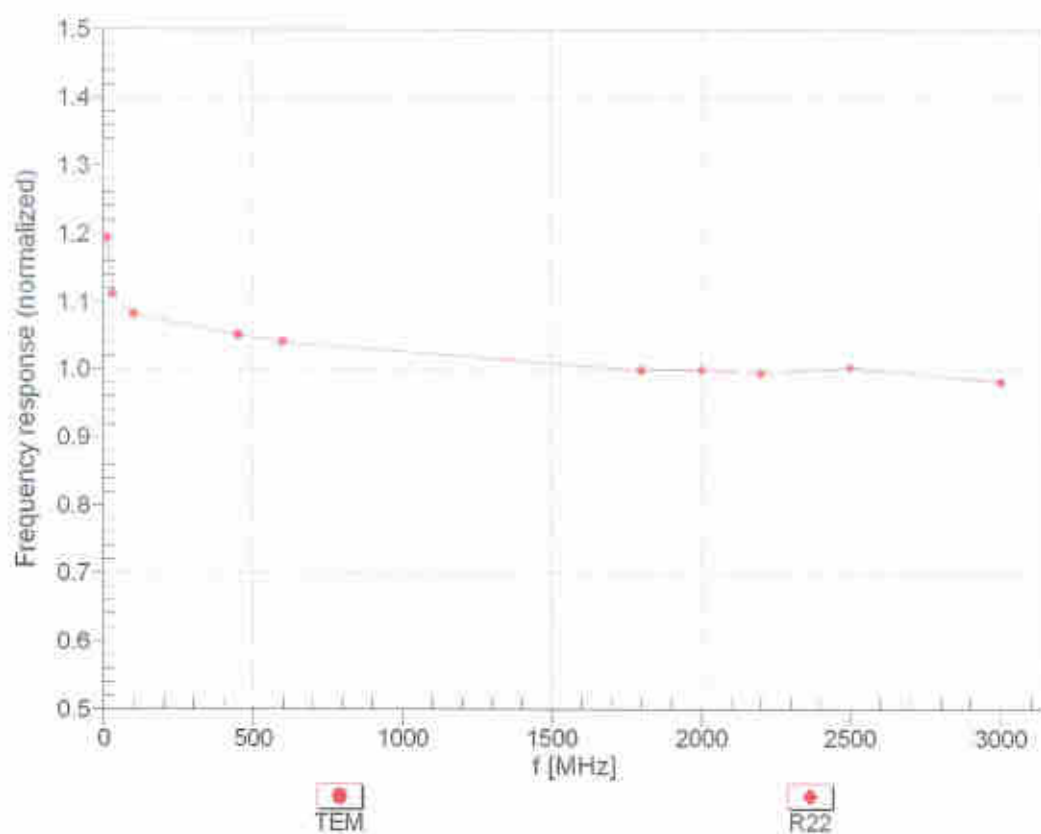
^c Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 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)



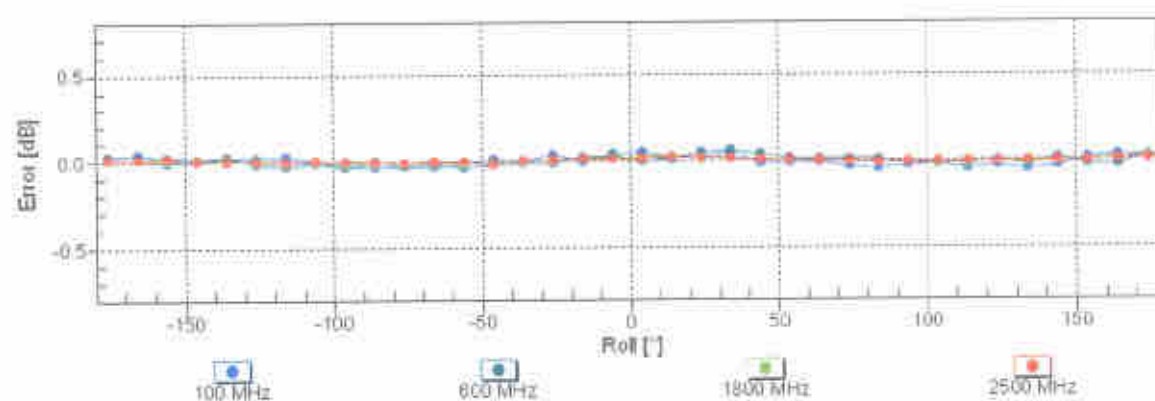
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

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

f=600 MHz,TEM

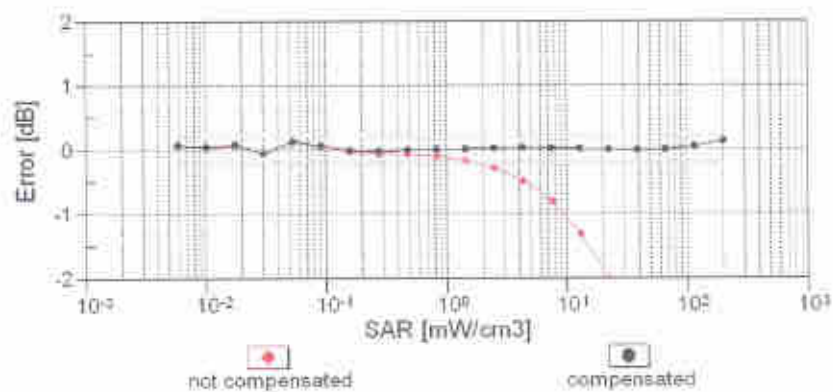
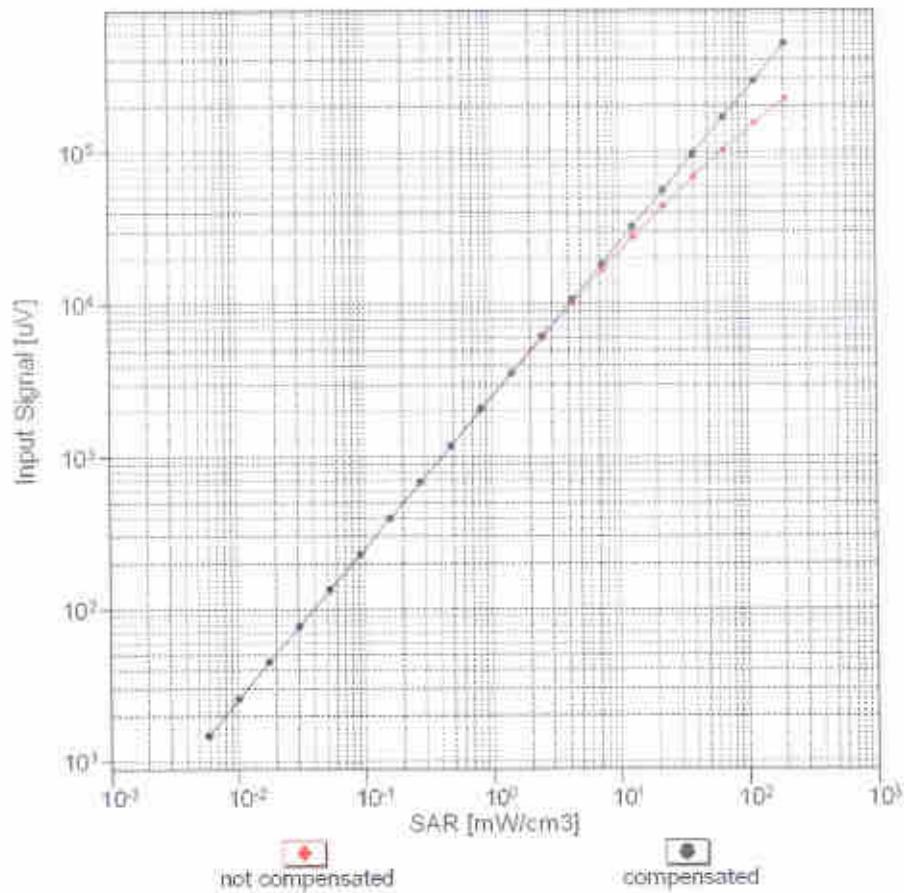


f=1800 MHz,R22



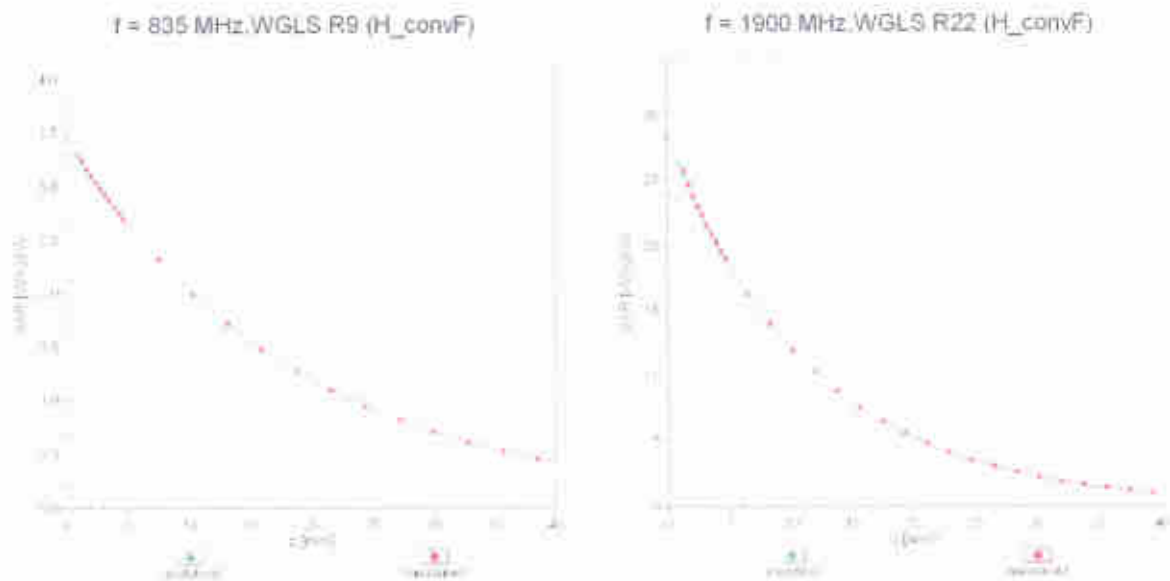
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

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



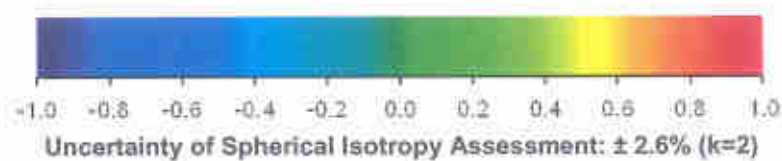
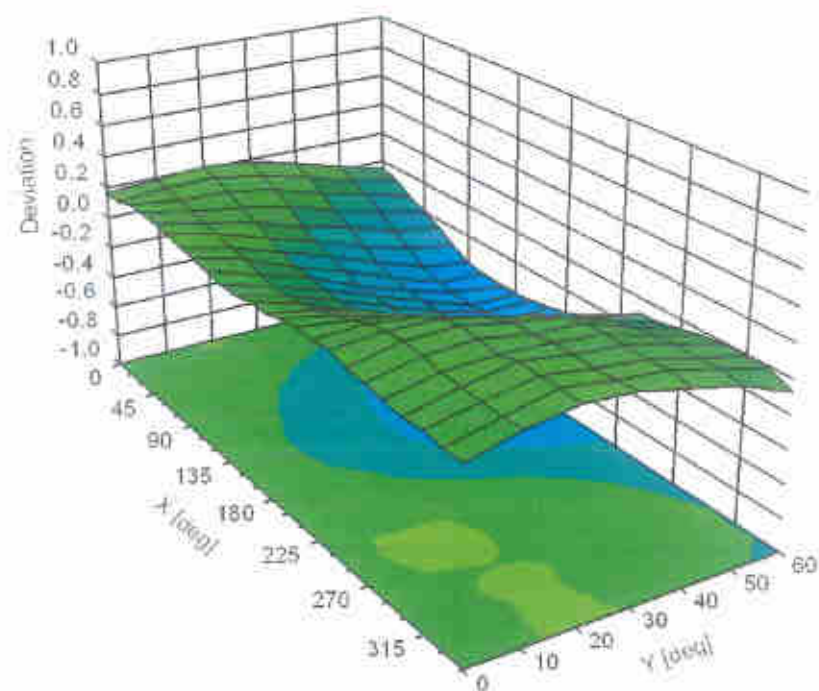
Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), $f = 900 \text{ MHz}$





Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **Sporton**

Certificate No: **EX3-7576_Jan20**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:7576**

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: **January 22, 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 $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
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-16)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

Calibrated by:	Name	Function	Signature
	Jeton Kasrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	
			Issued: January 25, 2020
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "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 $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E^2 -field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}, B_{x,y,z}, C_{x,y,z}, D_{x,y,z}, VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7576

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.48	0.63	0.63	$\pm 10.1 \%$
DCP (mV) ^B	103.8	99.8	103.6	

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 (k=2) ^E
0	CW	X	0.0	0.0	1.0	0.00	164.4	$\pm 2.7 \%$	$\pm 4.7 \%$
		Y	0.0	0.0	1.0		161.8		
		Z	0.0	0.0	1.0		164.7		

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 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:7576

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	112.2
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:7576

Calibration Parameter Determined in Head Tissue Simulating Media

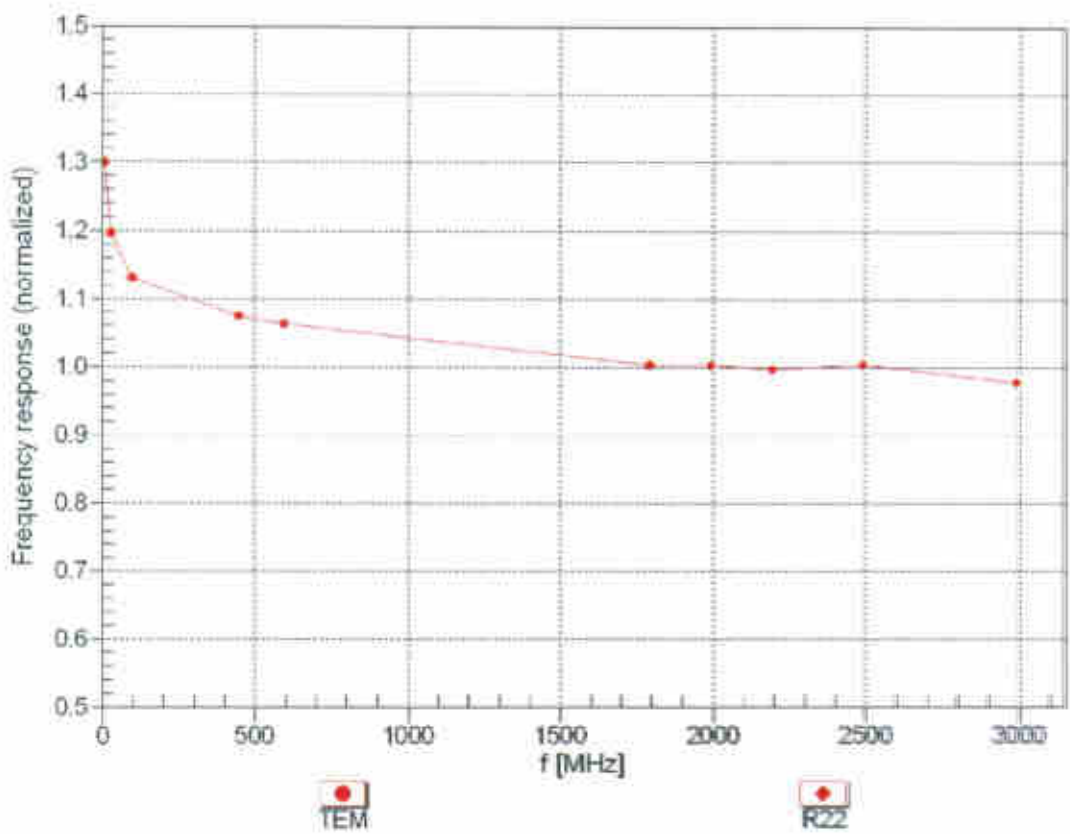
f (MHz) ^c	Relative Permittivity ^f	Conductivity (S/m) ^f	ConvF X	ConvF Y	ConvF Z	Alpha ^o	Depth (mm) ^o	Unc (k=2)
750	41.9	0.89	10.71	10.71	10.71	0.62	0.80	± 12.0 %
835	41.5	0.90	10.45	10.45	10.45	0.46	0.94	± 12.0 %
900	41.5	0.97	10.16	10.16	10.16	0.33	1.09	± 12.0 %
1750	40.1	1.37	8.88	8.88	8.88	0.42	0.86	± 12.0 %
1900	40.0	1.40	8.58	8.58	8.58	0.38	0.86	± 12.0 %
2000	40.0	1.40	8.48	8.48	8.48	0.39	0.86	± 12.0 %
2300	39.5	1.67	8.03	8.03	8.03	0.41	0.90	± 12.0 %
2450	39.2	1.80	7.76	7.76	7.76	0.44	0.90	± 12.0 %
2600	39.0	1.96	7.47	7.47	7.47	0.41	0.96	± 12.0 %
3300	38.2	2.71	7.08	7.08	7.08	0.30	1.35	± 14.0 %
3500	37.9	2.91	6.77	6.77	6.77	0.30	1.35	± 14.0 %
3700	37.7	3.12	6.74	6.74	6.74	0.30	1.35	± 14.0 %
3900	37.5	3.32	6.56	6.56	6.56	0.40	1.40	± 14.0 %
4100	37.2	3.53	6.26	6.26	6.26	0.40	1.40	± 14.0 %
4400	36.9	3.84	6.19	6.19	6.19	0.40	1.60	± 14.0 %
4600	36.7	4.04	6.06	6.06	6.06	0.40	1.60	± 14.0 %
4800	36.4	4.25	5.89	5.89	5.89	0.40	1.80	± 14.0 %
4950	36.3	4.40	5.59	5.59	5.59	0.40	1.80	± 14.0 %
5250	35.9	4.71	5.20	5.20	5.20	0.40	1.80	± 14.0 %
5600	35.5	5.07	4.62	4.62	4.62	0.40	1.80	± 14.0 %
5750	35.4	5.22	4.83	4.83	4.83	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.

^o 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.

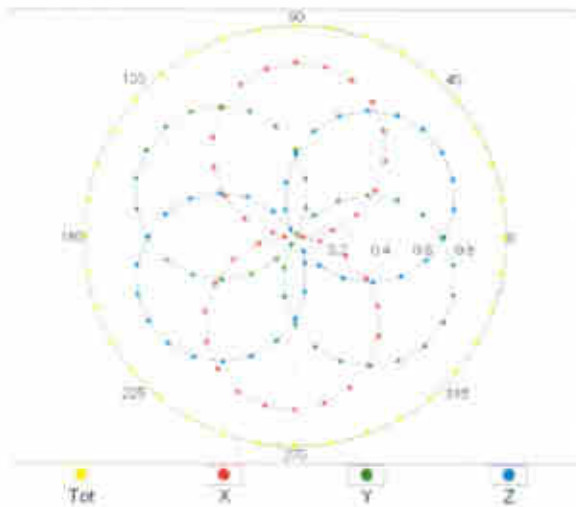
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



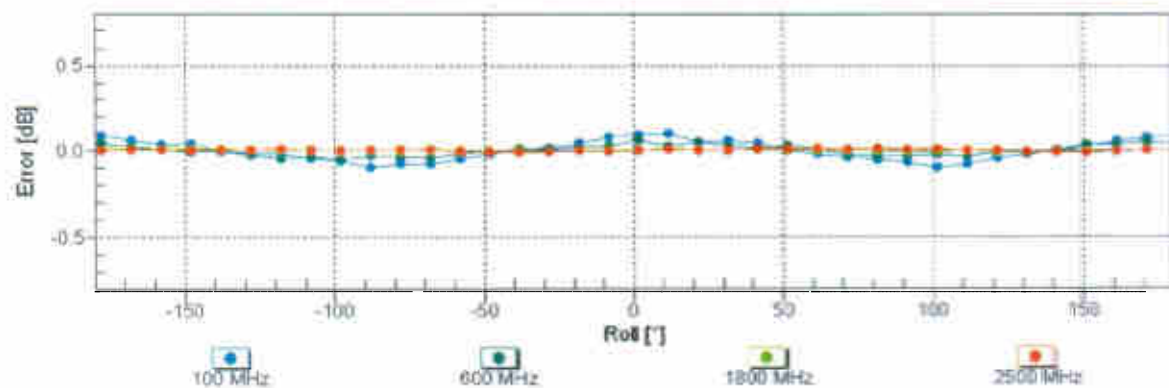
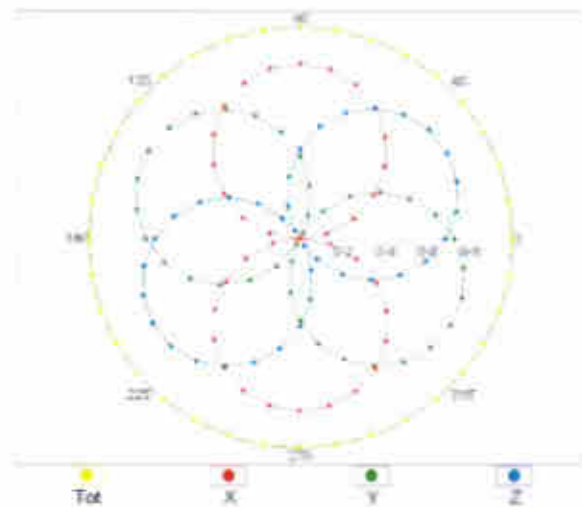
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

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

f=600 MHz,TEM

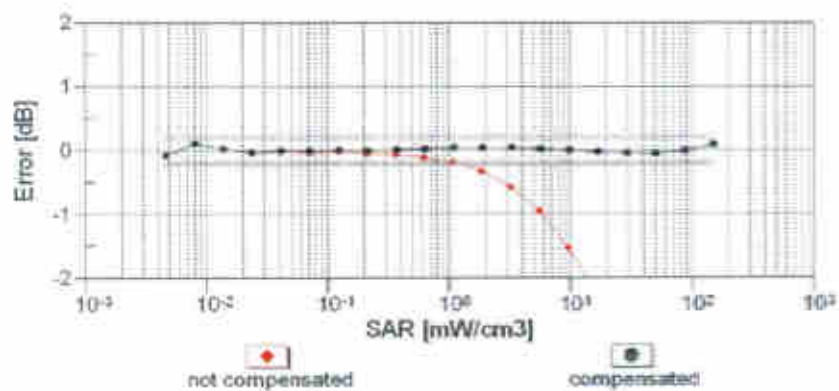
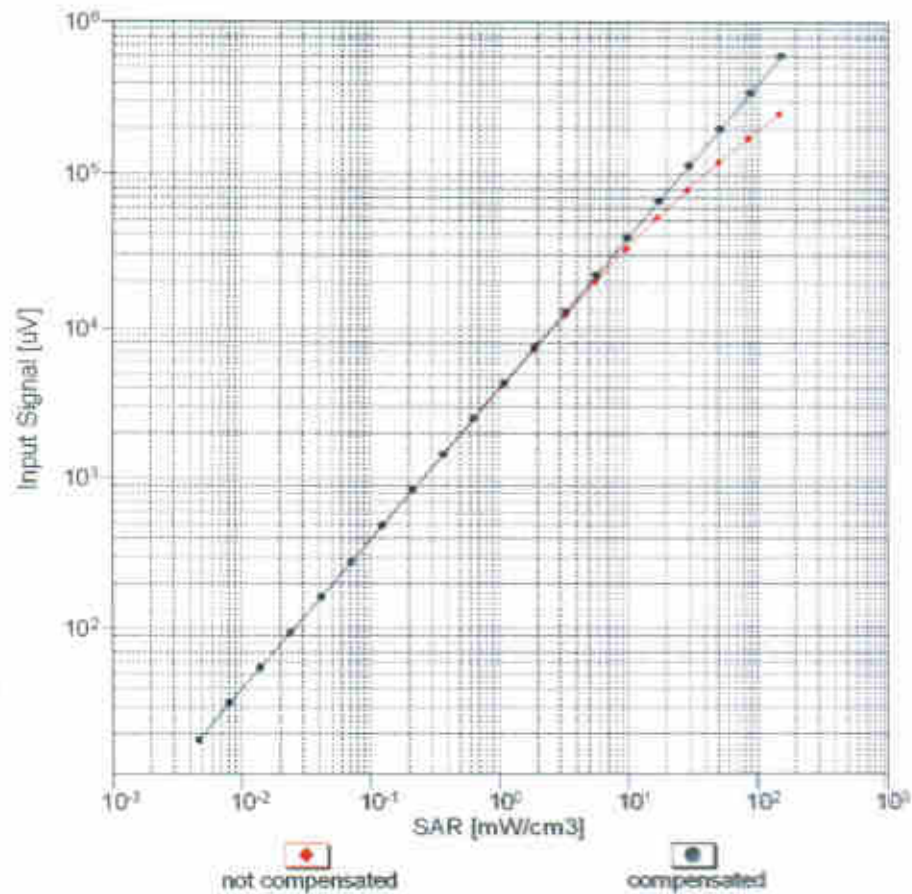


f=1800 MHz,R22



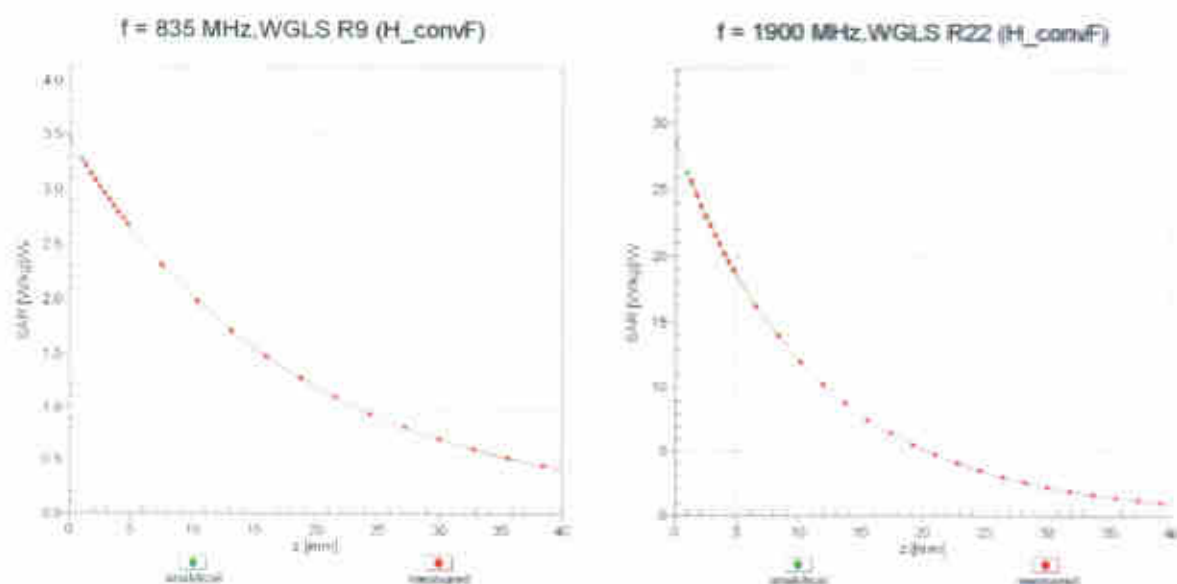
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

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



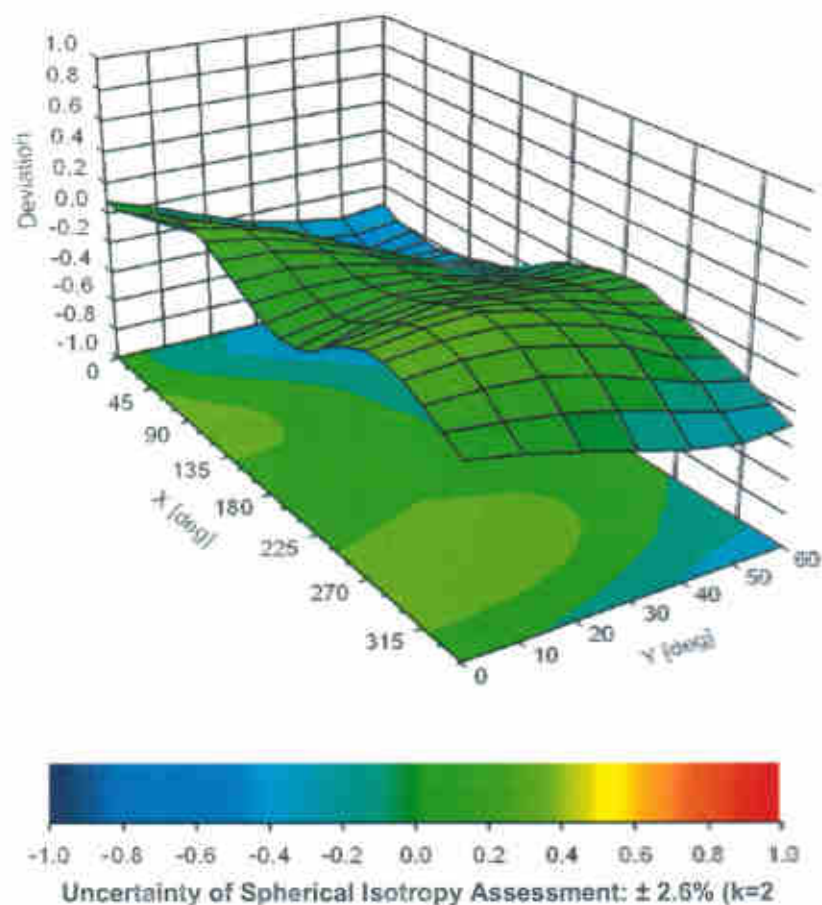
Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment



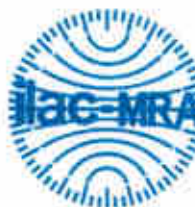
Deviation from Isotropy in Liquid

Error (ϕ, θ), $f = 900 \text{ MHz}$





In Collaboration with
s p e a g
CALIBRATION LABORATORY



中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

Client

Auden

Certificate No: **Z20-60166**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN : 3826**

Calibration Procedure(s) **FF-Z11-004-01**
Calibration Procedures for Dosimetric E-field Probes

Calibration date: **May 20, 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) $^{\circ}\text{C}$ 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	18-Jun-19(CTTL, No.J19X05125)	Jun-20
Power sensor NRP-Z91	101547	18-Jun-19(CTTL, No.J19X05125)	Jun-20
Power sensor NRP-Z91	101548	18-Jun-19(CTTL, No.J19X05125)	Jun-20
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 3617	30-Jan-20(SPEAG, No.EX3-3617_Jan20/2)	Jan-21
DAE4	SN 1556	4-Feb-20(SPEAG, No.DAE4-1556_Feb20)	Feb-21

Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	18-Jun-19(CTTL, No.J19X05127)	Jun-20
Network Analyzer E5071C	MY46110673	10-Feb-20(CTTL, No.J20X00515)	Feb-21

	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: May 22, 2020

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

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 $\theta=0$ is normal to probe axis

Connector Angle information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "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 $\theta=0$ ($f \leq 900\text{MHz}$ in TEM-cell; $f > 1800\text{MHz}$: waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect 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 (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}; VR_{x,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 $f \leq 800\text{MHz}$) and inside waveguide using analytical field distributions based on power measurements for $f > 800\text{MHz}$. 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 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 $\pm 50\text{MHz}$ to $\pm 100\text{MHz}$.
- 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).



In Collaboration with

s p e a g**CALIBRATION LABORATORY**

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail: cttl@chinattl.com

[Http://www.chinattl.cn](http://www.chinattl.cn)**DASY/EASY – Parameters of Probe: EX3DV4 – SN:3826****Basic Calibration Parameters**

	Sensor X	Sensor Y	Sensor Z	Unc ($k=2$)
Norm($\mu V/(V/m)^2$) ^A	0.48	0.41	0.36	$\pm 10.0\%$
DCP(mV) ^B	100.2	99.8	103.2	

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	160.2	$\pm 2.7\%$
		Y	0.0	0.0	1.0		141.6	
		Z	0.0	0.0	1.0		130.8	

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 E^2 -field uncertainty inside TSL (see Page 4).

^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.



In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail: cttl@chinattl.com

<http://www.chinattl.cn>

DASY/EASY – Parameters of Probe: EX3DV4 – SN:3826

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	9.37	9.37	9.37	0.40	0.80	±12.1%
835	41.5	0.90	9.12	9.12	9.12	0.17	1.26	±12.1%
900	41.5	0.97	9.10	9.10	9.10	0.18	1.30	±12.1%
1750	40.1	1.37	7.98	7.98	7.98	0.19	1.14	±12.1%
1900	40.0	1.40	7.67	7.67	7.67	0.22	1.14	±12.1%
2000	40.0	1.40	7.77	7.77	7.77	0.24	1.10	±12.1%
2300	39.5	1.67	7.35	7.35	7.35	0.51	0.73	±12.1%
2450	39.2	1.80	7.12	7.12	7.12	0.53	0.72	±12.1%
2600	39.0	1.96	6.94	6.94	6.94	0.45	0.85	±12.1%
3500	37.9	2.91	6.62	6.62	6.62	0.39	0.98	±13.3%
5250	35.9	4.71	5.09	5.09	5.09	0.45	1.30	±13.3%
5600	35.5	5.07	4.66	4.66	4.66	0.45	1.40	±13.3%
5750	35.4	5.22	4.68	4.68	4.68	0.45	1.40	±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.

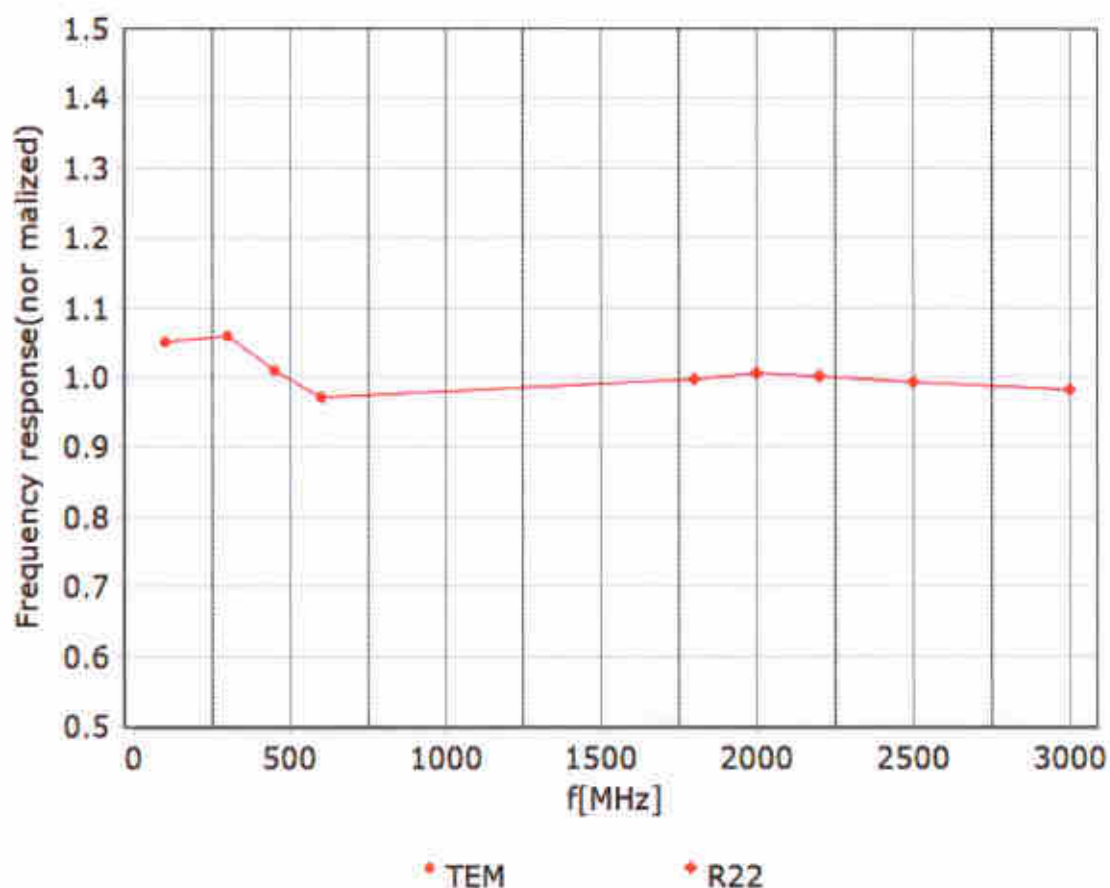


In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

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



Uncertainty of Frequency Response of E-field: $\pm 7.4\%$ ($k=2$)

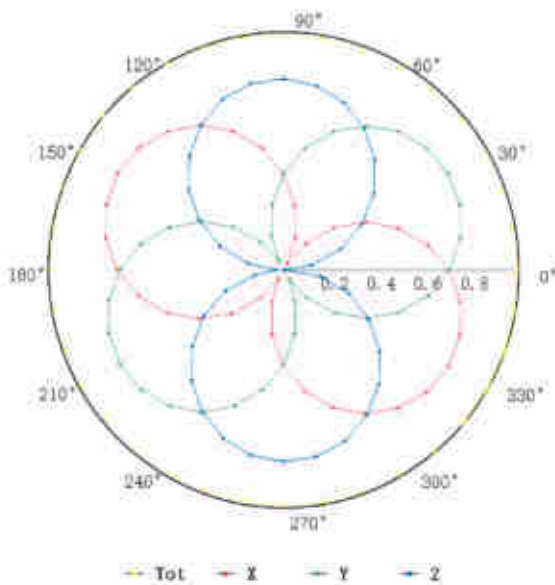


In Collaboration with
s p e a g
CALIBRATION LABORATORY

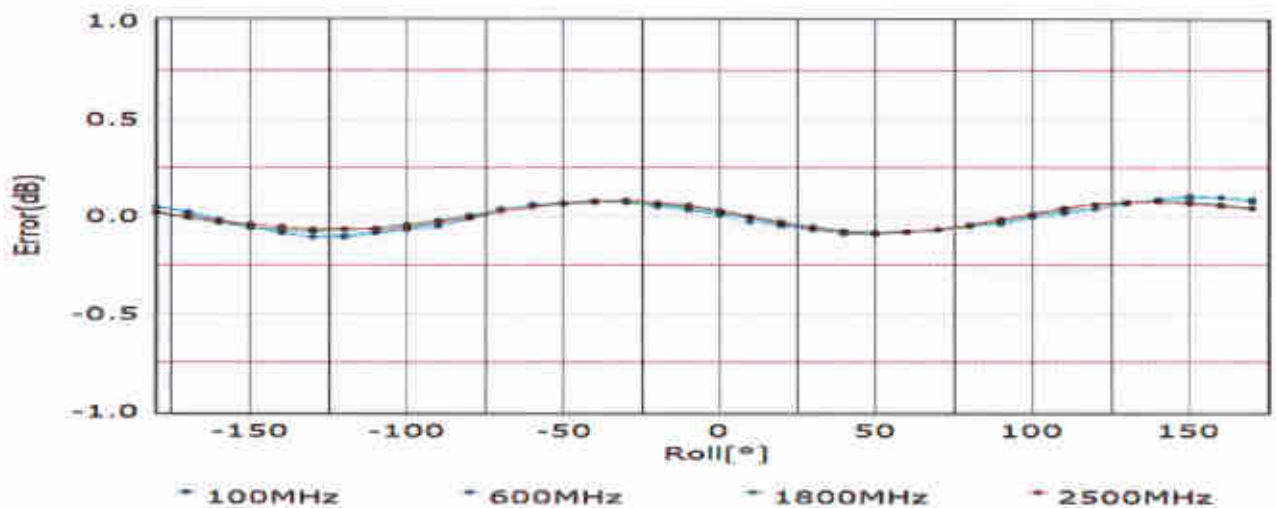
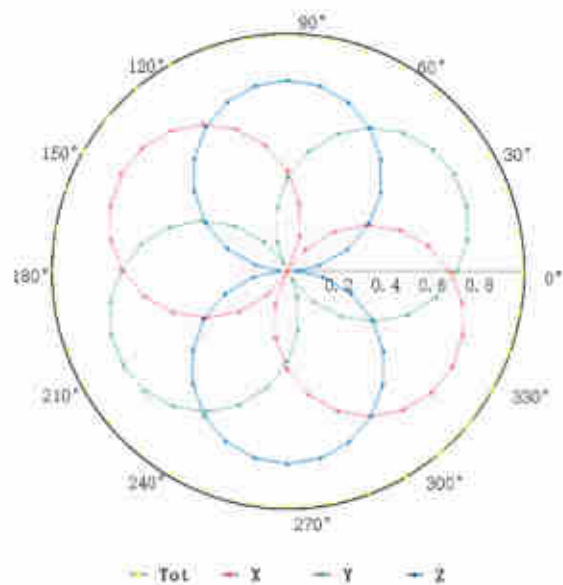
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com <http://www.chinattl.cn>

Receiving Pattern (Φ), $\theta=0^\circ$

f=600 MHz, TEM



f=1800 MHz, R22



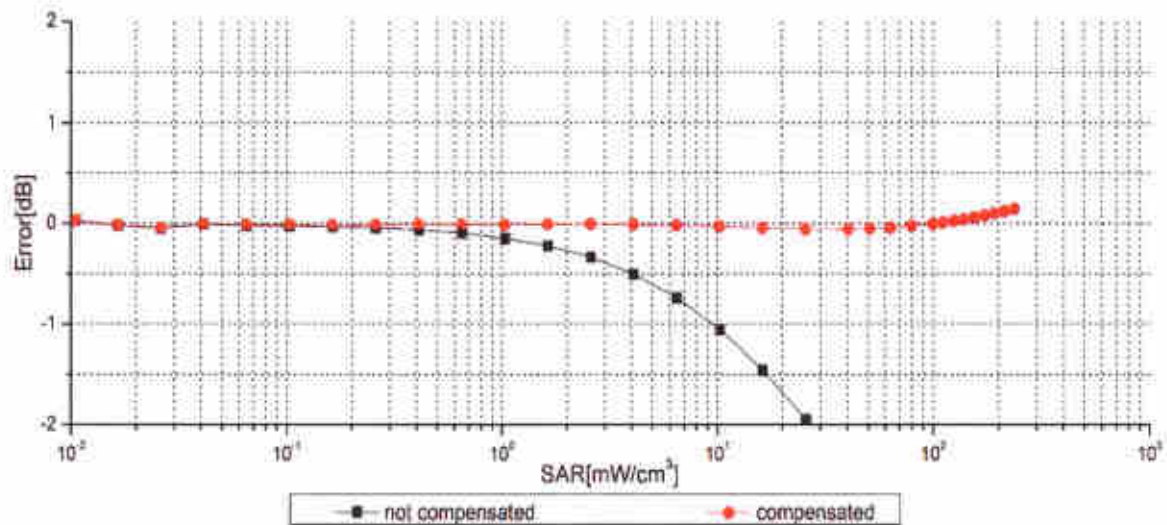
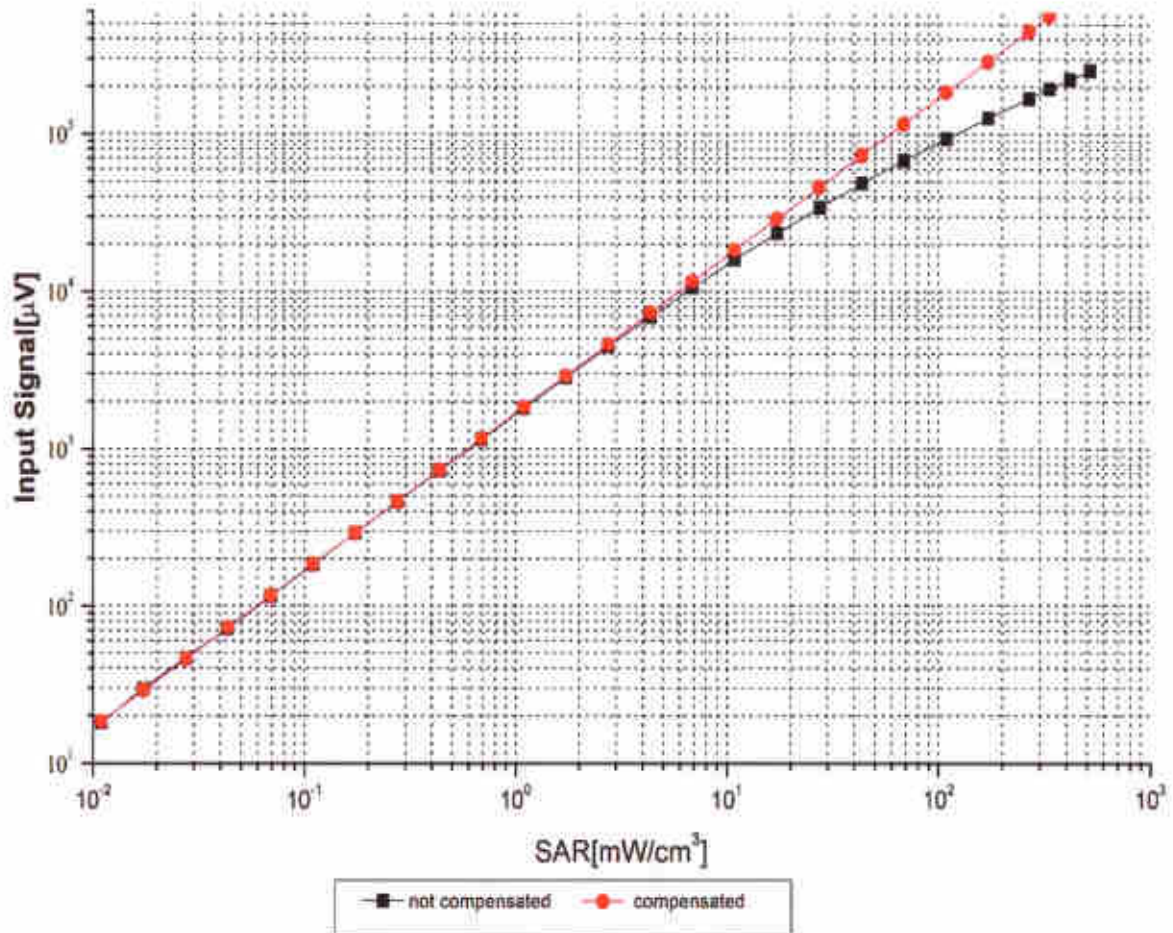
Uncertainty of Axial Isotropy Assessment: $\pm 1.2\%$ ($k=2$)



In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: ctl@chinattl.com <http://www.chinattl.cn>

Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f = 900 \text{ MHz}$)



Uncertainty of Linearity Assessment: $\pm 0.9\%$ ($k=2$)



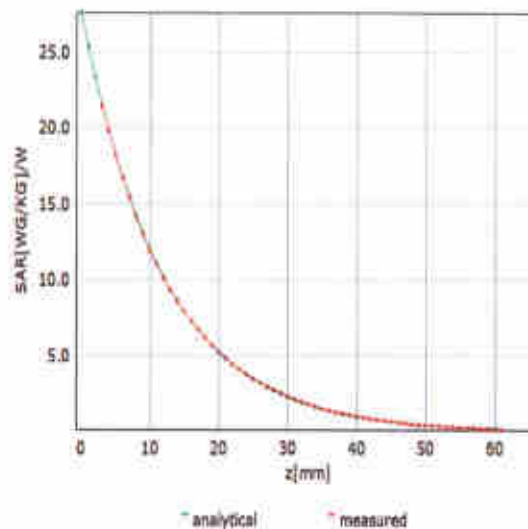
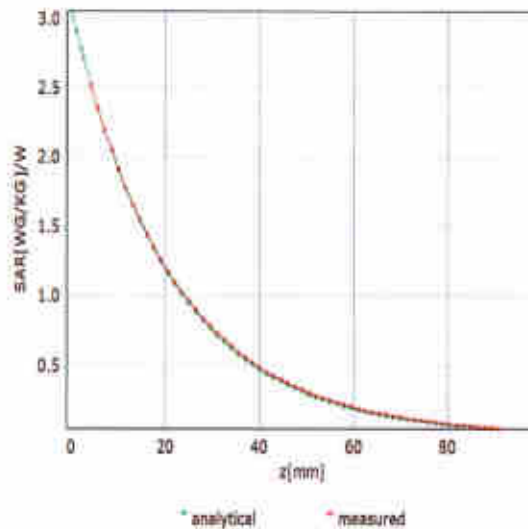
In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: ctl@chinatl.com <http://www.chinatl.cn>

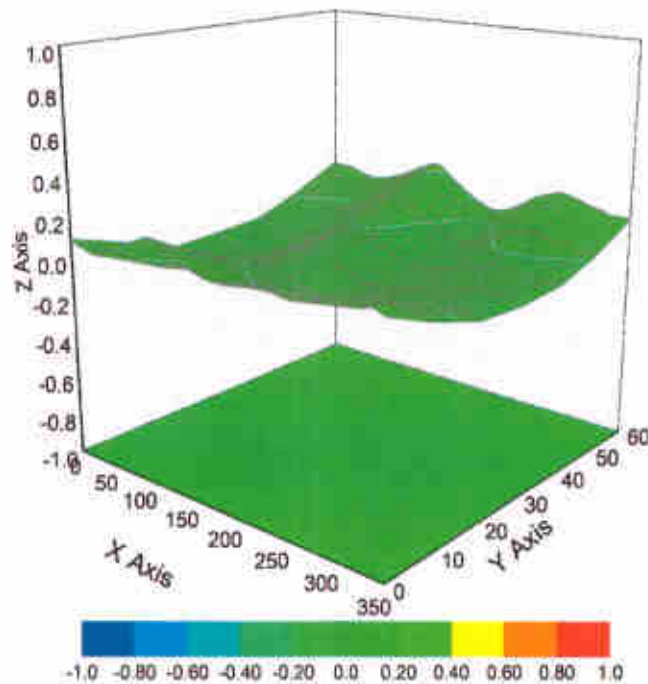
Conversion Factor Assessment

f=750 MHz,WGLS R9(H_convF)

f=1750 MHz,WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: $\pm 3.2\%$ ($k=2$)



In Collaboration with

s p e a g

CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2512

Fax: +86-10-62304633-2504

E-mail: ctl@chinattl.com

[Http://www.chinattl.cn](http://www.chinattl.cn)

DASY/EASY – Parameters of Probe: EX3DV4 – SN:3826

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	51.5
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



Appendix E. Conducted RF Output Power Table

The detailed power table are shown as follows.



Full Power									
GSM850		Burst Average Power (dBm)			Tune-up Limit		Frame Average Power (dBm)		
TX Channel		128	189	251			128	189	251
Frequency (MHz)		824.2	836.4	848.8			824.2	836.4	848.8
GSM 1 Tx slot		32.16	32.29	32.32			33.50	23.16	23.29
GPRS 1 Tx slot		32.15	32.27	32.31			33.50	23.15	23.27
GPRS 2 Tx slots		30.32	30.40	30.02			31.50	24.32	24.40
GPRS 3 Tx slots		27.98	28.03	27.81			29.00	23.70	23.77
GPRS 4 Tx slots		25.72	25.73	25.55			26.50	22.72	22.73
EDGE 1 Tx slot		26.51	26.34	26.24			27.50	17.51	17.34
EDGE 2 Tx slots		24.38	24.31	24.22			25.50	18.36	18.31
EDGE 3 Tx slots		22.14	22.13	22.07			23.00	17.88	17.87
EDGE 4 Tx slots		20.03	20.09	19.94			21.00	17.03	17.09
								16.94	16.00

GSM1900		Burst Average Power (dBm)			Tune-up Limit		Frame Average Power (dBm)		
TX Channel		512	661	810			512	661	810
Frequency (MHz)		1852.2	1822	1822.8			1852.2	1822	1822.8
GSM 1 Tx slot		29.75	29.77	29.53			30.50	20.76	20.77
GPRS 1 Tx slot		29.74	29.72	29.47			30.50	20.74	20.72
GPRS 2 Tx slots		27.75	27.62	27.71			29.00	21.75	21.82
GPRS 3 Tx slots		25.44	25.41	25.33			26.50	21.18	21.15
GPRS 4 Tx slots		23.44	23.47	23.42			24.50	20.44	20.47
EDGE 1 Tx slot		25.46	25.58	25.32			26.50	16.46	16.58
EDGE 2 Tx slots		23.29	23.52	23.38			24.50	17.29	17.52
EDGE 3 Tx slots		21.24	21.18	21.13			22.00	16.98	16.92
EDGE 4 Tx slots		19.81	19.71	19.68			21.00	16.81	16.71
								16.68	16.00

Band		WCDMA 8			Tune-up Limit		WCDMA 11			Tune-up Limit		WCDMA 17			Tune-up Limit	
TX Channel		9262	9400	9538			1312	1413	1513			4132	4182	4233		
Rx Channel		9662	9800	9938			1537	1638	1738			4367	4407	4458		
Frequency (MHz)		1852.4	1880	1907.6			1712.4	1732.6	1752.6			826.4	836.4	846.6		
3GPP Rel 99		23.00	23.04	22.96			24.00	22.64	22.56			24.00	23.01	23.00		
3GPP Rel 99		23.01	23.05	22.99			24.00	22.75	22.58			24.00	23.02	23.03		
3GPP Rel 6		22.08	22.04	21.97			23.00	22.02	21.99			23.00	22.09	22.07		
3GPP Rel 6		22.06	22.06	22.02			23.00	22.05	22.06			23.00	22.08	22.12		
3GPP Rel 6		21.71	21.55	21.47			22.50	21.57	21.52			21.60	21.58	21.58		
3GPP Rel 6		21.54	21.57	21.52			22.50	21.48	21.56			21.56	21.61	21.59		
3GPP Rel 6		21.92	21.87	21.80			23.00	21.94	21.99			23.00	22.02	21.87		
3GPP Rel 6		21.99	21.87	21.99			23.00	21.99	22.03			23.00	21.99	21.93		
3GPP Rel 6		21.09	21.47	21.43			22.50	21.57	21.40			21.74	21.57	21.42		
3GPP Rel 6		21.53	21.53	21.42			22.50	21.26	21.51			21.20	22.50	21.36		
3GPP Rel 6		22.06	22.07	22.02			23.00	21.99	22.06			21.84	23.00	22.03		
3GPP Rel 6		20.05	20.06	20.05			21.00	19.87	19.86			19.89	21.00	19.97		
3GPP Rel 6		21.07	21.04	20.99			22.00	20.96	20.99			22.00	21.01	21.01		
3GPP Rel 6		20.08	20.03	19.98			21.00	19.98	20.00			19.99	21.00	20.00		
3GPP Rel 6		22.10	22.10	22.00			23.00	22.00	22.00			23.00	22.00	22.20		

Band		CDMA BC3			Tune-up Limit		CDMA BC1			Tune-up Limit		CDMA BC10			Tune-up Limit	
TX Channel		1013	384	777			25	800	1175			476	580	664		
Frequency (MHz)		824.7	836.52	848.31			1851.25	1860	1908.75			817.9	820.5	823.1		
RC1 S055		24.13	24.23	24.54			25.00	24.32	24.55			25.00	23.90	24.28		
RC1 S055		24.10	24.19	24.50			25.00	24.23	24.44			25.00	23.85	24.11		
RC3 S032 (F+SCH)		24.14	24.24	24.53			25.00	24.44	24.52			25.00	24.25	24.27		
RC3 S032 (F+SCH)		24.08	24.15	24.47			25.00	24.42	24.39			25.00	24.01	24.24		
RTAP 150.6Kbps		23.85	23.94	24.25			25.00	23.72	23.81			25.00	24.12	24.14		
RTAP 400.6Kbps		23.79	23.86	24.11			25.00	23.74	23.74			25.00	24.01	24.11		



Band 2 (1900MHz Band) Part 24E													
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch./Freq. 1870	Power Middle Ch./Freq. 1880	Power High Ch./Freq. 1900	Tune-up limit (dBm)	MPR (dB)					
Channel							Tune-up limit (dBm)	MPR (dB)	Frequency (MHz)				
									1860	1880	1900		
20	QPSK	1	0	22.94	22.91	22.84	24	0					
20	QPSK	1	49	22.57	22.59	22.64							
20	QPSK	1	99	22.47	22.55	22.48							
20	QPSK	50	0	21.96	21.93	21.90	23	1					
20	QPSK	50	24	21.80	21.84	21.86							
20	QPSK	50	50	21.64	21.77	21.73							
20	QPSK	100	0	21.84	21.81	21.82	23	1					
20	16QAM	1	0	22.12	22.11	22.12							
20	16QAM	1	49	22.03	22.11	22.08							
20	16QAM	1	99	21.78	21.88	21.79	22	2					
20	16QAM	50	0	20.94	20.96	20.88							
20	16QAM	50	24	20.83	20.85	20.87							
20	16QAM	50	50	20.60	20.76	20.74	22	2					
20	16QAM	100	0	20.75	20.79	20.80							
20	64QAM	1	0	21.10	20.99	20.94							
20	64QAM	1	49	20.98	20.94	20.85	22	2					
20	64QAM	1	99	20.74	20.75	20.69							
20	64QAM	50	0	19.92	19.94	19.86							
20	64QAM	50	24	19.79	19.85	19.85	21	3					
20	64QAM	50	50	19.59	19.74	19.70							
20	64QAM	100	0	19.74	19.79	19.80							
Channel							Tune-up limit (dBm)	MPR (dB)	Frequency (MHz)				
							1867.5	1880	1912.5				
15	QPSK	1	0	22.84	22.88	22.84	24	0					
15	QPSK	1	37	22.51	22.57	22.44							
15	QPSK	1	74	22.39	22.47	22.48							
15	QPSK	36	0	21.92	21.80	21.90	23	1					
15	QPSK	36	20	21.75	21.64	21.83							
15	QPSK	36	39	21.64	21.66	21.71							
15	QPSK	75	0	21.71	21.69	21.68	23	1					
15	16QAM	1	0	22.01	22.01	22.02							
15	16QAM	1	37	21.93	22.02	21.96							
15	16QAM	1	74	21.70	21.77	21.77	22	2					
15	16QAM	36	0	20.85	20.92	20.70							
15	16QAM	36	20	20.70	20.73	20.87							
15	16QAM	36	39	20.51	20.70	20.69	22	2					
15	16QAM	75	0	20.55	20.60	20.79							
15	64QAM	1	0	20.98	20.82	20.76							
15	64QAM	1	37	20.94	20.79	20.84	22	2					
15	64QAM	1	74	20.66	20.72	20.57							
15	64QAM	36	0	19.81	19.89	19.85							
15	64QAM	36	20	19.75	19.65	19.76	21	3					
15	64QAM	36	39	19.67	19.60	19.52							
15	64QAM	75	0	19.59	19.72	19.64							
Channel							Tune-up limit (dBm)	MPR (dB)	Frequency (MHz)				
							1865	1880	1915				
10	QPSK	1	0	22.81	22.76	22.69	24	0					
10	QPSK	1	25	22.38	22.47	22.57							
10	QPSK	1	49	22.40	22.52	22.39							
10	QPSK	25	0	21.79	21.96	21.86	23	1					
10	QPSK	25	12	21.63	21.71	21.69							
10	QPSK	25	25	21.57	21.74	21.53							
10	QPSK	50	0	21.76	21.63	21.73	23	1					
10	16QAM	1	0	21.96	22.05	22.01							
10	16QAM	1	25	21.97	22.08	21.92							
10	16QAM	1	49	21.71	21.76	21.72	22	2					
10	16QAM	25	0	20.91	20.94	20.78							
10	16QAM	25	12	20.81	20.73	20.79							
10	16QAM	25	25	20.42	20.67	20.85	22	2					
10	16QAM	50	0	20.62	20.66	20.71							
10	64QAM	1	0	20.95	20.98	20.90							
10	64QAM	1	25	20.79	20.88	20.67	22	2					
10	64QAM	1	49	20.73	20.67	20.59							
10	64QAM	25	0	19.92	19.91	19.78							
10	64QAM	25	12	19.62	19.77	19.81	21	3					
10	64QAM	25	25	19.49	19.68	19.66							
10	64QAM	50	0	19.60	19.61	19.80							
Channel							Tune-up limit (dBm)	MPR (dB)	Frequency (MHz)				
							1862.5	1880	1917.5				
5	QPSK	1	0	22.78	22.83	22.74	24	0					
5	QPSK	1	12	22.37	22.41	22.58							
5	QPSK	1	24	22.46	22.35	22.33							
5	QPSK	12	0	21.76	21.80	21.84	23	1					
5	QPSK	12	7	21.80	21.64	21.75							
5	QPSK	12	13	21.58	21.72	21.73							
5	QPSK	25	0	21.73	21.81	21.85	23	1					
5	16QAM	1	0	22.03	21.97	22.12							
5	16QAM	1	12	22.03	22.11	22.04							
5	16QAM	1	24	21.71	21.86	21.79	22	2					
5	16QAM	12	0	20.92	20.95	20.73							
5	16QAM	12	7	20.63	20.79	20.80							
5	16QAM	12	13	20.40	20.62	20.60	22	2					
5	16QAM	25	0	20.65	20.69	20.85							
5	64QAM	1	0	21.02	20.94	20.87							
5	64QAM	1	12	20.87	20.75	20.83	22	2					
5	64QAM	1	24	20.61	20.61	20.53							
5	64QAM	12	0	19.90	19.88	19.88							
5	64QAM	12	7	19.76	19.85	19.85	21	3					
5	64QAM	12	13	19.57	19.55	19.56							
5	64QAM	25	0	19.66	19.73	19.70							
Channel							Tune-up limit (dBm)	MPR (dB)	Frequency (MHz)				
							1861.5	1880	1918.5				
3	QPSK	1	0	22.91	22.91	22.81	24	0					
3	QPSK	1	8	22.49	22.47	22.64							
3	QPSK	1	14	22.37	22.45	22.44							
3	QPSK	8	0	21.92	21.87	21.84	23	1					
3	QPSK	8	4	21.64	21.68	21.67							
3	QPSK	8	7	21.45	21.70	21.73							
3	QPSK	15	0	21.71	21.81	21.69	23	1					
3	16QAM	1	0	22.06	21.91	22.00							
3	16QAM	1	8	21.93	22.08	22.07							
3	16QAM	1	14	21.75	21.77	21.62	22	2					
3	16QAM	8	0	20.80	20.81	20.85							



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				2050	2100	2150			
Frequency (MHz)				2510	2535	2550			
20	QPSK	1	0	22.97	23.21	23.25			
20	QPSK	1	49	22.89	23.24	23.30	24	0	
20	QPSK	1	99	23.06	23.25	23.46			
20	QPSK	50	0	21.91	22.21	22.34			
20	QPSK	50	24	21.91	22.31	22.30			
20	QPSK	50	50	22.04	22.39	22.42	23	1	
20	QPSK	100	0	22.01	22.22	22.32			
20	16QAM	1	0	22.40	22.58	22.18			
20	16QAM	1	49	22.31	22.62	22.59	23	1	
20	16QAM	1	99	22.39	22.39	22.75			
20	16QAM	50	0	20.91	21.31	21.24			
20	16QAM	50	24	20.92	21.26	21.37			
20	16QAM	50	50	20.94	21.26	21.44	22	2	
20	16QAM	100	0	20.99	21.29	21.32			
20	64QAM	1	0	21.31	21.67	21.58			
20	64QAM	1	49	21.12	21.40	21.55	22	2	
20	64QAM	1	99	21.16	21.72	21.65			
20	64QAM	50	0	19.91	20.21	20.29			
20	64QAM	50	24	19.95	20.38	20.38			
20	64QAM	50	50	19.96	20.33	20.27	21	3	
20	64QAM	100	0	20.00	20.24	20.34			
Channel				20625	21100	21375	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2507.5	2535	2562.5			
15	QPSK	1	0	22.71	22.85	22.87			
15	QPSK	1	37	22.72	22.93	22.86	24	0	
15	QPSK	1	74	23.05	23.40	23.43			
15	QPSK	36	0	22.06	22.44	22.36			
15	QPSK	36	20	22.10	22.43	22.43			
15	QPSK	36	39	22.03	22.37	22.42	23	1	
15	QPSK	75	0	22.07	22.42	22.43			
15	16QAM	1	0	22.38	22.79	22.89			
15	16QAM	1	37	22.37	22.79	22.89	23	1	
15	16QAM	1	74	22.38	22.81	22.85			
15	16QAM	36	0	21.09	21.51	21.42			
15	16QAM	36	20	21.12	21.47	21.41			
15	16QAM	36	39	21.02	21.37	21.47	22	2	
15	16QAM	75	0	21.05	21.42	21.43			
15	64QAM	1	0	21.30	21.60	21.78			
15	64QAM	1	37	21.18	21.61	21.49	22	2	
15	64QAM	1	74	21.33	21.57	21.68			
15	64QAM	36	0	20.08	20.47	20.41			
15	64QAM	36	20	20.14	20.45	20.43	21	3	
15	64QAM	36	39	20.01	20.31	20.47			
15	64QAM	75	0	20.02	20.44	20.41			
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2505	2535	2565			
10	QPSK	1	0	22.86	22.97	22.84			
10	QPSK	1	25	23.06	23.16	22.99	24	0	
10	QPSK	1	49	23.16	23.23	23.28			
10	QPSK	25	0	21.99	22.45	22.51			
10	QPSK	25	12	22.00	22.45	22.50	23	1	
10	QPSK	25	25	22.02	22.44	22.49			
10	QPSK	50	0	22.04	22.47	22.55			
10	16QAM	1	0	22.56	22.88	22.99			
10	16QAM	1	25	22.31	22.73	22.87	23	1	
10	16QAM	1	49	22.52	22.85	22.92			
10	16QAM	25	0	21.02	21.46	21.50			
10	16QAM	25	12	21.03	21.47	21.49	22	2	
10	16QAM	25	25	21.02	21.46	21.44			
10	16QAM	50	0	21.08	21.49	21.49			
10	64QAM	1	0	21.51	21.75	21.88			
10	64QAM	1	25	21.15	21.63	21.59	22	2	
10	64QAM	1	49	21.37	21.81	21.82			
10	64QAM	25	0	19.99	20.46	20.43			
10	64QAM	25	12	19.99	20.44	20.46	21	3	
10	64QAM	25	25	20.06	20.46	20.52			
10	64QAM	50	0	20.06	20.48	20.52			
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2502.5	2535	2567.5			
5	QPSK	1	0	22.90	22.86	22.86			
5	QPSK	1	12	22.87	22.97	23.15	24	0	
5	QPSK	1	24	22.94	23.38	23.39			
5	QPSK	12	0	21.96	22.47	22.53			
5	QPSK	12	7	22.00	22.48	22.48	23	1	
5	QPSK	12	13	21.93	22.37	22.46			
5	QPSK	25	0	21.91	22.44	22.51			
5	16QAM	1	0	22.34	22.74	22.87			
5	16QAM	1	12	22.22	22.71	22.73	23	1	
5	16QAM	1	24	22.20	22.76	22.71			
5	16QAM	12	0	21.01	21.49	21.53			
5	16QAM	12	7	21.05	21.50	21.52	22	2	
5	16QAM	12	13	20.95	21.46	21.49			
5	16QAM	25	0	20.94	21.51	21.49			
5	64QAM	1	0	21.22	21.65	21.67			
5	64QAM	1	12	21.20	21.58	21.68	22	2	
5	64QAM	1	24	21.15	21.64	21.61			
5	64QAM	12	0	20.00	20.49	20.51			
5	64QAM	12	7	20.09	20.51	20.50	21	3	
5	64QAM	12	13	19.95	20.43	20.47			
5	64QAM	25	0	19.90	20.49	20.49			

Band 12 (700MHz Low Band)									
Part 27F(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				23600	23995	23130			
Frequency (MHz)				704	707.5	711			
10	QPSK	1	0	22.87	22.90	22.93			
10	QPSK	1	25	22.56	22.59	22.46	24	0	
10	QPSK	1	49	22.86	22.82	22.89			
10	QPSK	25	0	21.77	21.68	21.60			
10	QPSK	25	12	21.75	21.67	21.56	23	1	
10	QPSK	25	25	21.58	21.61	21.66			
10	QPSK	50	0	21.78	21.51	21.72			
10	16QAM	1	0	22.12	22.10	22.03			
10	16QAM	1	25	21.83	21.78	21.81	23	1	
10	16QAM	1	49	22.02	22.06	22.04			
10	16QAM	25	0	20.79	20.54	20.59			
10	16QAM	25	12	20.70	20.64	20.59	22	2	
10	16QAM	25	25	20.58	20.64	20.66			
10	16QAM	50	0	20.78	20.55	20.73			
10	64QAM	1	0	20.94	20.94	20.97			
10	64QAM	1	25	20.69	20.69	20.79	22	2	
10	64QAM	1	49	20.96	20.99	20.99			
10	64QAM	25	0	19.77	19.55	19.56			
10	64QAM	25	12	19.71	19.62	19.56	21	3	
10	64QAM	25	25	19.60	19.58	19.65			
10	64QAM	50	0	19.73	19.54	19.64			
Channel				23035	23095	23155	Tune-up limit (dbm)	MPR (db)	
Frequency (MHz)				701.5	707.5	713.5			
5	QPSK	1	0	22.70	22.72	22.91			
5	QPSK	1	12	22.44	22.51	22.37	24	0	
5	QPSK	1	24	22.71	22.75	22.77			
5	QPSK	12	0	21.62	21.47	21.47			
5	QPSK	12	7	21.58	21.58	21.37	23	1	
5	QPSK	12	13	21.55	21.51	21.48			
5	QPSK	25	0	21.70	21.36	21.55			
5	16QAM	1	0	22.06	22.05	22.03			
5	16QAM	1	12	21.65	21.66	21.62	23	1	
5	16QAM	1	24	21.95	21.93	21.87			
5	16QAM	12	0	20.64	20.39	20.46			
5	16QAM	12	7	20.66	20.53	20.50	22	2	
5	16QAM	12	13	20.48	20.51	20.47			
5	16QAM	25	0	20.71	20.37	20.56			
5	64QAM	1	0	20.84	20.94	20.89			
5	64QAM	1	12	20.57	20.53	20.77	22	2	
5	64QAM	1	24	20.78	20.84	20.89			
5	64QAM	12	0	19.60	19.43	19.53			
5	64QAM	12	7	19.57	19.52	19.43	21	3	
5	64QAM	12	13	19.41	19.40	19.45			
5	64QAM	25	0	19.56	19.46	19.51			
Channel				23025	23095	23165	Tune-up limit (dbm)	MPR (db)	
Frequency (MHz)				700.5	707.5	714.5			
3	QPSK	1	0	22.86	22.74	22.89			
3	QPSK	1	8	22.44	22.41	22.45	24	0	
3	QPSK	1	14	22.72	22.67	22.88			
3	QPSK	8	0	21.57	21.40	21.42			
3	QPSK	8	4	21.61	21.47	21.47	23	1	
3	QPSK	8	7	21.41	21.54	21.53			
3	QPSK	15	0	21.64	21.44	21.72			
3	16QAM	1	0	22.11	22.07	21.95			
3	16QAM	1	8	21.71	21.61	21.61	23	1	
3	16QAM	1	14	21.94	21.86	22.02			
3	16QAM	8	0	20.69	20.53	20.54			
3	16QAM	8	4	20.62	20.59	20.39	22	2	
3	16QAM	8	7	20.42	20.45	20.58			
3	16QAM	15	0	20.60	20.40	20.72			
3	64QAM	1	0	20.85	20.94	20.77			
3	64QAM	1	8	20.54	20.61	20.75	22	2	
3	64QAM	1	14	20.76	20.79	20.83			
3	64QAM	8	0	19.74	19.54	19.49			
3	64QAM	8	4	19.63	19.58	19.36	21	3	
3	64QAM	8	7	19.53	19.44	19.50			
3	64QAM	15	0	19.71	19.44	19.52			
Channel				23017	23095	23173	Tune-up limit (dbm)	MPR (db)	
Frequency (MHz)				699.7	707.5	715.3			
1.4	QPSK	1	0	22.76	22.88	22.82			
1.4	QPSK	1	3	22.38	22.58	22.34	24	0	
1.4	QPSK	1	5	22.73	22.81	22.81			
1.4	QPSK	3	0	22.48	22.20	22.28			
1.4	QPSK	3	1	22.49	22.40	22.40	23	1	
1.4	QPSK	3	3	22.37	22.21	22.38			
1.4	QPSK	6	0	21.69	21.34	21.58	23	1	
1.4	16QAM	1	0	22.02	21.91	21.94			
1.4	16QAM	1	3	21.71	21.58	21.78			
1.4	16QAM	1	5	22.01	21.99	22.20			
1.4	16QAM	3	0	21.40	21.34	21.28	23	1	
1.4	16QAM	3	1	21.38	21.42	21.39			
1.4	16QAM	3	3	21.35	21.38	21.40			
1.4	16QAM	6	0	20.61	20.55	20.54	22	2	
1.4	64QAM	1	0	20.81	20.86	20.81			
1.4	64QAM	1	3	20.52	20.69	20.69			
1.4	64QAM	1	5	20.80	20.87	20.85			
1.4	64QAM	3	0	20.65	20.35	20.36	22	2	
1.4	64QAM	3	1	20.59	20.42	20.40			
1.4	64QAM	3	3	20.56	20.46	20.82			
1.4	64QAM	6	0	19.54	19.46	19.55	21	3	



Band 14 (700MHz Band)									
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				23330			Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				793					
10	QPSK	1	0	22.65			24	0	
10	QPSK	1	25	22.57					
10	QPSK	1	49	22.72					
10	QPSK	25	0	21.46			23	1	
10	QPSK	25	12	21.47					
10	QPSK	25	25	21.42					
10	QPSK	50	0	21.54			23	1	
10	16QAM	1	0	21.86					
10	16QAM	1	25	21.76					
10	16QAM	1	49	21.90			22	2	
10	16QAM	25	0	20.47					
10	16QAM	25	12	20.52					
10	16QAM	25	25	20.51			22	2	
10	16QAM	50	0	20.55					
10	64QAM	1	0	20.70					
10	64QAM	1	25	20.71			22	2	
10	64QAM	1	49	20.87					
10	64QAM	25	0	19.46					
10	64QAM	25	12	19.50			21	3	
10	64QAM	25	25	19.46					
10	64QAM	50	0	19.46					
Channel				23305	23330	23355	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				790.5	793	795.5			
5	QPSK	1	0	22.26	22.14	22.22	24	0	
5	QPSK	1	12	22.15	22.16	22.07			
5	QPSK	1	24	22.40	22.37	22.44			
5	QPSK	12	0	21.41	21.41	21.46	23	1	
5	QPSK	12	7	21.33	21.45	21.38			
5	QPSK	12	13	21.44	21.43	21.42			
5	QPSK	25	0	21.44	21.44	21.52	23	1	
5	16QAM	1	0	21.68	21.72	21.70			
5	16QAM	1	12	21.65	21.73	21.67			
5	16QAM	1	24	21.77	21.73	21.74	22	2	
5	16QAM	12	0	20.44	20.44	20.50			
5	16QAM	12	7	20.35	20.52	20.43			
5	16QAM	12	13	20.46	20.46	20.48	22	2	
5	16QAM	25	0	20.45	20.49	20.49			
5	64QAM	1	0	20.49	20.55	20.60			
5	64QAM	1	12	20.43	20.55	20.59	22	2	
5	64QAM	1	24	20.59	20.59	20.61			
5	64QAM	12	0	19.43	19.45	19.50			
5	64QAM	12	7	19.35	19.48	19.39	21	3	
5	64QAM	12	13	19.44	19.46	19.45			
5	64QAM	25	0	19.42	19.43	19.47			

Band 17 (700MHz Band) Part 27(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				2370	23790	23800	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				709	710	711			
10	QPSK	1	0	22.85	22.93	22.88	24	0	
10	QPSK	1	25	22.84	22.77	22.74			
10	QPSK	1	49	22.81	22.76	22.79			
10	QPSK	25	0	21.70	21.74	21.66	23	1	
10	QPSK	25	12	21.57	21.63	21.59			
10	QPSK	25	25	21.64	21.54	21.64			
10	QPSK	50	0	21.65	21.66	21.65	23	1	
10	16QAM	1	0	22.13	22.07	22.06			
10	16QAM	1	25	21.80	21.84	21.87			
10	16QAM	1	49	22.05	22.08	22.05	22	2	
10	16QAM	25	0	20.66	20.63	20.63			
10	16QAM	25	12	20.59	20.65	20.58			
10	16QAM	25	25	20.62	20.57	20.62	22	2	
10	16QAM	50	0	20.61	20.60	20.59			
10	64QAM	1	0	20.98	20.97	20.96			
10	64QAM	1	25	20.71	20.70	20.82	22	2	
10	64QAM	1	49	20.99	20.91	20.86			
10	64QAM	25	0	19.66	19.63	19.63			
10	64QAM	25	12	19.59	19.66	19.61	21	3	
10	64QAM	25	25	19.64	19.57	19.49			
10	64QAM	50	0	19.62	19.57	19.56			
Channel				23755	23790	23825	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				706.5	710	713.5			
5	QPSK	1	0	22.75	22.82	22.78	24	0	
5	QPSK	1	12	22.55	22.47	22.42			
5	QPSK	1	24	22.57	22.46	22.48			
5	QPSK	12	0	21.53	21.54	21.53	23	1	
5	QPSK	12	7	21.65	21.53	21.51			
5	QPSK	12	13	21.58	21.58	21.53			
5	QPSK	25	0	21.65	21.62	21.51	23	1	
5	16QAM	1	0	21.88	21.83	21.87			
5	16QAM	1	12	21.85	21.77	21.80			
5	16QAM	1	24	21.92	21.84	21.77	22	2	
5	16QAM	12	0	20.55	20.58	20.54			
5	16QAM	12	7	20.63	20.52	20.49			
5	16QAM	12	13	20.58	20.57	20.55	22	2	
5	16QAM	25	0	20.64	20.59	20.50			
5	64QAM	1	0	20.75	20.69	20.71			
5	64QAM	1	12	20.69	20.59	20.66	22	2	
5	64QAM	1	24	20.69	20.71	20.63			
5	64QAM	12	0	19.57	19.56	19.48			
5	64QAM	12	7	19.62	19.55	19.51	21	3	
5	64QAM	12	13	19.62	19.58	19.53			
5	64QAM	25	0	19.63	19.59	19.46			

Band 25 (1900MHz Band) Part 24E									
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				26140	26340	26590	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1860	1890	1905			
20	QPSK	1	0	22.80	22.76	22.93	24	0	
20	QPSK	1	49	22.60	22.74	22.70			
20	QPSK	1	99	22.51	22.61	22.65			
20	QPSK	50	0	21.83	21.77	21.86	23	1	
20	QPSK	50	24	21.80	21.75	21.79			
20	QPSK	50	50	21.74	21.69	21.69			
20	QPSK	100	0	21.79	21.79	21.88	23	1	
20	16QAM	1	0	22.10	22.03	22.05			
20	16QAM	1	49	21.95	22.06	21.98			
20	16QAM	1	99	21.52	21.77	21.48	22	2	
20	16QAM	50	0	20.82	20.74	20.76			
20	16QAM	50	24	20.77	20.75	20.81			
20	16QAM	50	50	20.74	20.69	20.73	22	2	
20	16QAM	100	0	20.77	20.70	20.76			
20	64QAM	1	0	20.98	20.94	21.05			
20	64QAM	1	49	20.89	20.93	20.90	22	2	
20	64QAM	1	99	20.57	20.67	20.54			
20	64QAM	50	0	19.90	19.87	19.89			
20	64QAM	50	24	19.89	19.83	19.85	21	3	
20	64QAM	50	50	19.84	19.76	19.83			
20	64QAM	100	0	19.87	19.82	19.87			
Channel				26115	26340	26615	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1857.5	1860	1907.5			
15	QPSK	1	0	22.76	22.74	22.63	24	0	
15	QPSK	1	37	22.55	22.65	22.67			
15	QPSK	1	74	22.44	22.42	22.49			
15	QPSK	36	0	21.71	21.71	21.67	23	1	
15	QPSK	36	20	21.69	21.58	21.61			
15	QPSK	36	39	21.73	21.66	21.60			
15	QPSK	75	0	21.61	21.66	21.71	23	1	
15	16QAM	1	0	21.95	22.00	21.96			
15	16QAM	1	37	21.93	21.93	21.98			
15	16QAM	1	74	21.35	21.59	21.42	22	2	
15	16QAM	36	0	20.80	20.83	20.76			
15	16QAM	36	20	20.66	20.56	20.74			
15	16QAM	36	39	20.71	20.90	20.73	22	2	
15	16QAM	75	0	20.62	20.66	20.65			
15	64QAM	1	0	20.92	20.76	21.00			
15	64QAM	1	37	20.79	20.79	20.72	22	2	
15	64QAM	1	74	20.55	20.82	20.47			
15	64QAM	36	0	19.73	19.74	19.73			
15	64QAM	36	20	19.88	19.64	19.69	21	3	
15	64QAM	36	39	19.75	19.74	19.82			
15	64QAM	75	0	19.74	19.75	19.72			
Channel				26590	26340	26660	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1895 <th>1890<th>1910</th></th>	1890 <th>1910</th>	1910			
10	QPSK	1	0	22.66	22.58	22.68	24	0	
10	QPSK	1	25	22.45	22.71	22.58			
10	QPSK	1	49	22.46	22.45	22.58			
10	QPSK	25	0	21.65	21.63	21.69	23	1	
10	QPSK	25	12	21.70	21.58	21.80			
10	QPSK	25	25	21.61	21.61	21.67			
10	QPSK	50	0	21.62	21.76	21.70	23	1	
10	16QAM	1	0	21.98	22.02	21.94			
10	16QAM	1	25	21.75	22.03	21.90			
10	16QAM	1	49	21.46	21.61	21.40	22	2	
10	16QAM	25	0	20.68	20.81	20.63			
10	16QAM	25	12	20.68	20.81	20.78			
10	16QAM	25	25	20.61	20.53	20.61	22	2	
10	16QAM	50	0	20.59	20.54	20.61			
10	64QAM	1	0	20.94	20.86	21.03			
10	64QAM	1	25	20.76	20.90	20.73	22	2	
10	64QAM	1	49	20.55	20.58	20.42			
10	64QAM	25	0	19.71	19.67	19.67			
10	64QAM	25	12	19.81	19.82	19.82	21	3	
10	64QAM	25	25	19.67	19.68	19.81			
10	64QAM	50	0	19.67	19.73	19.73			
Channel				26605	26340	26665	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1892.5 <th>1890<th>1912.5</th></th>	1890 <th>1912.5</th>	1912.5			
5	QPSK	1	0	22.75	22.66	22.80	24	0	
5	QPSK	1	14	22.42	22.42	22.62			
5	QPSK	1	24	22.31	22.49	22.48			
5	QPSK	12	0	21.71	21.67	21.69	23	1	
5	QPSK	12	7	21.66	21.64	21.67			
5	QPSK	12	13	21.74	21.65	21.63			
5	QPSK	25	0	21.61	21.78	21.87	23	1	
5	16QAM	1	0	21.96	22.01	21.98			
5	16QAM	1	12	21.95	22.04	21.93			
5	16QAM	1	24	21.41	21.65	21.32	22	2	
5	16QAM	12	0	20.65	20.63	20.68			
5	16QAM	12	7	20.77	20.75	20.77			
5	16QAM	12	13	20.74	20.57	20.70	22	2	
5	16QAM	25	0	20.77	20.93	20.74			
5	64QAM	1	0	20.97	20.76	20.88			
5	64QAM	1	12	20.81	20.83	20.75	22	2	
5	64QAM	1	24	20.45	20.48	20.48			
5	64QAM	12	0	19.89	19.83	19.77			
5	64QAM	12	7	19.77	19.65	19.71	21	3	
5	64QAM	12	13	19.76	19.72	19.84			
5	64QAM	25	0	19.77	19.64	19.69			
Channel				26555	26340	26575	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1891.5	1890	1913.5			
3	QPSK	1	0	22.61	22.65	22.82	24	0	
3	QPSK	1	8	22.40	22.65	22.59			
3	QPSK	1	14	22.45	22.59	22.48			
3	QPSK	8	0	21.82	21.62	21.81	23	1	
3	QPSK	8	4	21.71	21.55	21.59			
3	QPSK	8	7	21.55	21.69	21.49			
3	QPSK	15	0	21.76	21.64	21.73	23	1	
3	16QAM	1	0	21.96	21.99	21.93			
3	16QAM	1	8	21.85	21.98	21.83			
3	16QAM	1	14	21.39	21.77	21.29	22	2	
3	16QAM	1	14	20.74	20.74	20.74			
3	16QAM	8	4	20.57	20.69	20.66			
3	16QAM	8	7	20.54	20.64	20.64	22	2	
3	16QAM	15	0	20.60	20.68	20.67			
3	64QAM	1	0	20.97	20.89	20.98			
3	64QAM	1	8	20.83	20.83	20.88	22	2	
3	64QAM	1	14	20.52	20.52	20.51			
3	64QAM	8	0	19.71	19.82	19.71			
3	64QAM	8	4	19.80	19.73	19.68	21	3	
3	64QAM	8	7	19.64	19.65	19.67			
3	64QAM	15	0	19.77	19.74	19.84			
Channel				26047	26340	26663	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1850.7	1890	1914.3			
1.4	QPSK	1	0	22.74	22.67	22.73	24	0	
1.4	QPSK	1	3	22.42	22.67	22.58			
1.4	QPSK	1	5	22.31	22.47	22.62			
1.4	QPSK	3	0	22.52	22.65	22.51	23	1	
1.4	QPSK	3	1	22.52	22.49	22.53			
1.4	QPSK	3	3	22.56	22.42	22.45			
1.4	QPSK	6	0	21.66	21.61	21.66	23	1	
1.4	16QAM	1	0	22.07	22.83	22.02			
1.4	16QAM	1	3	21.91	22.01	21.84			
1.4	16QAM	1	5	21.41	21.77	21.41	23	1	
1.4	16QAM	3	0	21.60	21.62	21.55			
1.4	16QAM	3	1	21.56	21.52	21.55			
1.4	16QAM	3	3	21.38	21.38	21.48	22	2	
1.4	16QAM	6	0	20.84	20.57	20.58			
1.4	64QAM	1	0	20.80	20.75	20.85			
1.4	QPSK	1	3	20.89	20.76	20.78	22	2	
1.4	64QAM	1	5	20.44	20.58	20.36			
1.4	64QAM	3	0	20.76	20.98	20.73			
1.4	64QAM	3	1	20.59	20.71	20.74	21	3	
1.4	64QAM	3	3	20.86	20.68	20.67			
1.4	64QAM	6	0	19.69	19.62	19.78			



Band 26 for FCC (only on channel required)											
BW (MHz)	Modulation	RB Size	RB Offset	Power Low		Power High		Tune-up limit (dBm)	MPR (dB)		
				Ch. / Freq.	Ch. / Freq.	Ch. / Freq.	Ch. / Freq.				
Channel				26765	26865	26965					
Frequency (MHz)				821.5	831.5	841.5					
15	QPSK	1	0	22.46	22.74	22.95	24	0			
15	QPSK	1	37	22.47	22.43	22.75					
15	QPSK	1	74	23.05	23.08	23.07					
15	QPSK	36	0	21.72	21.75	21.71					
15	QPSK	36	20	21.57	21.54	21.66	23	1			
15	QPSK	36	39	21.46	21.44	21.60					
15	QPSK	75	0	21.63	21.68	21.67					
15	16QAM	1	0	21.95	21.97	22.26					
15	16QAM	1	37	21.68	21.74	21.92	23	1			
15	16QAM	1	74	22.40	22.26	22.38					
15	16QAM	36	0	20.67	20.67	20.93					
15	16QAM	36	20	20.54	20.53	20.65					
15	16QAM	36	39	20.43	20.40	20.56	22	2			
15	16QAM	75	0	20.61	20.59	20.74					
15	64QAM	1	0	20.89	20.90	21.09					
15	64QAM	1	37	20.47	20.60	20.71					
15	64QAM	1	74	21.11	21.13	21.10	22	2			
15	64QAM	36	0	19.73	19.69	19.91					
15	64QAM	36	20	19.58	19.55	19.67					
15	64QAM	36	39	19.47	19.44	19.62					
15	64QAM	75	0	19.58	19.60	19.73	21			3	
Channel				26740	26865	26990					
Frequency (MHz)				819	831.5	844					
10	QPSK	1	0	22.46	22.60	22.95	24	0			
10	QPSK	1	25	22.47	22.37	22.67					
10	QPSK	1	49	22.86	22.96	23.00					
10	QPSK	25	0	21.53	21.60	21.85					
10	QPSK	25	12	21.44	21.50	21.62	23	1			
10	QPSK	25	25	21.27	21.25	21.57					
10	QPSK	50	0	21.52	21.49	21.61					
10	16QAM	1	0	21.85	21.91	22.17					
10	16QAM	1	25	21.59	21.67	21.86	23	1			
10	16QAM	1	49	22.29	22.10	22.30					
10	16QAM	25	0	20.52	20.65	20.82					
10	16QAM	25	12	20.43	20.46	20.46					
10	16QAM	25	25	20.26	20.40	20.39	22	2			
10	16QAM	50	0	20.48	20.57	20.63					
10	64QAM	1	0	20.70	20.81	20.89					
10	64QAM	1	25	20.41	20.60	20.66					
10	64QAM	1	49	20.91	21.09	21.02	22	2			
10	64QAM	25	0	19.66	19.66	19.79					
10	64QAM	25	12	19.52	19.47	19.48					
10	64QAM	25	25	19.37	19.26	19.52					
10	64QAM	50	0	19.40	19.54	19.57	21			3	
Channel				26715	26865	27015					
Frequency (MHz)				816.5	831.5	846.5					
5	QPSK	1	0	22.60	22.66	22.94	24	0			
5	QPSK	1	12	22.43	22.42	22.56					
5	QPSK	1	24	22.95	23.06	23.03					
5	QPSK	12	0	21.61	21.53	21.76					
5	QPSK	12	7	21.43	21.41	21.65	23	1			
5	QPSK	12	13	21.32	21.24	21.46					
5	QPSK	25	0	21.56	21.58	21.68					
5	16QAM	1	0	21.88	21.91	22.07					
5	16QAM	1	12	21.56	21.60	21.76	23	1			
5	16QAM	1	24	22.23	22.25	22.36					
5	16QAM	12	0	20.66	20.58	20.74					
5	16QAM	12	7	20.39	20.48	20.55					
5	16QAM	12	13	20.25	20.33	20.47	22	2			
5	16QAM	25	0	20.44	20.59	20.56					
5	64QAM	1	0	20.82	20.88	21.05					
5	64QAM	1	12	20.40	20.60	20.61					
5	64QAM	1	24	20.94	21.03	21.03	22	2			
5	64QAM	12	0	19.66	19.56	19.80					
5	64QAM	12	7	19.44	19.48	19.50					
5	64QAM	12	13	19.41	19.31	19.50					
5	64QAM	25	0	19.47	19.50	19.57	21			3	
Channel				26705	26865	27025					
Frequency (MHz)				815.5	831.5	847.5					
3	QPSK	1	0	22.46	22.62	22.83	24	0			
3	QPSK	1	8	22.45	22.32	22.74					
3	QPSK	1	14	22.95	22.92	22.94					
3	QPSK	8	0	21.56	21.65	21.75					
3	QPSK	8	4	21.44	21.42	21.50	23	1			
3	QPSK	8	7	21.39	21.43	21.40					
3	QPSK	15	0	21.53	21.50	21.60					
3	16QAM	1	0	21.86	21.90	22.11					
3	16QAM	1	8	21.66	21.58	21.91	23	1			
3	16QAM	1	14	22.33	22.26	22.28					
3	16QAM	8	0	20.53	20.52	20.84					
3	16QAM	8	4	20.46	20.39	20.48					
3	16QAM	8	7	20.32	20.30	20.52	22	2			
3	16QAM	15	0	20.61	20.40	20.69					
3	64QAM	1	0	20.81	20.81	21.00					
3	64QAM	1	8	20.45	20.59	20.59					
3	64QAM	1	14	21.04	21.07	20.98	22	2			
3	64QAM	8	0	19.67	19.53	19.76					
3	64QAM	8	4	19.52	19.37	19.54					
3	64QAM	8	7	19.36	19.44	19.42					
3	64QAM	15	0	19.39	19.54	19.71	21			3	
Channel				26997	26965	27033					
Frequency (MHz)				814.7	831.5	848.3					
1.4	QPSK	1	0	22.49	22.61	22.80	24	0			
1.4	QPSK	1	3	22.32	22.32	22.75					
1.4	QPSK	1	5	23.05	23.07	22.88					
1.4	QPSK	3	0	22.42	22.53	22.74					
1.4	QPSK	3	1	22.29	22.34	22.47	23	1			
1.4	QPSK	3	3	22.35	22.26	22.49					
1.4	QPSK	6	0	21.63	21.42	21.67					
1.4	16QAM	1	0	21.82	21.81	22.22					
1.4	16QAM	1	3	21.60	21.60	21.92	23	1			
1.4	16QAM	1	5	22.35	22.11	22.27					
1.4	16QAM	3	0	21.53	21.36	21.70					
1.4	16QAM	3	1	21.24	21.39	21.38					
1.4	16QAM	3	3	21.13	21.13	21.38	22	2			
1.4	16QAM	6	0	20.50	20.45	20.62					
1.4	64QAM	1	0	20.69	20.94	20.97					
1.4	64QAM	1	3	20.36	20.54	20.62					
1.4	64QAM	1	5	20.94	21.10	20.95	22	2			
1.4	64QAM	3	0	20.49	20.47	20.68					
1.4	64QAM	3	3	20.45	20.34	20.62					
1.4	64QAM	3	3	20.27	20.29	20.34					
1.4	64QAM	6	0	19.45	19.55	19.89	21			3	
1.4	64QAM	6	0	19.45	19.55	19.89					



Band 66									
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				133072	133222	133572			
Frequency (MHz)				1745	1765	1770			
20	QPSK	1	0	22.81	22.67	22.89	24	0	
20	QPSK	1	49	22.58	22.65	22.88			
20	QPSK	1	99	22.73	23.08	23.36			
20	QPSK	50	0	21.57	21.64	21.70	23	1	
20	QPSK	50	24	21.61	21.70	21.74			
20	QPSK	50	50	21.58	21.90	22.08			
20	QPSK	100	0	21.67	21.79	21.97	23	1	
20	16QAM	1	0	21.90	21.84	21.71			
20	16QAM	1	49	21.97	22.12	22.03			
20	16QAM	1	99	22.07	22.08	22.10	22	2	
20	16QAM	50	0	20.56	20.81	20.61			
20	16QAM	50	24	20.61	21.00	20.78			
20	16QAM	50	50	20.58	21.11	20.90	22	2	
20	16QAM	100	0	20.60	20.97	20.73			
20	64QAM	1	0	20.78	20.78	20.61			
20	64QAM	1	49	20.66	20.69	20.87	22	2	
20	64QAM	1	99	20.95	21.08	21.10			
20	64QAM	50	0	19.56	19.79	19.62			
20	64QAM	50	24	19.60	19.97	19.76	21	3	
20	64QAM	50	50	19.56	20.12	19.88			
20	64QAM	100	0	19.58	19.93	19.74			
Channel				133047	133232	133597	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1717.5	1745	1775			
15	QPSK	1	0	22.54	22.99	22.88	24	0	
15	QPSK	1	37	22.36	22.93	22.77			
15	QPSK	1	74	22.64	22.91	23.14			
15	QPSK	36	0	21.70	21.93	21.86	23	1	
15	QPSK	36	20	21.55	21.95	21.90			
15	QPSK	36	39	21.54	22.02	21.93			
15	QPSK	75	0	21.59	21.91	21.87	23	1	
15	16QAM	1	0	22.25	22.22	22.24			
15	16QAM	1	37	21.89	22.13	22.22			
15	16QAM	1	74	21.89	22.23	22.44	22	2	
15	16QAM	36	0	20.64	20.91	20.83			
15	16QAM	36	20	20.52	20.95	20.87			
15	16QAM	36	39	20.52	21.02	20.91	22	2	
15	16QAM	75	0	20.61	20.97	20.88			
15	64QAM	1	0	21.09	21.19	21.04			
15	64QAM	1	37	20.58	20.91	20.91	22	2	
15	64QAM	1	74	20.83	21.21	21.22			
15	64QAM	36	0	19.69	19.92	19.86			
15	64QAM	36	20	19.55	19.93	19.89	21	3	
15	64QAM	36	39	19.55	20.05	19.95			
15	64QAM	75	0	19.56	19.95	19.88			
Channel				133022	133232	133592	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1715	1745	1775			
10	QPSK	1	0	22.62	22.94	23.06	24	0	
10	QPSK	1	25	22.67	23.10	22.96			
10	QPSK	1	49	23.02	23.02	23.17			
10	QPSK	25	0	21.75	22.00	21.97	23	1	
10	QPSK	25	12	21.78	22.10	22.08			
10	QPSK	25	25	21.77	22.30	22.20			
10	QPSK	50	0	21.77	22.10	22.04	23	1	
10	16QAM	1	0	21.69	21.62	21.61			
10	16QAM	1	25	21.98	22.31	22.33			
10	16QAM	1	49	22.31	22.16	22.31	22	2	
10	16QAM	25	0	20.76	21.06	20.97			
10	16QAM	25	12	20.75	21.17	21.07			
10	16QAM	25	25	20.72	21.32	21.14	22	2	
10	16QAM	50	0	20.76	21.15	21.01			
10	64QAM	1	0	20.33	20.58	20.49			
10	64QAM	1	25	20.75	21.19	21.12	22	2	
10	64QAM	1	49	21.21	21.11	21.05			
10	64QAM	25	0	19.75	20.05	19.98			
10	64QAM	25	12	19.78	20.16	20.07	21	3	
10	64QAM	25	25	19.75	20.34	20.22			
10	64QAM	50	0	19.74	20.13	20.01			
Channel				131997	133232	133647	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1712.5	1745	1777.5			
5	QPSK	1	0	22.66	23.06	23.07	24	0	
5	QPSK	1	12	22.77	23.10	23.04			
5	QPSK	1	24	22.67	23.16	23.01			
5	QPSK	12	0	21.83	22.09	22.16	23	1	
5	QPSK	12	7	21.79	22.05	22.11			
5	QPSK	12	13	21.69	22.05	22.09			
5	QPSK	25	0	21.82	22.10	22.10	23	1	
5	16QAM	1	0	22.31	22.45	22.40			
5	16QAM	1	12	22.02	22.27	22.36			
5	16QAM	1	24	22.05	22.47	22.37	22	2	
5	16QAM	12	0	20.85	21.18	21.17			
5	16QAM	12	7	20.81	21.13	21.12			
5	16QAM	12	13	20.69	21.14	21.10	22	2	
5	16QAM	25	0	20.82	21.13	21.12			
5	64QAM	1	0	21.12	21.35	21.29			
5	64QAM	1	12	20.90	21.24	21.18	22	2	
5	64QAM	1	24	20.84	21.32	21.28			
5	64QAM	12	0	19.87	20.20	20.19			
5	64QAM	12	7	19.85	20.16	20.12	21	3	
5	64QAM	12	13	19.72	20.12	20.08			
5	64QAM	25	0	19.83	20.14	20.11			
Channel				131987	133232	133697	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1711.5	1745	1778.5			
3	QPSK	1	0	22.75	23.12	23.11	24	0	
3	QPSK	1	8	22.76	23.10	23.06			
3	QPSK	1	14	22.70	23.07	23.04			
3	QPSK	8	0	21.82	22.10	22.11	23	1	
3	QPSK	8	4	21.81	22.11	22.12			
3	QPSK	8	7	21.76	22.07	22.09			
3	QPSK	15	0	21.77	22.05	22.06	23	1	
3	16QAM	1	0	22.16	22.42	22.45			
3	16QAM	1	8	22.16	22.40	22.43			
3	16QAM	1	14	22.11	22.36	22.43	22	2	
3	16QAM	8	0	20.83	21.13	21.14			
3	16QAM	8	4	20.87	21.16	21.17			
3	16QAM	8	7	20.81	21.10	21.13	22	2	
3	16QAM	15	0	20.80	21.12	21.11			
3	64QAM	1	0	20.95	21.29	21.31			
3	64QAM	1	8	20.95	21.24	21.26	22	2	
3	64QAM	1	14	20.89	21.25	21.20			
3	64QAM	8	0	19.86	20.17	20.13			
3	64QAM	8	4	19.85	20.16	20.18	21	3	
3	64QAM	8	7	19.80	20.14	20.13			
3	64QAM	15	0	19.79	20.11	20.10			
Channel				131979	133232	133695	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				1710.7	1745	1773.3			
1.4	QPSK	1	0	22.92	23.05	23.04	24	0	
1.4	QPSK	1	3	22.74	23.09	23.11			
1.4	QPSK	1	5	22.75	23.05	23.04			
1.4	QPSK	3	0	22.79	23.09	23.07	23	1	
1.4	QPSK	3	1	22.79	23.12	23.17			
1.4	QPSK	3	3	22.74	23.11	23.12			
1.4	QPSK	6	0	21.69	21.97	22.02	23	1	
1.4	16QAM	1	0	22.08	22.35	22.38			
1.4	16QAM	1	3	22.14	22.37	22.45			
1.4	16QAM	1	5	22.05	22.33	22.39	23	1	
1.4	16QAM	3	0	21.75	22.02	22.11			

Band 38(only on channel required)									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. Freq.	Power Midle Ch. Freq.	Power High Ch. Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel									
Frequency (MHz)									
20	QPSK	1	0	22.92	22.76	22.85	24	0	
20	QPSK	1	49	22.24	22.88	22.81			
20	QPSK	1	99	23.19	23.89	23.92	23	1	
20	QPSK	50	0	22.12	22.04	21.82			
20	QPSK	50	24	22.28	22.10	22.11	23	1	
20	QPSK	50	50	22.25	21.87	22.07			
20	QPSK	100	0	21.97	21.81	22.11	23	1	
20	16QAM	1	0	21.95	21.89	21.76			
20	16QAM	1	49	22.07	21.90	21.91	23	1	
20	16QAM	1	99	22.01	21.86	21.96			
20	16QAM	50	0	21.16	21.10	21.11	22	2	
20	16QAM	50	24	21.30	20.91	20.93			
20	16QAM	50	50	21.12	20.92	21.06	22	2	
20	16QAM	100	0	20.93	20.98	21.09			
20	64QAM	1	0	20.70	20.50	20.55	22	2	
20	64QAM	1	49	20.99	20.47	20.49			
20	64QAM	1	99	20.83	20.55	20.52	21	3	
20	64QAM	50	0	19.81	19.72	19.71			
20	64QAM	50	24	20.06	19.74	19.87	21	3	
20	64QAM	50	50	20.26	20.53	19.90			
20	64QAM	100	0	20.16	20.02	20.05			
Channel									
Frequency (MHz)									
15	QPSK	1	0	22.825	22.615	22.615	24	0	
15	QPSK	1	37	22.799	22.62	22.74			
15	QPSK	1	74	23.17	22.96	23.07	23	1	
15	QPSK	36	0	22.05	21.92	22.03			
15	QPSK	36	20	22.22	22.02	22.09	23	1	
15	QPSK	36	39	22.19	22.02	22.06			
15	QPSK	75	0	22.17	21.96	22.05	23	1	
15	16QAM	1	0	21.96	21.86	21.88			
15	16QAM	1	37	22.17	21.67	21.70	22	2	
15	16QAM	1	74	22.17	21.85	22.01			
15	16QAM	36	0	21.05	20.92	21.05	22	2	
15	16QAM	36	20	21.02	20.99	21.05			
15	16QAM	36	39	21.70	21.00	21.01	22	2	
15	16QAM	75	0	21.16	20.99	21.05			
15	64QAM	1	0	20.69	20.56	20.69	21	3	
15	64QAM	1	37	20.70	20.40	20.51			
15	64QAM	1	74	20.86	20.64	20.71	21	3	
15	64QAM	36	0	20.17	20.06	20.12			
15	64QAM	36	20	20.34	20.13	20.18	21	3	
15	64QAM	36	39	20.34	20.13	20.20			
15	64QAM	75	0	20.25	20.07	20.18			
Channel									
Frequency (MHz)									
10	QPSK	1	0	23.19	22.98	23.13	24	0	
10	QPSK	1	25	22.84	23.03	23.25			
10	QPSK	1	49	23.28	23.07	23.22	23	1	
10	QPSK	25	0	22.38	22.05	22.24			
10	QPSK	25	12	22.31	22.01	22.01	23	1	
10	QPSK	25	25	22.47	22.18	22.26			
10	QPSK	50	0	21.97	21.88	21.86	23	1	
10	16QAM	1	0	22.40	22.22	22.26			
10	16QAM	1	25	22.35	22.07	22.05	23	1	
10	16QAM	1	49	22.48	22.16	22.19			
10	16QAM	25	0	21.32	20.90	20.97	22	2	
10	16QAM	25	12	21.03	20.98	21.25			
10	16QAM	25	25	21.20	21.02	21.09	22	2	
10	16QAM	50	0	21.12	20.83	21.26			
10	64QAM	1	25	21.04	20.99	21.21	21	3	
10	64QAM	1	49	20.93	20.88	20.91			
10	64QAM	25	0	20.34	19.92	20.23	21	3	
10	64QAM	25	12	20.07	20.02	20.16			
10	64QAM	25	25	20.43	20.17	20.27			
10	64QAM	50	0	20.12	19.86	20.03			
Channel									
Frequency (MHz)									
5	QPSK	1	0	23.14	23.05	23.03	24	0	
5	QPSK	1	12	23.03	22.95	22.86			
5	QPSK	1	24	23.14	22.88	23.06	23	1	
5	QPSK	12	0	22.39	22.02	22.15			
5	QPSK	12	7	22.32	22.07	22.17	23	1	
5	QPSK	12	13	21.99	22.00	21.99			
5	QPSK	25	0	22.04	21.90	22.24	23	1	
5	16QAM	1	0	22.29	22.11	22.25			
5	16QAM	1	12	22.10	21.85	22.20	22	2	
5	16QAM	1	24	22.06	22.06	22.05			
5	16QAM	12	0	21.07	21.16	21.14	22	2	
5	16QAM	12	7	21.09	21.08	21.10			
5	16QAM	12	13	21.08	20.99	21.02	22	2	
5	16QAM	25	0	21.38	21.06	21.16			
5	64QAM	1	0	21.02	20.64	20.88	21	3	
5	64QAM	1	12	20.97	20.76	20.79			
5	64QAM	1	24	21.05	20.80	21.27	21	3	
5	64QAM	12	0	20.44	20.02	20.13			
5	64QAM	12	7	20.15	20.06	20.04	21	3	
5	64QAM	12	13	20.15	20.06	20.09			
5	64QAM	25	0	20.40	20.02	20.14			

Band 41 (2.6G Band)										
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Co. [Hz]	Power Low Mid Co. [Hz]	Power Mid Co. [Hz]	Power High Mid Co. [Hz]	Power High Co. [Hz]	Tune-up limit (dbm)	MPR (db)
Channel										
Frequency (MHz)				39750	40185	40620	41055	41490		
20	QPSK	1	0	23.57	23.93	23.24	23.39	23.32	25	0
20	QPSK	1	49	23.81	23.92	23.96	23.97	23.92		
20	QPSK	1	99	23.27	23.53	23.27	23.27	23.20	24	1
20	QPSK	50	0	22.85	22.85	22.68	22.76	23.02		
20	QPSK	50	24	22.80	23.02	22.86	22.90	23.06	24	1
20	QPSK	50	50	22.75	22.96	22.77	22.80	23.01		
20	QPSK	100	0	22.76	23.01	22.77	22.80	23.02	24	1
20	16QAM	1	0	22.72	22.81	22.29	22.36	22.89		
20	16QAM	1	49	22.91	22.87	22.74	22.76	23.06	24	1
20	16QAM	1	99	22.34	22.22	22.14	22.17	22.81		
20	16QAM	50	0	21.87	22.06	21.70	21.80	22.06	23	2
20	16QAM	50	24	21.93	22.10	21.90	21.94	22.21		
20	16QAM	50	50	21.81	21.86	21.80	21.83	21.98	23	2
20	16QAM	100	0	21.73	21.82	21.71	21.77	22.02		
20	64QAM	1	0	21.26	21.49	21.07	21.11	21.54	23	2
20	64QAM	1	49	21.46	21.62	21.39	21.44	21.87		
20	64QAM	1	99	21.23	21.07	21.15	21.21	21.41	22	3
20	64QAM	50	0	20.89	21.02	20.85	20.75	21.02		
20	64QAM	50	24	20.87	21.03	20.85	20.86	21.06	22	3
20	64QAM	50	50	20.74	20.85	20.76	20.74	20.94		
20	64QAM	100	0	20.76	20.96	20.72	20.72	21.03		
Channel										
Frequency (MHz)				39750	40173	40620	41056	41515	Tune-up limit (dbm)	MPR (db)
15	QPSK	1	0	23.62	23.84	23.17	23.25	23.97	25	0
15	QPSK	1	37	23.30	23.49	23.26	23.34	23.68		
15	QPSK	1	74	23.30	23.34	23.33	23.33	23.68	24	1
15	QPSK	36	0	22.86	23.19	22.71	22.72	22.97		
15	QPSK	36	20	22.89	23.18	22.90	22.90	23.22	24	1
15	QPSK	36	39	22.98	23.18	22.95	22.97	22.96		
15	QPSK	75	0	22.83	23.12	22.79	22.77	23.09	24	1
15	16QAM	1	0	22.48	22.48	22.18	22.02	22.84		
15	16QAM	1	37	22.48	22.39	22.23	22.32	22.65	24	1
15	16QAM	1	74	22.17	22.12	22.05	22.02	22.32		
15	16QAM	36	0	21.83	22.12	21.69	21.68	21.99	23	2
15	16QAM	36	20	21.80	22.12	21.88	21.90	22.01		
15	16QAM	36	39	21.91	22.14	21.89	21.91	22.09	23	2
15	16QAM	75	0	21.82	22.12	21.82	21.77	22.00		
15	64QAM	1	0	21.09	21.28	21.23	21.05	21.55	23	2
15	64QAM	1	37	21.34	21.24	21.20	21.07	21.22		
15	64QAM	1	74	21.18	21.21	21.16	21.10	21.53	22	3
15	64QAM	36	0	20.70	21.02	20.68	20.81	20.96		
15	64QAM	36	20	20.82	21.06	20.84	20.85	20.95	22	3
15	64QAM	36	39	20.86	21.05	20.87	20.88	20.94		
15	64QAM	75	0	20.75	21.04	20.76	20.79	20.90		
Channel										
Frequency (MHz)				39700	40160	40620	41090	41540	Tune-up limit (dbm)	MPR (db)
15	QPSK	1	0	23.74	23.91	23.59	23.76	23.97	25	0
15	QPSK	1	25	23.76	23.94	23.76	23.80	23.96		
15	QPSK	1	49	23.18	23.86	23.76	23.79	24.00	24	1
15	QPSK	1	75	23.78	23.88	23.89	23.89	23.95		
15	QPSK	25	0	22.92	23.19	22.99	22.95	23.05	24	1
15	QPSK	25	25	22.92	23.16	22.99	22.94	23.02		
15	QPSK	50	0	22.83	23.12	22.87	22.82	23.14	24	1
15	16QAM	1	0	22.91	23.06	22.72	22.86	23.08		
15	16QAM	1	25	22.93	23.07	22.95	22.93	23.04	24	1
15	16QAM	1	49	22.58	23.03	22.88	22.92	23.03		
15	16QAM	25	0	21.80	22.23	21.95	21.97	22.03	23	2
15	16QAM	25	12	21.82	22.20	22.01	22.00	22.07		
15	16QAM	25	36	21.90	22.14	21.97	21.98	22.05	23	2
15	16QAM	50	0	21.70	21.84	21.65	21.68	22.02		
15	16QAM	50	0	21.46	21.65	21.31	21.42	21.70	23	2
15	64QAM	1	25	21.35	21.63	21.45	21.47	21.60		
15	64QAM	1	49	21.43	21.62	21.45	21.46	21.63	22	3
15	64QAM	25	0	20.80	21.25	20.87	20.84	21.21		
15	64QAM	25	12	20.80	21.19	21.00	21.07	21.67	22	3
15	64QAM	25	36	20.99	21.16	20.99	21.02	21.67		
15	64QAM	50	0	20.78	21.12	20.99	20.91	21.21		
Channel										
Frequency (MHz)				39675	40148	40620	41093	41595	Tune-up limit (dbm)	MPR (db)
15	QPSK	1	0	23.87	24.01	23.78	23.85	23.99	25	0
15	QPSK	1	12	23.69	23.90	23.32	23.87	23.84		
15	QPSK	1	24	23.63	23.88	23.60	23.91	23.95	24	1
15	QPSK	12	0	22.87	23.02	22.74	22.73	22.82		
15	QPSK	12	7	23.04	22.92	22.75	22.78	22.80	24	1
15	QPSK	12	13	22.87	22.90	22.77	22.68	22.80		
15	QPSK	12	25	22.59	23.05	22.56	22.56	23.30	24	1
15	16QAM	1	0	23.01	23.24	22.93	22.93	22.99		
15	16QAM	1	12	22.83	23.18	22.90	22.98	23.24	23	2
15	16QAM	1	24	22.99	23.01	22.85	22.92	22.97		
15	16QAM	12	0	21.78	22.11	21.67	21.83	21.97	23	2
15	16QAM	12	7	21.80	21.92	21.68	21.67	21.81		
15	16QAM	12	13	21.75	22.03	21.81	21.80	21.92	23	2
15	16QAM	25	0	21.77	22.02	21.79	21.79	21.90		
15	64QAM	1	0	21.59	21.80	21.64	21.70	21.79	23	2
15	64QAM	1	12	21.66	21.78	21.43	21.40	21.48		
15	64QAM	1	24	21.48	21.85	21.65	21.65	21.75	22	3
15	64QAM	12	0	21.04	21.46	21.17	21.15	21.27		
15	64QAM	12	7	21.21	21.29	21.09	21.08	21.19	22	3
15	64QAM	12	13	20.52	21.31	21.12	21.12	21.21		
15	64QAM	25	0	20.65	21.28	21.07	21.06	21.06		



Reduced Power Mode for P-Sensor On

GSM1900	Buried Average Power (dBm)			Tune-up Limit (dBm)	Buried Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1860	1909.8	(dBm)	1850.2	1860	1909.8	(dBm)
GSM 1 Tx slot	22.89	23.00	22.76	24.00	13.99	14.00	13.76	15.00
GPRS 1 Tx slot	22.97	22.95	22.70	24.00	13.97	13.95	13.70	15.00
GPRS 3 Tx slots	20.06	21.05	20.84	22.50	14.98	15.05	14.94	16.50
GPRS 3 Tx slots	18.67	18.64	18.76	20.00	14.41	14.38	14.50	15.74
GPRS 3 Tx slots	16.67	16.70	16.65	18.00	13.67	13.70	13.65	15.00
EDGE 1 Tx slot	18.69	18.81	18.55	20.00	9.69	9.81	9.55	11.00
EDGE 2 Tx slots	18.52	18.75	18.61	18.00	10.52	10.75	10.61	12.00
EDGE 3 Tx slots	14.47	14.41	14.36	15.50	10.21	10.15	10.10	11.24
EDGE 4 Tx slots	13.54	13.44	13.41	14.50	10.54	10.44	10.41	11.50

Band	WCDMA 6			Tune-up Limit (dBm)	WCDMA 4			Tune-up Limit (dBm)	WCDMA 5			Tune-up Limit (dBm)	
	5262	5400	5538		4312	4413	4513		4152	4182	4233		
Rx Channel	5662	5800	5938	(dBm)	4537	4598	4733	(dBm)	4327	4409	4458	(dBm)	
Frequency (MHz)	1852.4	1860	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6		
3GPP Rel 99	AMR 12.2Kbps	14.30	14.34	14.26	15.50	13.44	13.36	13.53	15.50	21.87	21.86	22.08	23.00
3GPP Rel 99	RMC 12.2Kbps	14.31	14.45	14.42	15.50	14.05	13.88	14.09	15.50	21.88	21.89	22.15	23.00
3GPP Rel 6	HSDPA Subtest-1	13.14	13.14	13.07	14.50	12.82	12.79	12.96	14.50	20.95	20.93	21.12	22.00
3GPP Rel 6	HSDPA Subtest-2	13.16	13.16	13.12	14.50	12.85	12.88	12.98	14.50	20.94	20.98	21.15	22.00
3GPP Rel 6	HSDPA Subtest-3	12.31	12.65	12.57	14.00	12.37	12.32	12.58	14.00	20.46	20.44	20.68	21.50
3GPP Rel 6	HSDPA Subtest-4	12.64	12.67	12.62	14.00	12.26	12.36	12.01	14.00	20.42	20.47	20.25	21.50
3GPP Rel 6	DC-HSDPA Subtest-1	13.02	13.07	12.90	14.50	12.74	12.79	12.89	14.50	20.98	20.75	20.99	22.00
3GPP Rel 6	DC-HSDPA Subtest-2	13.09	12.97	13.09	14.50	12.79	12.83	12.88	14.50	20.85	20.79	21.12	22.00
3GPP Rel 6	DC-HSDPA Subtest-3	12.19	12.57	12.53	14.00	12.37	12.20	12.54	14.00	20.43	20.28	20.62	21.50
3GPP Rel 6	DC-HSDPA Subtest-4	12.63	12.63	12.52	14.00	12.06	12.31	12.00	14.00	20.22	20.33	20.06	21.50
3GPP Rel 6	HSPA Subtest-1	13.16	13.17	13.12	14.50	12.79	12.86	12.64	14.50	20.89	20.89	21.03	22.00
3GPP Rel 6	HSPA Subtest-2	11.15	11.16	11.15	12.50	10.67	10.66	10.69	12.50	18.83	18.88	18.99	20.00
3GPP Rel 6	HSPA Subtest-3	12.17	12.14	12.09	13.50	11.76	11.79	11.79	13.50	19.87	19.87	20.06	21.00
3GPP Rel 6	HSPA Subtest-4	11.15	11.18	11.08	12.50	10.78	10.80	10.69	12.50	18.85	18.86	19.04	20.00
3GPP Rel 6	HSPA Subtest-5	13.20	13.20	13.10	14.50	12.80	12.80	12.90	14.50	20.86	20.86	21.08	22.00

Band	CDMA BC1			Tune-up Limit (dBm)
	26	800	1175	
TX Channel	1851.25	1860	1908.75	(dBm)
RC1 SO55	16.39	16.42	16.33	17.00
RC1 SO65	16.21	16.31	16.17	17.00
RC3 SO32 (F+SOH)	16.31	16.39	16.22	17.00
RC3 SO32 (F+SOH)	16.29	16.28	16.19	17.00
RTAP 153.6Kbps	15.59	15.68	15.56	17.00
RETAP 4968Hz	15.61	15.61	15.58	17.00

Band 2 (1800MHz Band) Part 24E									
BW (MHz)	Modulation	RB Size	RB Offset	Channel	Power Low Ch. Freq.	Power Middle Ch. Freq.	Power High Ch. Freq.	Tune-up limit (MHz)	MPR (dB)
Channel									
Frequency (MHz)									
20	QPSK	1	0	14.97	14.85	14.89			
20	QPSK	1	49	14.66	14.70	14.59			
20	QPSK	1	99	14.43	14.53	14.41			
20	QPSK	50	0	14.88	14.88	14.88			
20	QPSK	50	24	14.84	14.84	14.81			
20	QPSK	50	50	14.63	14.75	14.74			
20	QPSK	100	0	14.77	14.77	14.62			
20	16QAM	1	0	15.54	15.36	15.36			
20	16QAM	1	49	15.27	15.22	15.15			
20	16QAM	1	99	14.90	14.97	14.92			
20	16QAM	50	0	14.99	14.91	14.92			
20	16QAM	50	24	14.86	14.85	14.91			
20	16QAM	50	50	14.63	14.72	14.75			
20	16QAM	100	0	14.79	14.77	14.82			
20	64QAM	1	0	15.15	15.11	14.99			
20	64QAM	1	49	15.00	14.93	14.91			
20	64QAM	1	99	14.70	14.74	14.68			
20	64QAM	50	0	14.94	14.93	14.89			
20	64QAM	50	24	14.83	14.83	14.89			
20	64QAM	50	50	14.62	14.75	14.72			
20	64QAM	100	0	14.82	14.78	14.80			
Channel									
Frequency (MHz)									
15	QPSK	1	0	15.04	15.10	15.03			
15	QPSK	1	37	14.42	14.51	14.49			
15	QPSK	1	74	14.95	14.97	15.02			
15	QPSK	36	0	14.90	14.87	14.87			
15	QPSK	36	20	14.81	14.84	14.88			
15	QPSK	36	39	14.78	14.83	14.87			
15	QPSK	75	0	14.81	14.76	14.87			
15	16QAM	1	0	15.54	15.51	15.55			
15	16QAM	1	37	15.40	15.34	15.32			
15	16QAM	1	74	15.37	15.40	15.35			
15	16QAM	36	0	14.91	14.89	14.85			
15	16QAM	36	20	14.86	14.81	14.98			
15	16QAM	36	39	14.77	14.82	14.84			
15	16QAM	75	0	14.80	14.79	14.87			
15	64QAM	1	0	15.28	15.26	15.29			
15	64QAM	1	37	14.98	14.96	14.89			
15	64QAM	1	74	15.05	15.27	15.05			
15	64QAM	36	0	14.92	14.87	14.89			
15	64QAM	36	20	14.84	14.80	14.97			
15	64QAM	36	39	14.79	14.81	14.80			
15	64QAM	75	0	14.79	14.79	14.89			
Channel									
Frequency (MHz)									
10	QPSK	1	0	15.17	15.07	15.02			
10	QPSK	1	25	14.89	14.86	14.93			
10	QPSK	1	49	14.97	14.86	15.02			
10	QPSK	25	0	15.11	14.94	15.02			
10	QPSK	25	12	15.07	14.96	15.03			
10	QPSK	25	25	15.04	15.07	15.05			
10	QPSK	50	0	15.06	14.98	15.03			
10	16QAM	1	0	15.52	15.50	15.45			
10	16QAM	1	25	15.35	15.38	15.39			
10	16QAM	1	49	15.43	15.37	15.41			
10	16QAM	25	0	15.02	14.93	15.02			
10	16QAM	25	12	15.07	14.95	15.05			
10	16QAM	25	25	15.03	14.88	15.01			
10	16QAM	50	0	15.07	14.93	14.98			
10	64QAM	1	0	15.29	15.34	15.20			
10	64QAM	1	25	15.27	15.21	15.12			
10	64QAM	1	49	15.29	15.28	15.21			
10	64QAM	25	0	15.08	14.91	15.03			
10	64QAM	25	12	15.09	14.95	15.02			
10	64QAM	25	25	15.01	14.92	15.07			
10	64QAM	50	0	15.07	14.95	14.96			
Channel									
Frequency (MHz)									
5	QPSK	1	0	15.15	15.06	15.14			
5	QPSK	1	12	14.87	14.89	14.94			
5	QPSK	1	24	14.97	14.89	14.95			
5	QPSK	12	0	15.07	15.06	15.06			
5	QPSK	12	7	15.11	15.02	15.05			
5	QPSK	12	13	15.07	14.93	15.03			
5	QPSK	25	0	15.06	15.00	15.08			
5	16QAM	1	0	15.45	15.42	15.41			
5	16QAM	1	12	15.35	15.38	15.40			
5	16QAM	1	24	15.33	15.22	15.31			
5	16QAM	12	0	15.08	15.10	15.09			
5	16QAM	12	7	15.16	14.99	15.07			
5	16QAM	12	13	15.06	14.99	15.02			
5	16QAM	25	0	15.07	14.98	15.01			
5	64QAM	1	0	15.33	15.26	15.32			
5	64QAM	1	12	15.20	15.11	15.15			
5	64QAM	1	24	15.27	15.15	15.13			
5	64QAM	12	0	15.09	15.03	15.08			
5	64QAM	12	7	15.10	14.99	15.05			
5	64QAM	12	13	15.05	14.96	15.04			
5	64QAM	25	0	15.06	14.96	15.07			
Channel									
Frequency (MHz)									
3	QPSK	1	0	15.02	14.96	15.04			
3	QPSK	1	8	14.90	14.92	14.96			
3	QPSK	1	14	14.86	14.83	14.89			
3	QPSK	8	0	14.97	14.94	15.00			
3	QPSK	8	4	15.03	14.96	15.00			
3	QPSK	8	7	14.93	14.89	14.94			
3	QPSK	15	0	14.97	14.94	14.97			
3	16QAM	1	0	15.26	15.20	15.30			
3	16QAM	1	8	15.30	15.21	15.26			
3	16QAM	1	14	15.06	15.15	15.18			
3	16QAM	8	0	15.05	15.04	15.07			
3	16QAM	8	4	15.09	15.04	15.06			
3	16QAM	8	7	15.01	15.01	15.02			
3	16QAM	15	0	15.01	14.95	14.99			
3	64QAM	1	0	15.07	15.18	15.23			
3	64QAM	1	8	15.15	15.14	15.11			
3	64QAM	1	14	15.01	14.97	15.11			
3	64QAM	8	0	15.01	15.00	15.07			
3	64QAM	8	4	15.05	14.98	15.02			
3	64QAM	8	7	14.99	14.98	14.96			
3	64QAM	15	0	14.96	14.90	15.00			
Channel									
Frequency (MHz)									
1.4	QPSK	1	0	14.94	14.92	14.95			
1.4	QPSK	1	3	14.99	14.97	15.02			
1.4	QPSK	1	5	14.95	14.85	14.93			
1.4	QPSK	3	0	14.85	14.89	14.92			
1.4	QPSK	3	1	15.00	15.01	15.00			
1.4	QPSK	3	3	14.93	14.87	14.93			
1.4	QPSK	6	0	14.90	14.88	14.95			
1.4	16QAM	1	0	15.37	15.29	15.22			
1.4	16QAM	1	3	15.23	15.24	15.26			
1.4	16QAM	1	5	15.22	15.21	15.23			
1.4	16QAM	3	0	14.98	14.98	15.01			
1.4	16QAM	3	1	15.04	15.04	15.05			
1.4	16QAM	3	3	15.00	14.90	14.96			
1.4	16QAM	6	0	14.94	14.99	15.00			
1.4	64QAM	1	0	15.03	15.09	15.17			
1.4	64QAM	1	3	15.02	15.05	15.27			
1.4	64QAM	1	5	15.06	15.10	15.09			
1.4	64QAM	3	0	15.01	15.05	15.08			
1.4	64QAM	3	1	15.08	15.12	15.11			
1.4	64QAM	3	3	15.05	15.00	15.02			
1.4	64QAM	6	0	14.96	14.97	14.96			

Band 4 (AWS Band) Part 27L (only on channel required)									
BW (MHz)	Modulation	RB Size	RB Offset	Channel	Power Low Ch. Freq.	Power Middle Ch. Freq.	Power High Ch. Freq.	Tune-up limit (MHz)	MPR (dB)
Channel									
Frequency (MHz)									
20	QPSK	1	0	15.30	15.37	15.41			
20	QPSK	1	49	15.20	15.35	15.56			
20	QPSK	1	99	15.14	15.65	15.94			
20	QPSK	50	0	15.38	15.30	15.23			
20	QPSK	50	24	15.34	15.40	15.80			
20	QPSK	50	50	15.19	15.47	15.71			
20	QPSK	100	0	15.01	15.45	15.94			
20	16QAM	1	0	15.39	15.32	15.44			
20	16QAM	1	49	15.31	15.60	15.88			
20	16QAM	1	99	15.24	15.63	15.88			
20	16QAM	50	0	14.96	15.07	15.21			
20	16QAM	50	24	14.96	15.08	15.32			
20	16QAM	50	50	14.80	15.03	15.39			
20	16QAM	100	0	14.86	15.06	15.29			
20	64QAM	1	0	15.13	15.12	15.29			
20	64QAM	1	49	15.02	15.30	15.42			

Band 25 (1900MHz Band) Part 24E									
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. Freq.	Power Mode Ch. Freq.	Power High Ch. Freq.	Tune-up limt (dBm)	MPR (dB)	
Channel				26140	26340	26590	Tune-up limt (dBm)	MPR (dB)	
Frequency (MHz)				1865	1880	1905			
20	QPSK	1	0	14.37	14.36	14.83	16	0	
20	QPSK	1	49	14.36	14.33	14.35			
20	QPSK	1	99	14.35	14.42	14.33	16	0	
20	QPSK	50	0	14.47	14.34	14.35			
20	QPSK	50	34	14.47	14.37	14.45	16	0	
20	QPSK	50	30	14.41	14.30	14.39			
20	QPSK	100	0	14.40	14.33	14.51	16	0	
20	16QAM	1	0	14.81	14.69	14.81			
20	16QAM	1	49	14.81	14.70	14.79	16	0	
20	16QAM	1	99	14.28	14.41	14.24			
20	16QAM	50	0	14.47	14.35	14.47	16	0	
20	16QAM	50	24	14.46	14.38	14.48			
20	16QAM	50	50	14.42	14.31	14.43	16	0	
20	16QAM	100	0	14.41	14.31	14.30			
20	64QAM	1	0	14.71	14.53	14.60	16	0	
20	64QAM	1	49	14.54	14.38	14.50			
20	64QAM	1	99	14.22	14.15	14.38	16	0	
20	64QAM	50	0	14.50	14.37	14.48			
20	64QAM	50	24	14.48	14.38	14.46	16	0	
20	64QAM	50	50	14.37	14.29	14.42			
20	64QAM	100	0	14.41	14.32	14.44	Tune-up limt (dBm)	MPR (dB)	
Channel				26115	26340	26515			
Frequency (MHz)				1872.5	1880	1897.5	16	0	
15	QPSK	1	0	14.30	14.28	14.27			
15	QPSK	1	37	14.27	14.23	14.23	16	0	
15	QPSK	1	74	14.43	14.41	14.28			
15	QPSK	36	0	14.52	14.44	14.53	16	0	
15	QPSK	36	20	14.54	14.44	14.52			
15	QPSK	36	39	14.58	14.50	14.58	16	0	
15	QPSK	75	0	14.55	14.44	14.59			
15	16QAM	1	0	14.77	14.73	14.73	16	0	
15	16QAM	1	37	14.75	14.76	14.75			
15	16QAM	1	74	14.75	14.76	14.25	16	0	
15	16QAM	36	0	14.56	14.41	14.50			
15	16QAM	36	20	14.56	14.43	14.52	16	0	
15	16QAM	36	39	14.58	14.50	14.59			
15	16QAM	75	0	14.51	14.43	14.56	16	0	
15	64QAM	1	0	14.70	14.62	14.69			
15	64QAM	1	37	14.68	14.46	14.56	16	0	
15	64QAM	1	74	14.60	14.53	14.35			
15	64QAM	36	0	14.53	14.43	14.57	16	0	
15	64QAM	36	20	14.54	14.41	14.53			
15	64QAM	36	39	14.58	14.49	14.65	16	0	
15	64QAM	75	0	14.50	14.43	14.61			
Channel				26590	26340	26540	Tune-up limt (dBm)	MPR (dB)	
Frequency (MHz)				1855	1880	1910			
10	QPSK	1	0	14.40	14.41	14.48	16	0	
10	QPSK	1	25	14.34	14.42	14.47			
10	QPSK	1	49	14.57	14.59	14.44	16	0	
10	QPSK	25	0	14.46	14.56	14.55			
10	QPSK	25	12	14.50	14.57	14.53	16	0	
10	QPSK	25	25	14.47	14.54	14.60			
10	QPSK	50	0	14.49	14.58	14.59	16	0	
10	16QAM	1	0	14.74	14.83	14.81			
10	16QAM	1	25	14.53	14.65	14.62	16	0	
10	16QAM	1	49	14.75	14.83	14.53			
10	16QAM	25	0	14.47	14.56	14.53	16	0	
10	16QAM	25	12	14.47	14.55	14.53			
10	16QAM	25	25	14.45	14.56	14.59	16	0	
10	16QAM	50	0	14.48	14.58	14.59			
10	64QAM	1	0	14.59	14.62	14.65	16	0	
10	64QAM	1	25	14.35	14.37	14.42			
10	64QAM	1	49	14.61	14.65	14.25	16	0	
10	64QAM	25	0	14.45	14.57	14.53			
10	64QAM	25	12	14.47	14.60	14.56	16	0	
10	64QAM	25	25	14.47	14.58	14.64			
10	64QAM	50	0	14.48	14.56	14.59	Tune-up limt (dBm)	MPR (dB)	
Channel				26095	26340	26695			
Frequency (MHz)				1852.5	1880	1912.5	16	0	
5	QPSK	1	0	14.30	14.41	14.49			
5	QPSK	1	12	14.35	14.49	14.52	16	0	
5	QPSK	1	34	14.38	14.48	14.44			
5	QPSK	12	0	14.48	14.57	14.57	16	0	
5	QPSK	12	7	14.45	14.56	14.56			
5	QPSK	12	13	14.43	14.51	14.51	16	0	
5	QPSK	25	0	14.48	14.55	14.54			
5	16QAM	1	0	14.63	14.75	14.77	16	0	
5	16QAM	1	12	14.47	14.57	14.56			
5	16QAM	1	24	14.54	14.60	14.47	16	0	
5	16QAM	12	0	14.52	14.61	14.59			
5	16QAM	12	7	14.48	14.53	14.57	16	0	
5	16QAM	12	13	14.44	14.54	14.54			
5	16QAM	25	0	14.47	14.54	14.57	16	0	
5	64QAM	1	0	14.65	14.79	14.78			
5	64QAM	1	12	14.53	14.57	14.65	16	0	
5	64QAM	1	24	14.55	14.63	14.57			
5	64QAM	12	0	14.51	14.60	14.63	16	0	
5	64QAM	12	7	14.47	14.56	14.60			
5	64QAM	12	13	14.45	14.57	14.56	Tune-up limt (dBm)	MPR (dB)	
5	64QAM	25	0	14.47	14.55	14.57			
Channel				26695	26650	26675	Tune-up limt (dBm)	MPR (dB)	
Frequency (MHz)				1851.5	1880	1913.5			
3	QPSK	1	0	14.40	14.48	14.47	16	0	
3	QPSK	1	8	14.39	14.49	14.48			
3	QPSK	1	14	14.34	14.44	14.48	16	0	
3	QPSK	8	0	14.44	14.52	14.53			
3	QPSK	8	4	14.44	14.55	14.57	16	0	
3	QPSK	8	7	14.40	14.51	14.54			
3	QPSK	15	0	14.40	14.52	14.53	16	0	
3	16QAM	1	0	14.42	14.70	14.68			
3	16QAM	1	8	14.58	14.69	14.64	16	0	
3	16QAM	1	14	14.53	14.58	14.62			
3	16QAM	8	0	14.47	14.56	14.55	16	0	
3	16QAM	8	4	14.46	14.59	14.59			
3	16QAM	8	7	14.44	14.54	14.54	16	0	
3	16QAM	15	0	14.43	14.54	14.57			
3	64QAM	1	0	14.62	14.59	14.71	16	0	
3	64QAM	1	8	14.56	14.65	14.68			
3	64QAM	1	14	14.57	14.59	14.62	16	0	
3	64QAM	8	0	14.46	14.56	14.56			
3	64QAM	8	4	14.46	14.57	14.57	16	0	
3	64QAM	8	7	14.40	14.51	14.56			
3	64QAM	15	0	14.44	14.54	14.53	Tune-up limt (dBm)	MPR (dB)	
Channel				26047	26340	26685			
Frequency (MHz)				1850.7	1880	1914.3	16	0	
1.4	QPSK	1	0	14.35	14.50	14.45			
1.4	QPSK	1	3	14.38	14.52	14.48	16	0	
1.4	QPSK	1	5	14.37	14.44	14.44			
1.4	QPSK	3	0	14.37	14.46	14.47	16	0	

Band 30									
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				27710					
Frequency (MHz)				2310					
10	QPSK	1	0		20.25		21	0	
10	QPSK	1	25		19.83				
10	QPSK	1	49		20.17				
10	QPSK	25	0		19.92				
10	QPSK	25	12		19.96		21	0	
10	QPSK	25	25		20.10				
10	QPSK	50	0		20.01				
10	16QAM	1	0		20.13				
10	16QAM	1	25		20.19		21	0	
10	16QAM	1	49		20.13				
10	16QAM	25	0		19.93				
10	16QAM	25	12		19.95				
10	16QAM	25	25		20.04		21	0	
10	16QAM	50	0		19.90				
10	64QAM	1	0		20.19				
10	64QAM	1	25		20.07				
10	64QAM	1	49		20.17		21	0	
10	64QAM	25	0		19.92				
10	64QAM	25	12		19.91				
10	64QAM	25	25		20.05				
10	64QAM	50	0		19.92				
Channel				27685	27710	27735	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2307.5	2310	2312.5			
5	QPSK	1	0		20.07	19.95	21	0	
5	QPSK	1	12		19.84	19.92			
5	QPSK	1	24		19.86	19.96			
5	QPSK	12	0		20.02	19.92			
5	QPSK	12	7		19.88	19.93	21	0	
5	QPSK	12	13		19.90	19.89			
5	QPSK	25	0		19.87	19.95			
5	16QAM	1	0		20.16	20.25			
5	16QAM	1	12		20.14	20.20	21	0	
5	16QAM	1	24		20.11	20.20			
5	16QAM	12	0		20.07	19.96			
5	16QAM	12	7		19.94	19.93			
5	16QAM	12	13		19.89	19.90	21	0	
5	16QAM	25	0		19.91	19.93			
5	64QAM	1	0		20.20	20.17			
5	64QAM	1	12		20.07	20.17			
5	64QAM	1	24		20.05	20.17	21	0	
5	64QAM	12	0		20.07	19.95			
5	64QAM	12	7		19.93	19.92			
5	64QAM	12	13		19.92	19.89			
5	64QAM	25	0		19.98	19.92			
Tune-up limit (dBm)									

Band 66									
BR (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									
Frequency (MHz)									
20	QPSK	1	0	15.26	15.66	15.70	16.5	0	
20	QPSK	1	49	15.31	15.60	15.71			
20	QPSK	1	99	15.32	15.73	15.96			
20	QPSK	50	0	15.13	15.07	15.83			
20	QPSK	50	24	15.19	15.19	15.76	16.5	0	
20	QPSK	50	50	15.28	15.65	15.81			
20	QPSK	100	0	15.24	15.66	15.77			
20	16QAM	1	0	15.21	15.31	15.78			
20	16QAM	1	49	15.23	15.47	15.85	16.5	0	
20	16QAM	1	99	15.27	15.69	15.93			
20	16QAM	50	0	15.88	15.09	15.85			
20	16QAM	50	24	15.88	15.18	15.77			
20	16QAM	50	50	15.88	15.26	15.83	16.5	0	
20	16QAM	100	0	15.88	15.14	15.69			
20	64QAM	1	0	15.03	15.14	15.85			
20	64QAM	1	49	15.17	15.24	15.85			
20	64QAM	1	99	15.41	15.93	15.77	16.5	0	
20	64QAM	50	0	15.79	15.01	15.60			
20	64QAM	50	24	15.84	15.16	15.72			
20	64QAM	50	50	15.85	15.25	15.80			
20	64QAM	100	0	15.88	15.14	15.70	16.5	0	
Channel									
Frequency (MHz)									
15	QPSK	1	0	15.20	15.47	15.50	16.5	0	
15	QPSK	1	37	15.17	15.91	15.66			
15	QPSK	1	74	15.19	15.50	15.90			
15	QPSK	36	0	15.16	15.16	15.84			
15	QPSK	36	20	15.84	15.19	15.84	16.5	0	
15	QPSK	36	39	15.87	15.22	15.86			
15	QPSK	75	0	15.85	15.18	15.83			
15	16QAM	1	0	15.61	15.67	15.89			
15	16QAM	1	37	15.21	15.50	15.98	16.5	0	
15	16QAM	1	74	15.40	15.89	15.87			
15	16QAM	36	0	15.94	15.18	15.82			
15	16QAM	36	20	15.85	15.19	15.85			
15	16QAM	36	39	15.85	15.20	15.83	16.5	0	
15	16QAM	75	0	15.87	15.18	15.83			
15	64QAM	1	0	15.42	15.52	15.85			
15	64QAM	1	37	15.17	15.22	15.95			
15	64QAM	1	74	15.20	15.67	15.90	16.5	0	
15	64QAM	36	0	15.16	15.20	15.84			
15	64QAM	36	20	15.22	15.20	15.83			
15	64QAM	36	39	15.26	15.23	15.85			
15	64QAM	75	0	15.28	15.16	15.84	16.5	0	
Channel									
Frequency (MHz)									
10	QPSK	1	0	15.10	15.30	15.70	16.5	0	
10	QPSK	1	25	15.23	15.27	15.89			
10	QPSK	1	49	15.36	15.84	15.72			
10	QPSK	25	0	15.05	15.31	15.71			
10	QPSK	25	12	15.08	15.39	15.86	16.5	0	
10	QPSK	25	25	15.15	15.54	15.65			
10	QPSK	50	0	15.05	15.37	15.88			
10	16QAM	1	0	15.24	15.53	15.61			
10	16QAM	1	25	15.32	15.61	15.73	16.5	0	
10	16QAM	1	49	15.21	15.79	15.66			
10	16QAM	25	0	15.06	15.31	15.64			
10	16QAM	25	12	15.09	15.36	15.70			
10	16QAM	25	25	15.05	15.53	15.78	16.5	0	
10	16QAM	50	0	15.08	15.38	15.68			
10	64QAM	1	0	15.42	15.55	15.86			
10	64QAM	1	25	15.27	15.30	15.65			
10	64QAM	1	49	15.20	15.42	15.90	16.5	0	
10	64QAM	25	0	15.26	15.20	15.84			
10	64QAM	25	12	15.22	15.20	15.83			
10	64QAM	25	25	15.26	15.21	15.85			
10	64QAM	50	0	15.30	15.16	15.84	16.5	0	
Channel									
Frequency (MHz)									
5	QPSK	1	0	15.10	15.32	15.86	16.5	0	
5	QPSK	1	12	15.10	15.28	15.80			
5	QPSK	1	24	15.25	15.37	15.99			
5	QPSK	12	0	15.11	15.39	15.77			
5	QPSK	12	7	15.07	15.33	15.73	16.5	0	
5	QPSK	12	13	15.07	15.31	15.71			
5	QPSK	25	0	15.10	15.37	15.74			
5	16QAM	1	0	15.49	15.72	15.83			
5	16QAM	1	12	15.19	15.54	15.65	16.5	0	
5	16QAM	1	24	15.27	15.68	15.65			
5	16QAM	12	0	15.15	15.40	15.81			
5	16QAM	12	7	15.11	15.36	15.72			
5	16QAM	12	13	15.22	15.31	15.75	16.5	0	
5	16QAM	25	0	15.13	15.36	15.74			
5	64QAM	1	0	15.37	15.62	15.85			
5	64QAM	1	12	15.21	15.47	15.81			
5	64QAM	1	24	15.17	15.61	15.86	16.5	0	
5	64QAM	12	0	15.16	15.40	15.82			
5	64QAM	12	7	15.10	15.35	15.75			
5	64QAM	12	13	15.38	15.33	15.72			
5	64QAM	25	0	15.10	15.35	15.73	16.5	0	
Channel									
Frequency (MHz)									
3	QPSK	1	0	15.14	15.21	15.82	16.5	0	
3	QPSK	1	8	15.28	15.26	15.85			
3	QPSK	1	14	15.19	15.23	15.93			
3	QPSK	8	0	15.64	15.34	15.92			
3	QPSK	8	4	15.60	15.34	15.93	16.5	0	
3	QPSK	8	7	15.55	15.30	15.88			
3	QPSK	15	0	15.54	15.30	15.89			
3	16QAM	1	0	15.34	15.68	15.84			
3	16QAM	1	8	15.30	15.63	15.90	16.5	0	
3	16QAM	1	14	15.34	15.59	15.93			
3	16QAM	8	0	15.11	15.38	15.97			
3	16QAM	8	4	15.13	15.38	15.81			
3	16QAM	8	7	15.08	15.38	15.85	16.5	0	
3	16QAM	15	0	15.07	15.32	15.91			
3	64QAM	1	0	15.26	15.55	15.92			
3	64QAM	1	8	15.19	15.47	15.87			
3	64QAM	1	14	15.23	15.45	15.82	16.5	0	
3	64QAM	8	0	15.12	15.38	15.76			
3	64QAM	8	4	15.10	15.36	15.67			
3	64QAM	15	0	15.07	15.37	15.91			
3	64QAM	15	0	15.05	15.31	15.92	16.5	0	
Channel									
Frequency (MHz)									
1.4	QPSK	1	0	17.07	1743	1773.3	16.5	0	
1.4	QPSK	1	3	15.04	15.29	15.91			
1.4	QPSK	1	5	15.26	15.25	15.91			
1.4	QPSK	3	0	15.19	15.29	15.89			
1.4	QPSK	3	0	15.18	15.33	15.94	16.5	0	
1.4	QPSK	3	3	15.18	15.28	15.87			
1.4	QPSK	3	0	15.36	15.29	15.86			
1.4	16QAM	1	3	15.29	15.62	15.92			
1.4	16QAM	1	3	15.40	15.64	15.89	16.5	0	
1.4	16QAM	1	5	15.30	15.51	15.92			
1.4	16QAM	3	0	15.09	15.33	15.95			
1.4	16QAM	3	0	15.16	15.37	15.87			
1.4	16QAM	3	3	15.17	15.32	15.89	16.5	0	
1.4	16QAM	6	0	15.04	15.35	15.80			
1.4	64QAM	1	3	15.18	15.47	15.84			
1.4	64QAM	1	3	15.16	15.50	15.86			
1.4	64QAM	3	0	15.20	15.47	15.79	16.5	0	
1.4	64QAM	3	0	15.14	15.39	15.77			
1.4	64QAM	3	1	15.21	15.45	15.89			
1.4	64QAM	3	3	15.15	15.38	15.81			
1.4	64QAM	6	0	15.06	15.28	15.88	16.5	0	

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									
Frequency (MHz)									
20	QPSK	1	0	19.03	18.79	18.83	20	0	
20	QPSK	1	49	19.26	19.06	19.09			
20	QPSK	1	99	19.09	19.08	19.20			
20	QPSK	50	0	19.09	18.93	19.01			
20	QPSK	50	24	19.29	19.04	19.14	20	0	
20	QPSK	50	50	19.29	19.06	19.18			
20	QPSK	100	0	19.04	19.03	19.12			
20	16QAM	1	0	18.92	18.90	19.06			
20	16QAM	1	49	19.11	19.18	19.01	20	0	
20	16QAM	1	99	19.22	19.10	18.92			
20	16QAM	50	0	18.96	18.99	18.96			
20	16QAM	50	24	19.07	19.05	18.96			
20	16QAM	50	50	19.10	19.00	19.26	20	0	
20	16QAM	100	0	19.22	19.05	19.16			
20	64QAM	1	0	18.63	18.39	18.67			
20	64QAM	1	49	18.79	18.58	18.62			
20	64QAM	1	99	18.74	18.53	18.58	20	0	
20	64QAM	50	0	19.03	18.80	19.11			
20	64QAM	50	24	19.26	18.94	19.14			
20	64QAM	50	50	19.24	18.93	18.93			
20	64QAM	100	0	19.20	18.86	18.89	20	0	
Channel									
Frequency (MHz)									
15	QPSK	1	0	18.91	18.87	18.92	20	0	
15	QPSK	1	37	18.87	18.72	18.74			
15	QPSK	1	74	19.22	18.97	19.15			
15	QPSK	36	0	18.98	19.02	19.02			
15	QPSK	36	20	19.28	19.09	19.11	20	0	
15	QPSK	36	39	19.15	19.09	19.20			
15	QPSK	75	0	19.27	19.01	19.14			
15	16QAM	1	0	19.07	18.93	18.96			
15	16QAM	1	37	19.18	19.01	18.95	20	0	
15	16QAM	1	74	19.10	18.98	18.93			
15	16QAM	36	0	18.92	18.78	18.88			
15	16QAM	36	20	19.08	18.86	18.97			
15	16QAM	36	39	19.40	18.85	19.18	20	0	
15	16QAM	75	0	19.28	19.05	19.16			
15	64QAM	1	0	18.70	18.54	18.51			
15	64QAM	1	37	19.03	18.84	19.00			
15	64QAM	1	74	18.96	18.63	18.93	20	0	
15	64QAM	36	0	18.97	18.78	19.01			
15	64QAM	36	20	19.14	18.87	19.11			
15	64QAM	36	39	19.10	18.85	19.11			
15	64QAM	75	0	19.27	19.02	19.17	20	0	
Channel									
Frequency (MHz)									
10	QPSK	1	0	19.23	19.03	19.26	20	0	
10	QPSK	1	25	19.19	18.99	18.97			
10	QPSK	1	49	19.40	19.12	19.20			
10	QPSK	25	0	19.15	19.16	19.11			
10	QPSK	25	12	19.30	19.02	19.09	20	0	
10	QPSK	25	25	19.41	19.17	19.32			
10	QPSK	50	0	19.18	19.09	19.27			
10	16QAM	1	0	19.31	19.16	19.32			
10	16QAM	1	25	19.29	19.01	19.08	20	0	
10	16QAM	1	49	19.38	19.23	19.26			
10	16QAM	25	0	19.27	19.19	19.06			
10	16QAM	25	12	19.12	18.94	19.22			
10	16QAM	25	25	19.36	19.09	19.26	20	0	
10	16QAM	50	0	19.30	18.94	19.20			
10	64QAM	1	0	19.07	18.68	18.95			
10	64QAM	1	25	18.71	18.94	18.71			
10	64QAM	1	49	18.98	18.76	18.79	20	0	
10	64QAM	25	0	19.09	18.91	19.01			
10	64QAM	25	12	19.24	19.18	19.24			
10	64QAM	25	25	19.43	19.03	19.21			
10	64QAM	50	0	19.07	18.91	19.09	20	0	
Channel									
Frequency (MHz)									
5	QPSK	1	0	19.18	18.94	19.25	20	0	
5	QPSK	1	12	19.05	18.76	19.05			
5	QPSK	1	24	19.08	19.02	18.99			
5	QPSK	12	0	19.31	19.16	19.09			
5	QPSK	12	7	19.21	19.11	19.22	20	0	
5	QPSK	12	13	19.29	19.04	19.13			
5	QPSK	25	0	19.35	19.08	19.14			
5	16QAM	1	0	19.23	19.14	19.24			
5	16QAM	1	12	19.14	18.97	19.17	20	0	
5	16QAM	1	24	19.21	18.96	19.14			
5	16QAM	12	0	19.20	19.08	19.19			
5	16QAM	12	7	19.28	18.90	19.21			
5	16QAM	12	13	19.30	18.93	19.23	20	0	
5	16QAM	25	0	19.19	19.10	19.09			
5	64QAM	1	0	19.11	18.66	18.68			
5	64QAM	1	12	18.85	18.90	18.79			
5	64QAM	1	24	18.96	18.71	18.80	20	0	
5	64QAM	12	0	19.32	19.21	19.12			
5	64QAM	12	7	19.34	19.05	19.28			
5	64QAM	12	13	19.12	19.07	19.16			
5	64QAM	25	0	19.41	18.89	19.31	20	0	

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												
Frequency (MHz)				2508	2549.5	2600	2636.5	2688				
15	QPSK	1	0	19.39	19.68	19.31	19.35	19.63	21	0		
20	QPSK	1	49	19.58	19.73	19.50	19.59	19.51				
20	QPSK	1	99	19.31	19.46	19.25	19.22	19.51				
20	QPSK	50	0	19.42	19.68	19.26	19.40	19.63				
20	QPSK	50	24	19.58	19.80	19.55	19.60	19.85	21	0		
20	QPSK	50	50	19.37	19.53	19.34	19.39	19.56				
20	QPSK	100	0	19.36	19.54	19.33	19.40	19.50				
20	16QAM	1	0	19.16	19.39	19.06	19.02	19.45				
20	16QAM	1	49	19.32	19.33	19.36	19.34	19.65	21	0		
20	16QAM	1	99	19.01	19.13	19.23	19.03	19.42				
20	16QAM	50	0	19.47	19.74	19.25	19.47	19.64				
20	16QAM	50	24	19.49	19.74	19.41	19.57	19.71				
20	16QAM	50	50	19.35	19.60	19.37	19.46	19.60	21	0		
20	16QAM	100	0	19.29	19.55	19.30	19.32	19.61				
20	64QAM	1	0	19.43	19.15	19.59	19.68	19.16				
20	64QAM	1	49	19.16	19.33	19.04	19.09	19.36				
20	64QAM	1	99	19.35	19.32	19.15	19.40	19.29	21	0		
20	64QAM	50	0	19.40	19.67	19.20	19.33	19.62				
20	64QAM	50	24	19.47	19.67	19.36	19.37	19.64				
20	64QAM	50	50	19.28	19.46	19.30	19.36	19.58				
20	64QAM	100	0	19.33	19.59	19.37	19.37	19.62	21	0		
Channel												
Frequency (MHz)				3722	4012	4080	4108	4151	Tune-up limit (dBm)	MPR (dB)		
				2003.5	2548.3	2693	2637.6	2682.5				
15	QPSK	1	0	19.20	19.39	19.20	19.30	19.58	21	0		
15	QPSK	1	37	19.35	19.14	19.50	19.52	19.38				
15	QPSK	1	74	19.28	19.07	19.34	19.38	19.59				
15	QPSK	36	0	19.48	19.70	19.32	19.32	19.63				
15	QPSK	36	20	19.54	19.75	19.48	19.53	19.60	21	0		
15	QPSK	36	39	19.57	19.80	19.55	19.60	19.69				
15	QPSK	75	0	19.45	19.72	19.36	19.35	19.53				
15	16QAM	1	0	19.08	19.15	19.58	19.14	19.61				
15	16QAM	1	37	19.04	19.26	19.47	19.07	19.44	21	0		
15	16QAM	1	74	19.30	19.39	19.18	19.25	19.50				
15	16QAM	36	0	19.44	19.69	19.20	19.28	19.55	21	0		
15	16QAM	36	20	19.53	19.69	19.39	19.48	19.54				
15	16QAM	36	39	19.57	19.68	19.48	19.55	19.52				
15	16QAM	75	0	19.45	19.74	19.40	19.44	19.54				
15	64QAM	1	0	19.36	19.19	19.53	19.28	19.26	21	0		
15	64QAM	1	37	19.42	19.15	19.12	19.33	19.61				
15	64QAM	1	74	19.54	19.20	19.08	19.07	19.21				
15	64QAM	36	0	19.31	19.62	19.19	19.20	19.56				
15	64QAM	36	20	19.41	19.67	19.39	19.44	19.50	21	0		
15	64QAM	36	39	19.45	19.61	19.37	19.49	19.52				
15	64QAM	75	0	19.39	19.68	19.33	19.37	19.55				
Channel												
Frequency (MHz)				39700	40160	40820	41080	41540	Tune-up limit (dBm)	MPR (dB)		
				2501	2547	2591	2639	2685				
10	QPSK	1	0	19.48	19.77	19.41	19.55	19.63	21	0		
10	QPSK	1	25	19.50	19.57	19.53	19.58	19.65				
10	QPSK	1	49	19.40	19.72	19.49	19.45	19.39				
10	QPSK	25	0	19.36	19.77	19.50	19.54	19.39				
10	QPSK	25	12	19.55	19.82	19.63	19.63	19.52	21	0		
10	QPSK	25	19	19.45	19.76	19.53	19.54	19.47				
10	QPSK	50	0	19.46	19.77	19.49	19.54	19.37				
10	16QAM	1	0	19.38	19.78	19.26	19.38	19.46				
10	16QAM	1	25	19.36	19.70	19.45	19.50	19.43	21	0		
10	16QAM	1	49	19.33	19.67	19.40	19.47	19.48				
10	16QAM	25	0	19.40	19.49	19.56	19.54	19.44				
10	16QAM	25	12	19.58	19.81	19.67	19.68	19.43				
10	16QAM	25	25	19.50	19.83	19.61	19.57	19.46	21	0		
10	16QAM	50	0	19.43	19.78	19.48	19.56	19.45				
10	64QAM	1	0	19.02	19.32	19.01	19.13	19.15				
10	64QAM	1	25	19.07	19.31	19.08	19.14	19.01				
10	64QAM	1	49	19.08	19.30	19.04	19.06	19.14	21	0		
10	64QAM	25	0	19.34	19.83	19.54	19.55	19.45				
10	64QAM	25	12	19.51	19.89	19.60	19.64	19.47				
10	64QAM	25	25	19.49	19.79	19.51	19.56	19.51				
10	64QAM	50	0	19.39	19.76	19.51	19.54	19.44	21	0		
Channel												
Frequency (MHz)				24695	2545.8	2693	2640.30	2687.5			Tune-up limit (dBm)	MPR (dB)
5	QPSK	1	0	19.80	19.44	19.66	19.88	19.61			21	0
5	QPSK	1	12	19.27	19.57	19.35	19.55	19.30				
5	QPSK	1	24	19.30	19.64	19.40	19.36	19.21				
5	QPSK	12	0	19.45	19.85	19.57	19.52	19.41				
5	QPSK	12	7	19.50	19.84	19.56	19.55	19.44	21	0		
5	QPSK	12	13	19.41	19.82	19.53	19.60	19.39				
5	QPSK	25	0	19.39	19.80	19.39	19.59	19.61				
5	16QAM	1	0	19.48	19.82	19.53	19.54	19.44				
5	16QAM	1	12	19.53	19.82	19.64	19.64	19.44	21	0		
5	16QAM	1	24	19.44	19.77	19.50	19.48	19.37				
5	16QAM	12	0	19.42	19.74	19.52	19.54	19.41				
5	16QAM	12	7	19.42	19.71	19.48	19.51	19.37				
5	16QAM	12	13	19.36	19.69	19.48	19.49	19.38	21	0		
5	16QAM	25	0	19.42	19.81	19.56	19.56	19.44				
5	64QAM	1	0	19.22	19.72	19.16	19.16	19.10				
5	64QAM	1	12	19.17	19.28	19.21	19.20	19.09				
5	64QAM	1	24	19.56	19.11	19.11	19.14	19.07	21	0		
5	64QAM	12	0	19.51	19.89	19.61	19.60	19.44				
5	64QAM	12	7	19.48	19.80	19.60	19.62	19.42				
5	64QAM	12	13	19.45	19.78	19.58	19.58	19.43				
5	64QAM	25	0	19.46	19.80	19.57	19.58	19.38	21	0		



Reduced Power Mode for Hotspot On

GSM1900	Buried Average Power (dBm)			Turn-up Limit (dBm)	Transmit Average Power (dBm)			Turn-up Limit (dBm)
	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1860	1909.8		1850.2	1860	1909.8	
Tx Channel	512	661	810	Turn-up Limit (dBm)	512	661	810	Turn-up Limit (dBm)
Frequency (MHz)	1850.2	1860	1909.8		1850.2	1860	1909.8	
GSM 1 Tx slot	21.42	21.43	21.19	22.50	12.42	12.43	12.19	13.50
GPRS 1 Tx slot	21.40	21.38	21.13	22.50	12.40	12.38	12.13	13.50
GPRS 3 Tx slots	19.71	20.15	19.77	21.00	13.71	14.15	13.77	15.00
GPRS 3 Tx slots	17.40	17.31	17.49	18.50	13.14	13.05	13.23	14.24
GPRS 3 Tx slots	15.49	15.43	15.38	16.50	12.45	12.43	12.38	13.50
EDGE 1 Tx slot	17.12	17.24	16.98	18.50	8.12	8.24	7.98	9.50
EDGE 2 Tx slots	15.25	15.48	15.34	16.50	9.25	9.48	9.34	10.50
EDGE 3 Tx slots	13.20	13.11	13.09	14.00	8.94	8.85	8.83	9.74
EDGE 4 Tx slots	11.87	11.77	11.74	13.00	8.87	8.77	8.74	10.00

Band	WCDMA 6			Turn-up Limit (dBm)	WCDMA 4			Turn-up Limit (dBm)	WCDMA 5			Turn-up Limit (dBm)	
	5262	5400	5538		1312	1413	1513		4152	4182	4233		
Rx Channel	5662	5800	5938	Limit (dBm)	1537	1638	1738	Limit (dBm)	4357	4409	4458	Limit (dBm)	
Frequency (MHz)	1852.4	1880	1907.6		1712.4	1732.6	1752.6		526.4	536.4	546.6		
3GPP Rel 99	AMR 12.2Kbps	12.65	12.69	12.81	14.00	12.48	12.40	12.57	14.00	21.87	21.86	22.08	23.00
3GPP Rel 99	RMC 12.2Kbps	12.66	12.70	12.84	14.00	12.59	12.42	12.63	14.00	21.88	21.89	22.15	23.00
3GPP Rel 6	HSDPA Subtest-1	11.73	11.69	11.62	13.00	11.86	11.83	12.00	13.00	20.95	20.93	21.12	22.00
3GPP Rel 6	HSDPA Subtest-2	11.71	11.71	11.67	13.00	11.89	11.90	12.02	13.00	20.94	20.98	21.15	22.00
3GPP Rel 6	HSDPA Subtest-3	10.86	11.20	11.12	12.50	11.41	11.36	11.62	12.50	20.46	20.44	20.68	21.50
3GPP Rel 6	HSDPA Subtest-4	11.19	11.22	11.17	12.50	11.30	11.49	11.05	12.50	20.42	20.47	20.25	21.50
3GPP Rel 6	DC-HSDPA Subtest-1	11.57	11.52	11.45	13.00	11.79	11.83	11.93	13.00	20.98	20.79	20.99	22.00
3GPP Rel 6	DC-HSDPA Subtest-2	11.64	11.52	11.64	13.00	11.83	11.87	11.92	13.00	20.85	20.79	21.12	22.00
3GPP Rel 6	DC-HSDPA Subtest-3	10.74	11.12	11.08	12.50	11.41	11.24	11.58	12.50	20.43	20.28	20.62	21.50
3GPP Rel 6	DC-HSDPA Subtest-4	11.18	11.18	11.07	12.50	11.10	11.35	11.04	12.50	20.22	20.33	20.06	21.50
3GPP Rel 6	HSPA Subtest-1	11.71	11.72	11.67	13.00	11.63	11.90	11.68	13.00	20.89	20.86	21.03	22.00
3GPP Rel 6	HSPA Subtest-2	9.70	9.71	9.70	11.00	9.71	9.70	9.73	11.00	18.83	18.88	18.99	20.00
3GPP Rel 6	HSPA Subtest-3	10.72	10.69	10.64	12.00	10.80	10.83	10.83	12.00	19.87	19.87	20.00	21.00
3GPP Rel 6	HSPA Subtest-4	9.73	9.68	9.63	11.00	9.82	9.84	9.73	11.00	18.85	18.86	19.04	20.00
3GPP Rel 6	HSPA Subtest-5	11.75	11.75	11.65	13.00	11.84	11.84	11.94	13.00	20.86	20.86	21.08	22.00

Band		CDMA BC1			Turn-up Limit (dBm)
Tx Channel	25	600	1175		
Frequency (MHz)	1851.25	1890	1908.75		
RC1 SOSS	14.55	14.78	14.59	15.50	
RC3 SOSS	14.46	14.67	14.49	15.50	
RC3 SOSS (F+SOH)	14.67	14.75	14.58	15.50	
RC3 SOSS2 (F+SOH)	14.65	14.62	14.45	15.50	
RTAP 153.6Kbps	13.95	14.04	13.92	15.50	
RETAP 4968Kbps	13.97	13.97	13.85	15.50	

Band 2 (1900MHz Band) Part 24E												
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch./Freq. 18700	Power Middle Ch./Freq. 18900	Power High Ch./Freq. 19100	Turn-up limit (dBm)	MPR (dB)				
Channel												
Frequency (MHz)												
20	QPSK	1	0	12.67	12.45	12.41	13.5	0				
20	QPSK	1	49	12.44	12.38	12.31						
20	QPSK	1	99	12.33	12.25	12.11						
20	QPSK	50	0	12.52	12.47	12.43	13.5	0				
20	QPSK	50	24	12.42	12.37	12.41						
20	QPSK	50	50	12.16	12.26	12.24						
20	QPSK	100	0	12.31	12.31	12.38	13.5	0				
20	16QAM	1	0	12.59	12.58	12.57						
20	16QAM	1	49	12.48	12.43	12.45						
20	16QAM	1	99	12.41	12.63	12.54	13.5	0				
20	16QAM	50	0	12.52	12.44	12.43						
20	16QAM	50	24	12.39	12.39	12.47						
20	16QAM	50	50	12.16	12.27	12.25	13.5	0				
20	16QAM	100	0	12.32	12.30	12.39						
20	64QAM	1	0	12.59	12.65	12.57						
20	64QAM	1	49	12.49	12.48	12.36	13.5	0				
20	64QAM	1	99	12.34	12.23	12.21						
20	64QAM	50	0	12.52	12.46	12.38						
20	64QAM	50	24	12.38	12.36	12.38	13.5	0				
20	64QAM	50	50	12.17	12.25	12.25						
20	64QAM	100	0	12.31	12.32	12.35						
Channel												
Frequency (MHz)												
15	QPSK	1	0	12.65	18900	19100	13.5	0				
15	QPSK	1	37	12.18	11.99	12.31						
15	QPSK	1	74	12.47	12.32	12.32						
15	QPSK	36	0	12.45	12.39	12.39	13.5	0				
15	QPSK	36	20	12.32	12.36	12.42						
15	QPSK	36	39	12.34	12.35	12.39						
15	QPSK	75	0	12.32	12.32	12.38	13.5	0				
15	16QAM	1	0	12.43	12.45	12.44						
15	16QAM	1	37	12.41	12.47	12.36						
15	16QAM	1	74	12.37	12.32	12.36	13.5	0				
15	16QAM	36	0	12.42	12.38	12.41						
15	16QAM	36	20	12.39	12.36	12.41						
15	16QAM	36	39	12.32	12.36	12.32	13.5	0				
15	16QAM	75	0	12.34	12.32	12.38						
15	64QAM	1	0	12.49	12.38	12.47						
15	64QAM	1	37	12.43	12.44	12.48	13.5	0				
15	64QAM	1	74	12.48	12.42	12.38						
15	64QAM	36	0	12.41	12.38	12.41						
15	64QAM	36	20	12.37	12.38	12.41	13.5	0				
15	64QAM	36	39	12.33	12.37	12.32						
15	64QAM	75	0	12.29	12.30	12.37						
Channel												
Frequency (MHz)												
10	QPSK	1	0	12.33	12.31	12.35	13.5	0				
10	QPSK	1	25	12.41	12.32	12.43						
10	QPSK	1	49	12.50	12.36	12.34						
10	QPSK	25	0	12.34	12.46	12.38	13.5	0				
10	QPSK	25	12	12.33	12.48	12.34						
10	QPSK	25	25	12.37	12.45	12.36						
10	QPSK	50	0	12.31	12.53	12.41	13.5	0				
10	16QAM	1	0	12.36	12.33	12.40						
10	16QAM	1	25	12.36	12.30	12.28						
10	16QAM	1	49	12.40	12.39	12.38	13.5	0				
10	16QAM	25	0	12.62	12.47	12.56						
10	16QAM	25	12	12.61	12.48	12.55						
10	16QAM	25	25	12.55	12.40	12.49	13.5	0				
10	16QAM	50	0	12.50	12.47	12.49						
10	64QAM	1	0	12.65	12.60	12.56						
10	64QAM	1	25	12.65	12.62	12.52	13.5	0				
10	64QAM	1	49	12.63	12.58	12.62						
10	64QAM	25	0	12.58	12.46	12.55						
10	64QAM	25	12	12.62	12.46	12.52	13.5	0				
10	64QAM	25	25	12.55	12.42	12.56						
10	64QAM	50	0	12.57	12.51	12.50						
Channel												
Frequency (MHz)												
5	QPSK	1	0	12.61	18900	19100	13.5	0				
5	QPSK	1	12	12.42	12.36	12.40						
5	QPSK	1	24	12.53	12.42	12.47						
5	QPSK	12	0	12.59	12.58	12.58	13.5	0				
5	QPSK	12	7	12.64	12.55	12.60						
5	QPSK	12	13	12.60	12.49	12.58						
5	QPSK	25	0	12.65	12.53	12.62	13.5	0				
5	16QAM	1	0	12.50	12.49	12.49						
5	16QAM	1	12	12.38	12.34	12.35						
5	16QAM	1	24	12.36	12.23	12.28	13.5	0				
5	16QAM	12	0	12.64	12.60	12.63						
5	16QAM	12	7	12.62	12.56	12.58						
5	16QAM	12	13	12.63	12.48	12.56	13.5	0				
5	16QAM	25	0	12.59	12.53	12.59						
5	64QAM	1	0	12.57	12.66	12.64						
5	64QAM	1	12	12.61	12.58	12.61	13.5	0				
5	64QAM	1	24	12.63	12.65	12.61						
5	64QAM	12	0	12.59	12.60	12.62						
5	64QAM	12	7	12.66	12.51	12.58	13.5	0				
5	64QAM	12	13	12.55	12.49	12.55						
5	64QAM	25	0	12.57	12.47	12.59						
Channel												
Frequency (MHz)												
3	QPSK	1	0	12.56	18800	1908.5	13.5	0				
3	QPSK	1	8	12.50	12.37	12.48						
3	QPSK	1	14	12.38	12.41	12.46						
3	QPSK	8	0	12.53	12.52	12.53	13.5	0				
3	QPSK	8	4	12.63	12.53	12.55						
3	QPSK	8	7	12.51	12.42	12.49						
3	QPSK	15	0	12.51	12.46	12.45	13.5	0				
3	16QAM	1	0	12.49	12.46	12.43						
3	16QAM	1	8	12.37	12.49	12.47						
3	16QAM	1	14	12.42	12.43	12.39	13.5	0				
3	16QAM	8	0	12.32	12.31	12.28						
3	16QAM	8	4	12.31	12.26	12.33						
3	16QAM	8	7	12.27	12.23	12.25	13.5	0				
3	16QAM	15	0	12.24	12.22	12.25						
3	64QAM	1	0	12.42	12.36	12.47						
3	64QAM	1	8	12.39	12.25	12.46	13.5	0				
3	64QAM	1	14	12.45	12.45	12.41						
3	64QAM	8	0	12.22	12.33	12.38						
3	64QAM	8	4	12.34	12.27	12.23	13.5	0				
3	64QAM	8	7	12.27	12.15	12.22						
3	64QAM	15	0	12.21	12.14	12.24						
Channel												
Frequency (MHz)												
1.4	QPSK	1	0	12.25	12.31	12.38	13.5	0				
1.4	QPSK	1	3	12.42	12.41	12.34						
1.4	QPSK	1	5	12.41	12.41	12.31						
1.4	QPSK	3	0	12.49	12.46	12.47	13.5	0				
1.4	QPSK	3	1	12.24	12.22	12.25						
1.4	QPSK	3	3	12.43	12.38	12.47						
1.4	QPSK	6	0	12.49	12.45	12.47	13.5	0				
1.4	16QAM	1	0	12.38	12.44	12.45						
1.4	16QAM	1	3	12.45	12.41	12.43						
1.4	16QAM	1	5	12.48	12.33	12.38	13.5	0				
1.4	16QAM	3	0	12.27	12.22	12.19						
1.4	16QAM	3	1	12.26	12.29	12.27	13.5	0				
1.4	16QAM	3	3	12.17	12.21	12.25						
1.4	16QAM	6	0	12.46	12.42	12.50						
1.4	16QAM	6	0	12.35	12.29	12.33	13.5	0				
1.4	16QAM	1	3	12.30	12.33	12.47						
1.4	16QAM	1	5	12.29	12.24	12.32						
1.4	16QAM	1	3	12.29	12.38	12.32	13.5	0				
1.4	64QAM	1	5	12.34	12.34	12.34						
1.4	64QAM	3	3	12.26	12.24	12.28						
1.4	64QAM	6	0	12.17	12.16	12.22	13.5	0				

Band 25 (1900MHz Band)									
Part 24E									
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				26140	26340	26590			
Frequency (MHz)									
20	QPSK	1	0	12.45	12.32	12.30	13.5	0	
20	QPSK	1	49	12.43	12.32	12.33			
20	QPSK	1	99	12.36	12.30	12.40			
20	QPSK	50	0	12.49	12.33	12.54	13.5	0	
20	QPSK	50	24	12.46	12.36	12.44			
20	QPSK	50	50	12.37	12.30	12.41			
20	QPSK	100	0	12.38	12.31	12.47	13.5	0	
20	16QAM	1	0	12.39	12.37	12.44			
20	16QAM	1	49	12.32	12.36	12.48			
20	16QAM	1	99	12.33	12.43	12.36	13.5	0	
20	16QAM	50	0	12.48	12.36	12.44			
20	16QAM	50	24	12.41	12.36	12.45			
20	16QAM	50	50	12.38	12.26	12.36	13.5	0	
20	16QAM	100	0	12.39	12.29	12.43			
20	64QAM	1	0	12.36	12.33	12.42			
20	64QAM	1	49	12.31	12.43	12.47	13.5	0	
20	64QAM	1	99	12.11	12.17	12.13			
20	64QAM	50	0	12.46	12.33	12.42			
20	64QAM	50	24	12.46	12.36	12.44	13.5	0	
20	64QAM	50	50	12.34	12.25	12.39			
20	64QAM	100	0	12.38	12.30	12.44			
Channel				26115	26340	26515	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)									
15	QPSK	1	0	12.43	12.41	12.49	13.5	0	
15	QPSK	1	37	11.94	11.94	11.86			
15	QPSK	1	74	11.98	11.92	11.95			
15	QPSK	36	0	12.08	11.99	12.01	13.5	0	
15	QPSK	36	20	12.08	12.00	12.03			
15	QPSK	36	39	12.08	12.05	12.07			
15	QPSK	75	0	12.10	12.02	12.03	13.5	0	
10	16QAM	1	0	12.44	12.32	12.36			
15	16QAM	1	37	12.38	12.30	12.23			
15	16QAM	1	74	12.37	12.40	12.25	13.5	0	
15	16QAM	36	0	12.08	11.98	12.03			
15	16QAM	36	20	12.08	12.00	12.01	13.5	0	
15	16QAM	36	39	12.09	12.04	12.05			
15	16QAM	75	0	12.06	12.03	12.07	13.5	0	
15	64QAM	1	0	12.26	12.18	12.20			
15	64QAM	1	37	12.18	12.18	12.05	13.5	0	
15	64QAM	1	74	12.16	12.16	12.01			
15	64QAM	36	0	12.08	12.01	12.03	13.5	0	
15	64QAM	36	20	12.08	12.01	12.01			
15	64QAM	36	39	12.11	12.08	12.06			
15	64QAM	75	0	12.05	12.01	12.06	13.5	0	
Channel				26590	26340	26640	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)									
10	QPSK	1	0	12.48	12.46	12.45	13.5	0	
10	QPSK	1	25	11.87	11.99	11.92			
10	QPSK	1	49	12.12	12.19	12.14			
10	QPSK	25	0	12.01	12.12	11.99	13.5	0	
10	QPSK	25	12	12.00	12.13	12.04			
10	QPSK	25	25	12.03	12.15	12.07			
10	QPSK	50	0	12.02	12.13	12.05	13.5	0	
10	16QAM	1	0	12.31	12.40	12.49			
10	16QAM	1	25	12.32	12.42	12.30			
10	16QAM	1	49	12.34	12.33	12.33	13.5	0	
10	16QAM	25	0	12.02	12.13	12.01			
10	16QAM	25	12	12.01	12.13	11.99			
10	16QAM	25	25	11.98	12.15	12.03	13.5	0	
10	16QAM	50	0	12.03	12.13	12.03			
10	64QAM	1	0	12.35	12.41	12.43			
10	64QAM	1	25	12.12	12.23	12.11	13.5	0	
10	64QAM	1	49	12.37	12.44	12.19			
10	64QAM	25	0	11.99	12.10	12.02			
10	64QAM	25	12	12.03	12.14	12.03	13.5	0	
10	64QAM	25	25	12.02	12.14	12.06			
10	64QAM	50	0	12.00	12.14	12.05			
Channel				26665	26340	26665	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)									
5	QPSK	1	0	12.49	12.46	12.45	13.5	0	
5	QPSK	1	12	11.89	11.96	11.86			
5	QPSK	1	24	11.96	12.02	11.92			
5	QPSK	12	0	12.02	12.13	12.03	13.5	0	
5	QPSK	12	7	12.01	12.11	11.98			
5	QPSK	12	13	11.98	12.07	11.98			
5	QPSK	25	0	12.01	12.12	12.02	13.5	0	
5	16QAM	1	0	12.38	12.41	12.38			
5	16QAM	1	12	12.27	12.34	12.22			
5	16QAM	1	24	12.20	12.40	12.29	13.5	0	
5	16QAM	12	0	12.06	12.17	12.05			
5	16QAM	12	7	12.02	12.11	12.01			
5	16QAM	12	13	11.98	12.12	11.97	13.5	0	
5	16QAM	25	0	12.00	12.12	12.01			
5	64QAM	1	0	12.26	12.40	12.28			
5	64QAM	1	12	12.15	12.20	12.08	13.5	0	
5	64QAM	1	24	12.12	12.23	12.10			
5	64QAM	12	0	12.05	12.18	12.05			
5	64QAM	12	7	12.01	12.11	12.01	13.5	0	
5	64QAM	12	13	11.98	12.08	12.00			
5	64QAM	25	0	11.99	12.11	12.04			
Channel				26655	26340	26675	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)									
3	QPSK	1	0	12.44	12.42	12.46	13.5	0	
3	QPSK	1	8	11.95	12.05	11.90			
3	QPSK	1	14	11.87	12.00	11.90			
3	QPSK	8	0	11.98	12.11	11.96	13.5	0	
3	QPSK	8	4	11.98	12.11	11.98			
3	QPSK	8	7	11.93	12.08	11.98			
3	QPSK	15	0	11.97	12.08	11.97	13.5	0	
3	16QAM	1	0	12.30	12.37	12.33			
3	16QAM	1	8	12.29	12.34	12.36			
3	16QAM	1	14	12.14	12.30	12.27	13.5	0	
3	16QAM	8	0	12.07	12.17	12.01			
3	16QAM	8	4	12.04	12.16	12.05			
3	16QAM	8	7	12.02	12.13	12.00	13.5	0	
3	16QAM	15	0	11.99	12.09	12.00			
3	64QAM	1	0	12.12	12.26	12.12	13.5	0	
3	64QAM	8	0	12.16	12.25	12.12			
3	64QAM	1	14	12.09	12.22	12.09			
3	64QAM	8	0	12.03	12.14	12.00	13.5	0	
3	64QAM	8	4	12.04	12.15	12.00			
3	64QAM	8	7	11.97	12.09	11.97			
3	64QAM	15	0	11.96	12.10	11.95	13.5	0	
Channel				26047	26340	26083	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)									
1.4	QPSK	1	0	12.44	12.46	12.47	13.5	0	
1.4	QPSK	1	3	11.96	12.01	11.86			
1.4	QPSK	1	5	11.87	11.97	11.86			
1.4	QPSK	3	0	11.89	12.00	11.89	13.5	0	
1.4	QPSK	3	1	11.97	12.05	11.91			
1.4	QPSK	3	3	11.89	12.00	11.87			
1.4	QPSK	6	0	11.89	12.01	11.86	13.5	0	
1.4	16QAM	1	0	12.14	12.23	12.17			
1.4	16QAM	1	3	12.22	12.33	12.22	13.5	0	
1.4	16QAM	1	5	12.14	12.22	12.17			
1.4	16QAM	3	0	11.96	12.06	11.92			
1.4	16QAM	6	0	11.95	12.01	11.94	13.5	0	
1.4	16QAM	6	0	12.12	12.20	12.07			
1.4	64QAM	1	3	12.11	12.18	12.06			
1.4	64QAM	1	5	12.07	12.14	12.03	13.5	0	
1.4	64QAM	3	0	11.98	12.14	12.03			
1.4	64QAM	3	1	12.08	12.19	12.05			
1.4	64QAM	3	3	12.01	12.11	12.01	13.5	0	
1.4	64QAM	6	0	11.92	12.04	11.89	13.5	0	

Band 30									
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				27710					
Frequency (MHz)				2310					
10	QPSK	1	0		20.26		21	0	
10	QPSK	1	25		19.83				
10	QPSK	1	49		20.17				
10	QPSK	25	0		19.92		21	0	
10	QPSK	25	12		19.96				
10	QPSK	25	25		20.10				
10	QPSK	50	0		20.01		21	0	
10	16QAM	1	0		20.13				
10	16QAM	1	25		20.19				
10	16QAM	1	49		20.13		21	0	
10	16QAM	25	0		19.93				
10	16QAM	25	12		19.96				
10	16QAM	25	25		20.04		21	0	
10	16QAM	50	0		19.89				
10	64QAM	1	0		20.19				
10	64QAM	1	25		20.07		21	0	
10	64QAM	1	49		20.17				
10	64QAM	25	0		19.92				
10	64QAM	25	12		19.91		21	0	
10	64QAM	25	25		20.05				
10	64QAM	50	0		19.92				
Channel				27690	27710	27730	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2307.5	2310	2312.5			
5	QPSK	1	0	19.87	19.85	19.83	21	0	
5	QPSK	1	12	19.84	19.80	19.93			
5	QPSK	1	24	19.85	19.95	19.96			
5	QPSK	12	0	20.02	19.92	19.95	21	0	
5	QPSK	12	7	19.89	19.93	20.03			
5	QPSK	12	13	19.90	19.89	20.00			
5	QPSK	25	0	19.87	19.96	20.03	21	0	
5	16QAM	1	0	20.16	20.20	20.19			
5	16QAM	1	12	20.14	20.20	20.20			
5	16QAM	1	24	20.11	20.20	20.18	21	0	
5	16QAM	12	0	20.07	19.96	19.94			
5	16QAM	12	7	19.94	19.93	20.06			
5	16QAM	12	13	19.89	19.90	20.03	21	0	
5	16QAM	25	0	19.91	19.93	20.05			
5	64QAM	1	0	20.20	20.12	20.17			
5	64QAM	1	12	19.97	20.07	20.18	21	0	
5	64QAM	1	24	20.06	20.17	20.16			
5	64QAM	12	0	20.07	19.96	19.94			
5	64QAM	12	7	19.93	19.92	20.03	21	0	
5	64QAM	12	13	19.92	19.89	20.02			
5	64QAM	25	0	19.88	19.92	20.03			

Band 66												
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				132072	132122	132172	14.5	0				
Frequency (MHz)				1720	1745	1770						
20	QPSK	1	0	13.16	13.26	13.34	14.5	0				
20	QPSK	1	49	13.24	13.31	13.56						
20	QPSK	1	99	13.61	14.06	14.09						
20	QPSK	50	0	12.79	12.83	13.52						
20	QPSK	50	24	12.87	12.98	13.64						
20	QPSK	50	50	12.98	13.65	13.68	14.5	0				
20	QPSK	100	0	12.97	13.52	13.62						
20	16QAM	1	0	13.16	13.13	13.73						
20	16QAM	1	49	13.25	13.34	13.92						
20	16QAM	1	99	13.62	13.85	13.97						
20	16QAM	50	0	12.77	12.83	13.52	14.5	0				
20	16QAM	50	24	12.87	13.02	13.66						
20	16QAM	50	50	12.90	13.13	13.68						
20	16QAM	100	0	12.85	12.98	13.59						
20	64QAM	1	0	13.05	13.11	13.57						
20	64QAM	1	49	13.09	13.11	13.80	14.5	0				
20	64QAM	1	99	13.47	13.80	13.92						
20	64QAM	50	0	12.79	12.82	13.49						
20	64QAM	50	24	12.84	12.99	13.62						
20	64QAM	50	50	12.88	13.15	13.67						
20	64QAM	100	0	12.86	12.96	13.60	21	0				
Channel				132047	132122	132197						
Frequency (MHz)				1717.5	1745	1772.5	Tune-up limit (dBm)	MPR (dB)				
15	QPSK	1	0	12.71	12.75	13.41	14.5	0				
15	QPSK	1	37	12.61	12.81	13.48						
15	QPSK	1	74	12.97	13.34	13.81						
15	QPSK	36	0	12.89	12.96	13.67						
15	QPSK	36	20	12.78	13.00	13.67						
15	QPSK	36	39	12.82	13.05	13.66	14.5	0				
15	QPSK	75	0	12.86	12.98	13.66						
15	16QAM	1	0	13.05	13.44	13.95						
15	16QAM	1	37	13.14	13.32	13.91						
15	16QAM	1	74	13.36	13.76	13.98						
15	16QAM	36	0	12.87	12.93	13.70	14.5	0				
15	16QAM	36	20	12.79	12.97	13.68						
15	16QAM	36	39	12.80	13.04	13.63						
15	16QAM	75	0	12.84	13.01	13.67						
15	64QAM	1	0	13.35	13.21	13.94						
15	64QAM	1	37	13.02	13.08	13.84	14.5	0				
15	64QAM	1	74	13.16	13.54	13.93						
15	64QAM	36	0	12.88	12.95	13.71						
15	64QAM	36	20	12.78	13.00	13.70						
15	64QAM	36	39	12.81	13.05	13.70						
15	64QAM	75	0	12.81	12.98	13.68	21	0				
Channel				132022	132122	132197						
Frequency (MHz)				1715	1745	1775	Tune-up limit (dBm)	MPR (dB)				
10	QPSK	1	0	13.11	13.01	13.61	14.5	0				
10	QPSK	1	25	13.16	13.07	13.70						
10	QPSK	1	49	13.30	13.66	13.98						
10	QPSK	25	0	12.95	13.08	13.78						
10	QPSK	25	12	13.00	13.17	13.88						
10	QPSK	25	25	13.01	13.38	13.94	14.5	0				
10	QPSK	50	0	12.99	13.18	13.82						
10	16QAM	1	0	13.18	13.23	13.56						
10	16QAM	1	25	13.24	13.47	13.97						
10	16QAM	1	49	13.64	13.86	13.95						
10	16QAM	25	0	12.98	13.06	13.79	14.5	0				
10	16QAM	25	12	12.99	13.20	13.85						
10	16QAM	25	25	13.00	13.26	13.92						
10	16QAM	50	0	12.98	13.17	13.80						
10	64QAM	1	0	13.05	13.04	13.32						
10	64QAM	1	25	13.12	13.29	13.87	14.5	0				
10	64QAM	1	49	13.50	13.90	13.97						
10	64QAM	25	0	12.96	13.06	13.79						
10	64QAM	25	12	13.02	13.20	13.87						
10	64QAM	25	25	13.02	13.37	13.95						
10	64QAM	50	0	12.93	13.16	13.79	21	0				
Channel				131997	132122	132197						
Frequency (MHz)				1712.5	1745	1772.5	Tune-up limit (dBm)	MPR (dB)				
5	QPSK	1	0	12.91	13.01	13.64	14.5	0				
5	QPSK	1	12	12.90	13.09	13.74						
5	QPSK	1	24	12.90	13.20	13.76						
5	QPSK	12	0	13.05	13.19	13.91						
5	QPSK	12	7	13.03	13.16	13.84						
5	QPSK	12	13	13.10	13.14	13.80	14.5	0				
5	QPSK	25	0	13.05	13.19	13.86						
5	16QAM	1	0	13.41	13.54	13.80						
5	16QAM	1	12	13.24	13.39	13.86						
5	16QAM	1	24	13.22	13.62	13.91						
5	16QAM	12	0	13.06	13.19	13.94	14.5	0				
5	16QAM	12	7	13.05	13.18	13.85						
5	16QAM	12	13	13.13	13.16	13.83						
5	16QAM	25	0	13.04	13.17	13.84						
5	64QAM	1	0	13.34	13.43	13.98						
5	64QAM	1	12	13.10	13.23	13.94	14.5	0				
5	64QAM	1	24	13.14	13.35	13.98						
5	64QAM	12	0	13.06	13.21	13.95						
5	64QAM	12	7	13.08	13.27	13.97						
5	64QAM	12	13	13.06	13.18	13.86						
5	64QAM	12	13	13.12	13.16	13.82	14.5	0				
5	64QAM	25	0	13.01	13.16	13.85						
Channel				131987	132122	132197						
Frequency (MHz)				1711.5	1745	1776.5				Tune-up limit (dBm)	MPR (dB)	
3	QPSK	1	0	12.95	12.97	13.75				14.5	0	
3	QPSK	1	8	12.85	13.07	13.74						
3	QPSK	1	14	12.90	13.07	13.73						
3	QPSK	1	20	12.96	13.16	13.83						
3	QPSK	8	4	12.99	13.16	13.91						
3	QPSK	8	7	12.97	13.13	13.80	14.5	0				
3	QPSK	15	0	12.96	13.12	13.79						
3	16QAM	1	0	13.26	13.43	13.98						
3	16QAM	1	8	13.30	13.46	13.95						
3	16QAM	1	14	13.24	13.38	13.96						
3	16QAM	8	4	13.05	13.16	13.90	14.5	0				
3	16QAM	8	4	13.06	13.21	13.88						
3	16QAM	15	0	13.03	13.17	13.87						
3	16QAM	15	0	13.01	13.14	13.82						
3	64QAM	1	0	13.15	13.32	13.96						
3	64QAM	1	14	13.15	13.31	13.98	14.5	0				
3	64QAM	8	4	12.99	13.16	13.84						
3	64QAM	8	4	13.04	13.17	13.88						
3	64QAM	15	0	12.98	13.14	13.83						
3	64QAM	15	0	12.96	13.14	13.81						
14	Channel				131979	132122	132197	14.5	0			
	Frequency (MHz)				1717.5	1745	1773.5					
1.4	QPSK	1	0	12.91	13.07	13.74	14.5	0				
1.4	QPSK	1	0	12.93	13.13	13.81						
1.4	QPSK	1	5	12.87	13.09	13.73						
1.4	QPSK	3	1	12.92	13.03	13.77						
1.4	QPSK	3	1	12.95	13.41	13.84						
1.4	QPSK	3	3	12.88	13.44	13.76	14.5	0				
1.4	QPSK	6	0	12.88	13.37	13.74						
1.4	16QAM	1	0	13.12	13.12	13.93						
1.4	16QAM	1	5	13.19	13.15	13.95						
1.4	16QAM	1	5	13.13	13.12	13.97						
1.4	16QAM	3	1	12.97	13.13	13.83	14.5	0				
1.4	16QAM	3	1	13.06	13.28	13.88						
1.4	16QAM	6	0	12.97	13.28	13.82						
1.4	16QAM	6	0	12.94	13.20	13.80						
1.4	16QAM	6	0	13.16	13.16	13.90						
1.4	64QAM	1	3	13.11	13.25	13.98	14.5	0				
1.4	64QAM	1	5	13.02	13.16	13.93						
1.4	64QAM	1	5	13.03	13.89	13.88						
1.4	64QAM	3	1	13.12	13.13	13.94						
1.4	64QAM	3	3	13.01	13.28	13.88						
1.4	64QAM	6	0	12.94	13.10	13.78	14.5	0				

Band 38(only on channel required)											
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch./Freq	Power Main Ch./Freq	Power High Ch./Freq	Tune-up limit (dBm)	MPR (dB)			
Channel											
Frequency (MHz)				2577.5	2585	2610					
20	QPSK	1	0	19.03	18.79	18.83	20	0			
20	QPSK	1	49	19.26	19.06	19.09					
20	QPSK	1	99	19.09	19.08	19.20					
20	QPSK	50	0	19.09	18.93	19.01					
20	QPSK	50	24	19.29	19.04	19.04	20	0			
20	QPSK	50	50	19.29	19.06	19.18					
20	QPSK	100	0	19.04	19.03	19.12					
20	16QAM	1	0	18.92	18.90	19.06					
20	16QAM	1	49	19.11	19.18	19.01	20	0			
20	16QAM	1	99	19.22	19.10	18.92					
20	16QAM	50	0	18.98	18.99	18.96					
20	16QAM	50	24	19.07	18.95	18.96					
20	16QAM	50	50	19.10	19.00	19.26	20	0			
20	16QAM	100	0	19.22	19.05	19.16					
20	64QAM	1	0	18.83	18.39	18.87					
20	64QAM	1	49	18.79	18.88	18.82					
20	64QAM	1	99	18.74	18.53	18.58	20	0			
20	64QAM	50	0	19.03	18.80	19.11					
20	64QAM	50	24	19.26	18.94	19.14					
20	64QAM	50	50	19.24	18.93	18.93					
20	64QAM	100	0	19.20	18.86	18.89	20	0			
Channel				37825	38000	38175					
Frequency (MHz)				2577.5	2585	2612.5			Tune-up limit (dBm)	MPR (dB)	
15	QPSK	1	0	18.91	18.87	18.92	20	0			
15	QPSK	1	37	18.87	18.72	18.74					
15	QPSK	1	74	19.22	18.97	19.15					
15	QPSK	36	0	18.98	19.02	19.02					
15	QPSK	36	20	19.28	19.09	19.11	20	0			
15	QPSK	36	39	19.15	19.09	19.20					
15	QPSK	75	0	19.27	19.01	19.14					
15	16QAM	1	0	19.07	18.93	18.96					
15	16QAM	1	37	19.18	19.01	18.95	20	0			
15	16QAM	1	74	19.10	18.98	19.18					
15	16QAM	36	0	18.92	18.78	18.88					
15	16QAM	36	20	19.08	18.85	18.97					
15	16QAM	36	39	19.05	18.85	19.19	20	0			
15	16QAM	75	0	19.28	19.05	19.16					
15	64QAM	1	0	18.70	18.54	18.51					
15	64QAM	1	37	19.03	18.84	19.00					
15	64QAM	1	74	18.96	18.63	18.93	20	0			
15	64QAM	36	0	18.97	18.78	19.01					
15	64QAM	36	20	19.14	18.87	19.11					
15	64QAM	36	39	19.10	18.85	19.11					
15	64QAM	75	0	19.27	19.02	19.17	20	0			
Channel				37850	38000	38200					
Frequency (MHz)				2575	2585	2615			Tune-up limit (dBm)	MPR (dB)	
10	QPSK	1	0	19.23	19.03	19.26	20	0			
10	QPSK	1	25	19.19	18.99	18.97					
10	QPSK	1	49	19.40	19.12	19.20					
10	QPSK	25	0	19.15	19.16	19.11					
10	QPSK	25	12	19.30	19.02	19.09	20	0			
10	QPSK	25	25	19.41	19.17	19.32					
10	QPSK	50	0	19.18	19.09	19.27					
10	16QAM	1	0	19.31	19.16	19.32					
10	16QAM	1	25	19.29	19.01	19.08	20	0			
10	16QAM	1	49	19.36	19.23	19.26					
10	16QAM	25	0	19.27	19.19	19.06					
10	16QAM	25	12	19.12	18.94	19.22					
10	16QAM	25	25	19.36	19.09	19.26	20	0			
10	16QAM	50	0	19.30	18.94	19.20					
10	64QAM	1	0	19.07	18.58	18.95					
10	64QAM	1	25	18.71	18.94	18.71					
10	64QAM	1	49	18.88	18.76	18.79	20	0			
10	64QAM	25	0	19.09	18.91	19.31					
10	64QAM	25	12	19.24	19.18	19.04					
10	64QAM	25	25	19.45	19.03	19.21					
10	64QAM	50	0	19.07	18.91	19.08	20	0			
Channel				37775	38000	38225					
Frequency (MHz)				2572.5	2585	2617.5			Tune-up limit (dBm)	MPR (dB)	
5	QPSK	1	0	19.18	18.94	19.25	20	0			
5	QPSK	1	12	19.05	18.76	19.05					
5	QPSK	1	24	19.08	19.02	18.99					
5	QPSK	12	0	19.31	19.16	19.09					
5	QPSK	12	7	19.21	19.11	19.22	20	0			
5	QPSK	12	13	19.29	19.04	19.13					
5	QPSK	25	0	19.35	19.06	19.14					
5	16QAM	1	0	19.23	19.14	19.24					
5	16QAM	1	12	19.14	18.97	19.17	20	0			
5	16QAM	1	24	19.21	18.96	19.14					
5	16QAM	12	0	19.20	19.08	19.19					
5	16QAM	12	7	19.28	18.90	19.21					
5	16QAM	12	13	19.30	18.93	19.23	20	0			
5	16QAM	25	0	19.19	19.10	19.09					
5	64QAM	1	0	19.11	18.96	18.98					
5	64QAM	1	12	18.85	18.90	18.79					
5	64QAM	1	24	18.96	18.71	18.89	20	0			
5	64QAM	12	0	19.32	19.21	19.12					
5	64QAM	12	7	19.34	19.05	19.26					
5	64QAM	12	13	19.12	19.07	19.16					
5	64QAM	25	0	19.41	18.89	19.31	20	0			
Channel				37775	38000	38225					
Frequency (MHz)				2572.5	2585	2617.5			Tune-up limit (dBm)	MPR (dB)	

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											
Frequency (MHz)				39750	40185	40620	41055	41490			
20	QPSK	1	0	19.39	19.68	19.31	19.25	19.52	21	0	
20	QPSK	1	49	19.58	19.73	19.50	19.19	19.35			
20	QPSK	1	99	19.31	19.46	19.25	19.22	19.51			
20	QPSK	50	0	19.42	19.68	19.26	19.40	19.63			
20	QPSK	50	24	19.58	19.80	19.55	19.60	19.85	21	0	
20	QPSK	50	50	19.37	19.53	19.34	19.39	19.55			
20	QPSK	100	0	19.36	19.54	19.33	19.40	19.30			
20	16QAM	1	0	19.16	19.39	19.00	19.02	19.45	21	0	
20	16QAM	1	49	19.32	19.33	19.36	19.34	19.65			
20	16QAM	1	99	19.51	19.51	19.29	19.33	19.42			
20	16QAM	50	0	19.47	19.74	19.25	19.50	19.64			
20	16QAM	50	24	19.48	19.74	19.41	19.57	19.71	21	0	
20	16QAM	50	50	19.35	19.60	19.37	19.46	19.60			
20	16QAM	100	0	19.29	19.55	19.30	19.32	19.61			
20	64QAM	1	0	19.43	19.15	19.59	19.68	19.16	21	0	
20	64QAM	1	49	19.16	19.33	19.04	19.09	19.36			
20	64QAM	1	99	19.35	19.32	19.15	19.40	19.29			
20	64QAM	50	0	19.40	19.67	19.20	19.33	19.62			
20	64QAM	50	24	19.47	19.67	19.36	19.37	19.64	21	0	
20	64QAM	50	50	19.38	19.46	19.30	19.36	19.56			
20	64QAM	100	0	19.33	19.59	19.37	19.37	19.62			
Channel											
Frequency (MHz)				39725	40173	40620	41056	41515	Tune-up limit (dBm)	MPR (dB)	
15	QPSK	1	0	19.20	19.39	19.20	19.30	19.58	21	0	
15	QPSK	1	37	19.35	19.14	19.50	19.02	19.38			
15	QPSK	1	74	19.28	19.07	19.54	19.38	19.59			
15	QPSK	36	0	19.48	19.70	19.32	19.32	19.63			
15	QPSK	36	20	19.54	19.75	19.48	19.53	19.60	21	0	
15	QPSK	36	39	19.57	19.57	19.35	19.40	19.65			
15	QPSK	72	0	19.45	19.72	19.36	19.35	19.53			
15	16QAM	1	0	19.08	19.15	19.58	19.14	19.61	21	0	
15	16QAM	1	37	19.04	19.26	19.47	19.07	19.49			
15	16QAM	1	74	19.30	19.39	19.18	19.25	19.50			
15	16QAM	36	0	19.44	19.69	19.20	19.28	19.55			
15	16QAM	36	20	19.53	19.69	19.39	19.48	19.54	21	0	
15	16QAM	36	39	19.57	19.68	19.48	19.45	19.54			
15	16QAM	75	0	19.45	19.74	19.40	19.44	19.54			
15	64QAM	1	0	19.36	19.15	19.58	19.14	19.61	21	0	
15	64QAM	1	37	19.42	19.36	19.12	19.33	19.01			
15	64QAM	1	74	19.42	19.20	19.08	19.07	19.21			
15	64QAM	36	0	19.31	19.62	19.19	19.20	19.56			
15	64QAM	36	20	19.41	19.67	19.39	19.44	19.50	21	0	
15	64QAM	36	39	19.45	19.61	19.37	19.49	19.52			
15	64QAM	75	0	19.39	19.68	19.33	19.37	19.55			
Channel											
Frequency (MHz)				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)	
15	QPSK	1	0	19.61	19.57	19.61	19.59	19.65	21	0	
15	QPSK	1	25	19.58	19.77	19.51	19.55	19.63			
15	QPSK	1	49	19.56	19.77	19.52	19.18	19.38			
15	QPSK	1	49	19.40	19.72	19.49	19.45	19.39			
15	QPSK	25	0	19.36	19.77	19.50	19.54	19.39	21	0	
15	QPSK	25	12	19.55	19.82	19.63	19.63	19.52			
15	QPSK	25	25	19.48	19.76	19.53	19.54	19.47			
15	16QAM	1	0	19.38	19.78	19.26	19.38	19.46	21	0	
15	16QAM	1	25	19.36	19.70	19.45	19.50	19.43			
15	16QAM	1	49	19.31	19.67	19.40	19.47	19.48			
15	16QAM	25	0	19.40	19.80	19.56	19.54	19.44	21	0	
15	16QAM	25	12	19.58	19.81	19.67	19.68	19.42			
15	16QAM	25	25	19.50	19.83	19.61	19.57	19.46			
15	16QAM	50	0	19.43	19.78	19.48	19.56	19.49	21	0	
15	64QAM	1	0	19.02	19.32	19.01	19.13	19.15			
15	64QAM	1	25	19.07	19.31	19.08	19.14	19.01			
15	64QAM	1	49	19.08	19.30	19.04	19.06	19.14			
15	64QAM	25	0	19.34	19.83	19.54	19.55	19.45	21	0	
15	64QAM	25	12	19.51	19.89	19.60	19.64	19.47			
15	64QAM	25	25	19.49	19.79	19.51	19.56	19.51			
Channel											
Frequency (MHz)				24915	25418	25931	26430	26975	Tune-up limit (dBm)	MPR (dB)	
5	QPSK	1	0	19.60	19.44	19.66	19.86	19.61	21	0	
5	QPSK	1	12	19.27	19.57	19.36	19.55	19.30			
5	QPSK	1	24	19.30	19.64	19.40	19.36	19.21			
5	QPSK	12	0	19.45	19.85	19.57	19.52	19.41			
5	QPSK	12	7	19.50	19.84	19.56	19.55	19.44	21	0	
5	QPSK	12	13	19.41	19.82	19.53	19.60	19.39			
5	QPSK	25	0	19.39	19.80	19.59	19.57	19.41			
5	16QAM	1	0	19.48	19.76	19.51	19.44	19.38	21	0	
5	16QAM	1	12	19.53	19.82	19.54	19.64	19.44			
5	16QAM	1	24	19.44	19.77	19.50	19.48	19.37			
5	16QAM	12	0	19.42	19.74	19.52	19.54	19.41			
5	16QAM	12	7	19.42	19.71	19.48	19.51	19.37	21	0	
5	16QAM	12	13	19.36	19.69	19.48	19.49	19.38			
5	16QAM	25	0	19.42	19.81	19.56	19.56	19.44			
5	64QAM	1	0	19.22	19.72	19.16	19.16	19.10	21	0	
5	64QAM	1	12	19.17	19.28	19.21	19.20	19.09			
5	64QAM	1	24	19.56	19.56	19.11	19.24	19.28			
5	64QAM	12	0	19.51	19.89	19.61	19.60	19.44			
5	64QAM	12	7	19.49	19.80	19.60	19.62	19.42	21	0	
5	64QAM	12	13	19.45	19.78	19.58	19.62	19.38			
5	64QAM	25	0	19.46	19.80	19.57	19.58	19.43			



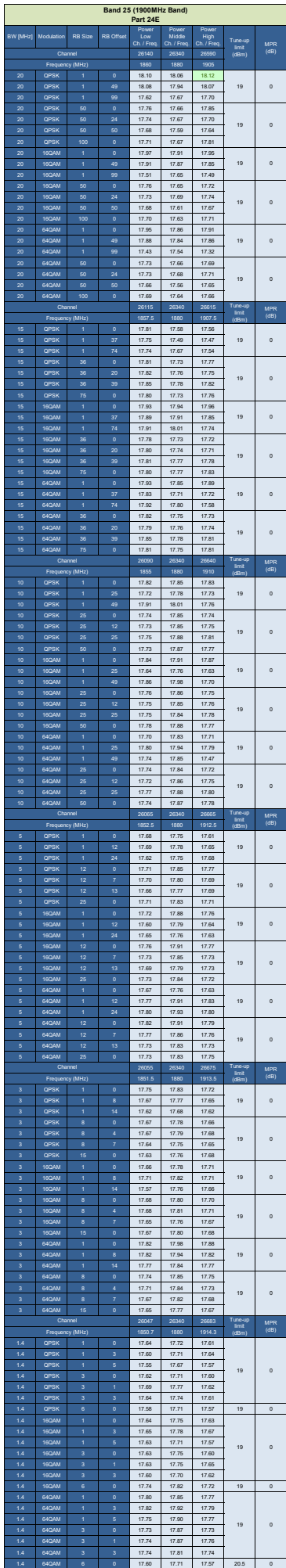
Reduced Power Mode for Handheld On								
	Tx Average Power (dBm)			Tx Power Limit (dBm)	Frame Average Power (dBm)			Tx Power Limit (dBm)
	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	26.39	26.35	26.23	27.88	17.39	17.35	17.23	18.50
GPRS 1 Tx slot	26.33	26.26	26.71	27.88	17.33	17.28	17.71	18.50
GPRS 2 Tx slots	24.33	24.41	24.35	26.00	16.33	16.41	16.39	20.00
GPRS 3 Tx slots	22.11	22.04	22.01	23.88	17.85	17.78	17.75	19.24
GPRS 4 Tx slots	19.86	19.87	19.79	21.88	16.96	16.87	16.79	18.50
EDGE 1 Tx slot	22.02	22.10	22.03	23.50	13.02	13.10	13.03	14.50
EDGE 2 Tx slots	19.85	19.92	19.89	21.88	13.85	13.92	13.89	15.50
EDGE 3 Tx slots	17.57	17.64	17.61	19.00	13.31	13.38	13.35	14.74
EDGE 4 Tx slots	16.01	16.11	16.05	18.00	13.01	13.11	13.05	15.00

Band	WCDMA II			Tx Power Limit (dBm)	WCDMA IV			Tx Power Limit (dBm)
	9282	9400	9538		1312	1413	1513	
TX Channel	9692 <td>9800<td>9938<td></td><td>1537<td>1638</td><td>1738</td><td></td></td></td></td>	9800 <td>9938<td></td><td>1537<td>1638</td><td>1738</td><td></td></td></td>	9938 <td></td> <td>1537<td>1638</td><td>1738</td><td></td></td>		1537 <td>1638</td> <td>1738</td> <td></td>	1638	1738	
Rx Channel	1852.4 <td>1880<td>1907.8</td><td></td><td>1712.4</td><td>1732.6</td><td>1752.6</td><td></td></td>	1880 <td>1907.8</td> <td></td> <td>1712.4</td> <td>1732.6</td> <td>1752.6</td> <td></td>	1907.8		1712.4	1732.6	1752.6	
Frequency (MHz)	17.44	17.45	17.46	18.50	16.08	15.98	16.01	17.50
3GPP Rel 99	AMR 12.2Kbps	17.46	17.47	17.51	16.12	16.01	16.15	17.50
3GPP Rel 99	RMIC 12.2Kbps	16.80	16.56	16.49	17.50	15.30	15.27	15.44
3GPP Rel 6	HSDPA Subtest-1	16.58	16.58	16.54	17.50	15.33	15.34	15.46
3GPP Rel 6	HSDPA Subtest-2	15.73	16.07	15.99	17.00	14.85	14.80	15.06
3GPP Rel 6	HSDPA Subtest-4	16.06	16.09	16.04	17.00	14.74	14.84	14.49
3GPP Rel 6	DCHSDPA Subtest-1	16.44	16.49	16.32	17.50	15.22	15.27	15.37
3GPP Rel 6	DCHSDPA Subtest-2	16.51	16.39	16.51	17.50	15.27	15.31	15.36
3GPP Rel 6	DCHSDPA Subtest-3	15.61	15.99	15.95	17.00	14.85	14.68	15.02
3GPP Rel 6	DCHSDPA Subtest-4	16.05	16.05	15.94	17.00	14.54	14.79	14.48
3GPP Rel 6	HSPA Subtest-1	16.58	16.59	16.54	17.50	15.27	15.34	15.12
3GPP Rel 6	HSPA Subtest-2	14.57	14.58	14.57	15.50	13.15	13.14	13.17
3GPP Rel 6	HSPA Subtest-3	15.59	15.56	15.51	16.50	14.24	14.27	14.27
3GPP Rel 6	HSPA Subtest-4	14.60	14.55	14.50	15.50	13.26	13.28	13.17
3GPP Rel 6	HSPA Subtest-5	16.62	16.62	16.52	17.50	15.28	15.28	15.38

Band	CDMA BC1			Tx Power Limit (dBm)
	25	800	1175	
TX Channel	1851.25	1880	1908.75	
Frequency (MHz)	19.13	19.36	19.17	20.00
RC1 S055	19.04	19.25	19.07	20.00
RC1 S055	19.25	19.33	19.16	20.00
RC1 S032 (+SCH)	19.23	19.20	19.03	20.00
RTAP 153.6Kbps	19.04	19.07	18.97	20.00
RETAP 4096Kbps	18.75	18.75	18.63	20.00



Band 2 (1900MHz Band)													
Part 24E													
BW (MHz)	Modulation	RB Size	RB Offset	Channel	Power Low Ch. (Freq.)	Power Middle Ch. (Freq.)	Power High Ch. (Freq.)	Tune-up (dBm)	MPR (dB)				
18700 18800 19000													
Channel													
Frequency (MHz)													
20	QPSK	1	0	1861	1937	1933		20.5	0				
20	QPSK	1	49	1841	1939	1933							
20	QPSK	1	99	1812	1915	1916							
20	QPSK	50	0	1947	1941	1940							
20	QPSK	50	24	1932	1932	1937		20.5	0				
20	QPSK	50	50	1914	1926	1918							
20	QPSK	100	0	1929	1927	1933							
20	16QAM	1	0	1930	1930	1931		20.5	0				
20	16QAM	1	49	1912	1924	1917							
20	16QAM	1	99	1927	1939	1931							
20	16QAM	50	0	1944	1943	1937							
20	16QAM	50	24	1929	1931	1936		20.5	0				
20	16QAM	50	50	1911	1923	1922							
20	16QAM	100	0	1925	1926	1930							
Channel													
Frequency (MHz)													
15	QPSK	1	0	1860	1905	1903		20.5	0				
15	QPSK	1	37	1923	1906	1914							
15	QPSK	1	74	1934	1946	1940							
15	QPSK	36	0	1942	1937	1936							
15	QPSK	36	20	1929	1930	1936		20.5	0				
15	QPSK	36	39	1930	1930	1932							
15	QPSK	75	0	1929	1924	1932							
15	16QAM	1	0	1941	1932	1941							
15	16QAM	1	37	1930	1926	1920		20.5	0				
15	16QAM	1	74	1928	1935	1933							
15	16QAM	36	0	1939	1937	1933							
15	16QAM	36	20	1932	1929	1934							
15	16QAM	36	39	1928	1930	1930		20.5	0				
15	16QAM	75	0	1925	1926	1928							
15	64QAM	1	0	1940	1935	1938							
15	64QAM	1	37	1944	1940	1938							
15	64QAM	1	74	1914	1923	1913		20.5	0				
15	64QAM	36	0	1941	1939	1936							
15	64QAM	36	20	1929	1931	1935							
15	64QAM	36	39	1929	1929	1928							
15	64QAM	75	0	1923	1928	1934		20.5	0				
Channel													
Frequency (MHz)													
10	QPSK	1	0	1859	1895	1905		20.5	0				
10	QPSK	1	25	1942	1940	1942							
10	QPSK	1	49	1945	1945	1951							
10	QPSK	25	0	1956	1943	1949							
10	QPSK	25	12	1951	1942	1950		20.5	0				
10	QPSK	25	25	1948	1941	1950							
10	QPSK	50	0	1932	1941	1947							
10	16QAM	1	0	1946	1947	1949							
10	16QAM	1	25	1941	1931	1941		20.5	0				
10	16QAM	1	49	1944	1936	1941							
10	16QAM	25	0	1954	1940	1949							
10	16QAM	25	12	1956	1941	1948							
10	16QAM	25	25	1948	1935	1948		20.5	0				
10	16QAM	50	0	1950	1944	1945							
10	64QAM	1	0	1939	1940	1945							
10	64QAM	1	25	1910	1918	1915							
10	64QAM	1	49	1924	1927	1929		20.5	0				
10	64QAM	25	0	1956	1937	1947							
10	64QAM	25	12	1955	1943	1951							
10	64QAM	25	25	1952	1939	1951							
10	64QAM	50	0	1951	1945	1946		20.5	0				
Channel													
Frequency (MHz)													
5	QPSK	1	0	1863	1895	1905	1907.5	20.5	0				
5	QPSK	1	12	1947	1938	1945							
5	QPSK	1	24	1946	1937	1942							
5	QPSK	12	0	1952	1952	1956							
5	QPSK	12	7	1956	1942	1952		20.5	0				
5	QPSK	12	13	1953	1943	1948							
5	QPSK	25	0	1953	1947	1952							
5	16QAM	1	0	1949	1942	1946							
5	16QAM	1	12	1935	1936	1940		20.5	0				
5	16QAM	1	24	1937	1937	1936							
5	16QAM	12	0	1916	1916	1918							
5	16QAM	12	7	1960	1949	1953							
5	16QAM	12	13	1955	1942	1948		20.5	0				
5	16QAM	25	0	1955	1946	1953							
5	64QAM	1	0	1939	1928	1936							
5	64QAM	1	12	1927	1917	1920							
5	64QAM	1	24	1925	1924	1927		20.5	0				
5	64QAM	12	0	1919	1916	1922							
5	64QAM	12	7	1929	1920	1924							
5	64QAM	12	13	1956	1941	1951							
5	64QAM	25	0	1956	1947	1955		20.5	0				
Channel													
Frequency (MHz)													
3	QPSK	1	0	1861.5	1895	1900	1906.5	20.5	0				
3	QPSK	1	8	1947	1947	1952							
3	QPSK	1	14	1937	1935	1944							
3	QPSK	8	0	1952	1951	1951							
3	QPSK	8	4	1951	1949	1951		20.5	0				
3	QPSK	8	7	1948	1943	1950							
3	QPSK	15	0	1945	1943	1952							
3	16QAM	1	0	1947	1941	1950							
3	16QAM	1	8	1936	1934	1937		20.5	0				
3	16QAM	1	14	1929	1924	1936							
3	16QAM	8	0	1953	1952	1954							
3	16QAM	8	4	1956	1953	1957							
3	16QAM	8	7	1952	1949	1951		20.5	0				
3	16QAM	15	0	1948	1952	1953							
3	64QAM	1	0	1927	1927	1925							
3	64QAM	1	8	1925	1921	1925							
3	64QAM	1	14	1919	1917	1923		20.5	0				
3	64QAM	8	0	1925	1953	1956							
3	64QAM	8	4	1956	1955	1958							
3	64QAM	8	7	1953	1945	1953							
3	64QAM	15	0	1947	1950	1950		20.5	0				
Channel													
Frequency (MHz)													
1.4	QPSK	1	0	1844	1938	1945		20.5	0				
1.4	QPSK	1	3	1945	1945	1947							
1.4	QPSK	1	5	1939	1938	1942							
1.4	QPSK	3	0	1943	1943	1944							
1.4	QPSK	3	1	1950	1949	1945		20.5	0				
1.4	QPSK	3	3	1945	1940	1941							
1.4	QPSK	6	0	1941	1940	1944							
1.4	16QAM	1	0	1935	1931	1934							
1.4	16QAM	1	3	1932	1943	1941		20.5	0				
1.4	16QAM	1	5	1939	1929	1927							
1.4	16QAM	3	0	1949	1945	1947							
1.4	16QAM	3	1	1931	1949	1934							
1.4	16QAM	3	3	1949	1937	1942		20.5	0				
1.4	16QAM	6	0	1953	1946	1953							
1.4	64QAM	1	0	1925	1926	1921							
1.4	64QAM	1	3	1912	1914	1922		20.5	0				
1.4	64QAM	1	5	1918	1918	1918							
1.4	64QAM	3	0	1953	1950	1954							
1.4	64QAM	3	1	1959	1957	1959							
1.4	64QAM	3	3	1956	1949	1954		20.5	0				
1.4	64QAM	6	0	1943	1944	1944							
1.4	64QAM	6	3	1946	1946	1946							



Band 66									
BR (MHz)	Modulation	RB Size	RB Offset	Power Fwd (dBm)	Power Ref. Ch. Freq.	Power Ref. Ch. Freq.	Power Ref. Ch. Freq.	Time-up (s/min)	MPR (dB)
Channel									
Frequency (MHz)									
20	QPSK	1	0	13072	13332	13372	13372		
20	QPSK	1	0	1720	1726	1731	1731		
20	QPSK	1	49	1710	1715	1745	1745	18.5	0
20	QPSK	50	0	1690	1676	1743	1743		
20	QPSK	50	24	1691	1695	1730	1730	18.5	0
20	QPSK	50	50	1695	1708	1755	1755		
20	QPSK	100	0	1688	1696	1752	1752		
10	16QAM	1	0	1720	1726	1731	1731		
10	16QAM	1	49	1713	1715	1757	1757	18.5	0
10	16QAM	1	99	1745	1748	1788	1788		
10	16QAM	50	0	1676	1677	1743	1743		
10	16QAM	50	24	1682	1694	1754	1754		
10	16QAM	50	50	1685	1710	1755	1755	18.5	0
10	16QAM	100	0	1681	1691	1748	1748		
10	16QAM	1	49	1691	1693	1773	1773	18.5	0
10	16QAM	1	99	1721	1728	1782	1782		
10	16QAM	50	0	1673	1674	1740	1740		
10	16QAM	50	24	1678	1693	1753	1753		
10	16QAM	50	50	1681	1707	1755	1755	18.5	0
10	16QAM	100	0	1682	1691	1747	1747		
Channel									
Frequency (MHz)									
15	QPSK	1	0	13047	13332	13387	13387		
15	QPSK	1	0	1695	1696	1753	1753		
15	QPSK	1	37	1652	1668	1753	1753	18.5	0
15	QPSK	1	74	1668	1670	1764	1764		
15	QPSK	36	0	1683	1688	1758	1758		
15	QPSK	36	20	1673	1695	1754	1754	18.5	0
15	QPSK	36	39	1676	1701	1755	1755		
15	QPSK	75	0	1677	1691	1754	1754		
15	16QAM	1	37	1708	1720	1775	1775	18.5	0
15	16QAM	1	74	1708	1717	1780	1780		
15	16QAM	1	74	1692	1720	1791	1791		
15	16QAM	36	0	1682	1685	1757	1757		
15	16QAM	36	20	1674	1694	1759	1759	18.5	0
15	16QAM	36	39	1675	1699	1752	1752		
15	16QAM	75	0	1677	1694	1758	1758		
15	16QAM	1	0	1732	1739	1788	1788		
15	16QAM	1	37	1738	1750	1795	1795	18.5	0
15	16QAM	1	74	1707	1753	1786	1786		
15	16QAM	36	0	1678	1684	1754	1754		
15	16QAM	36	20	1673	1690	1756	1756		
15	16QAM	36	39	1674	1696	1753	1753	18.5	0
15	16QAM	75	0	1675	1693	1755	1755		
Channel									
Frequency (MHz)									
10	QPSK	1	0	13012	13332	13382	13382		
10	QPSK	1	0	1715	1726	1773	1773		
10	QPSK	1	0	1695	1696	1753	1753		
10	QPSK	1	49	1718	1758	1793	1793	18.5	0
10	QPSK	25	0	1690	1702	1764	1764		
10	QPSK	25	12	1686	1711	1773	1773		
10	QPSK	25	25	1688	1730	1783	1783		
10	QPSK	50	0	1693	1712	1768	1768		
10	16QAM	1	0	1688	1689	1777	1777		
10	16QAM	1	25	1720	1731	1785	1785	18.5	0
10	16QAM	1	49	1703	1730	1790	1790		
10	16QAM	25	0	1692	1703	1765	1765		
10	16QAM	25	12	1694	1713	1771	1771		
10	16QAM	25	15	1696	1728	1776	1776		
10	16QAM	50	0	1695	1717	1763	1763		
10	16QAM	1	0	1683	1686	1725	1725		
10	16QAM	1	25	1710	1725	1781	1781	18.5	0
10	16QAM	1	49	1742	1749	1823	1823		
10	16QAM	25	0	1690	1700	1762	1762		
10	16QAM	25	12	1695	1713	1766	1766		
10	16QAM	25	25	1693	1727	1777	1777	18.5	0
10	16QAM	50	0	1692	1709	1762	1762		
Channel									
Frequency (MHz)									
3	QPSK	1	0	13167	13332	13387	13387		
3	QPSK	1	0	1717	1746	1775	1775		
3	QPSK	1	0	1695	1696	1753	1753		
3	QPSK	1	12	1694	1704	1758	1758	18.5	0
3	QPSK	1	24	1694	1713	1764	1764		
3	QPSK	12	0	1697	1712	1777	1777		
3	QPSK	12	7	1694	1707	1768	1768	18.5	0
3	QPSK	12	13	1682	1706	1766	1766		
3	QPSK	25	0	1698	1711	1772	1772		
3	16QAM	1	0	1738	1748	1784	1784		
3	16QAM	1	12	1716	1728	1785	1785	18.5	0
3	16QAM	1	24	1720	1730	1789	1789		
3	16QAM	12	0	1702	1712	1778	1778		
3	16QAM	12	7	1698	1710	1771	1771	18.5	0
3	16QAM	12	13	1685	1707	1768	1768		
3	16QAM	25	0	1697	1710	1770	1770		
3	16QAM	25	0	1723	1735	1780	1780		
3	16QAM	1	12	1707	1716	1777	1777	18.5	0
3	16QAM	1	24	1704	1724	1781	1781		
3	16QAM	12	0	1698	1711	1776	1776		
3	16QAM	12	7	1696	1709	1768	1768	18.5	0
3	16QAM	12	13	1684	1706	1766	1766		
3	16QAM	25	0	1696	1710	1770	1770		
Channel									
Frequency (MHz)									
3	QPSK	1	0	13117	13332	13387	13387		
3	QPSK	1	0	1716	1745	1774	1774		
3	QPSK	1	14	1694	1697	1756	1756	18.5	0
3	QPSK	8	0	1695	1710	1769	1769		
3	QPSK	8	4	1695	1710	1769	1769		
3	QPSK	8	7	1691	1706	1764	1764	18.5	0
3	QPSK	15	0	1692	1705	1763	1763		
3	16QAM	1	0	1727	1737	1795	1795		
3	16QAM	1	8	1709	1721	1783	1783	18.5	0
3	16QAM	1	14	1719	1731	1788	1788		
3	16QAM	8	0	1701	1713	1775	1775		
3	16QAM	8	4	1698	1711	1776	1776	18.5	0
3	16QAM	8	7	1695	1707	1769	1769		
3	16QAM	15	0	1695	1707	1767	1767		
3	16QAM	1	0	1711	1719	1768	1768		
3	16QAM	1	8	1709	1721	1783	1783	18.5	0
3	16QAM	1	14	1723	1735	1791	1791		
3	16QAM	8	0	1699	1714	1771	1771		
3	16QAM	8	4	1698	1713	1773	1773	18.5	0
3	16QAM	8	7	1693	1708	1764	1764		
3	16QAM	15	0	1691	1707	1768	1768		
Channel									
Frequency (MHz)									
1.4	QPSK	1	0	13167	13332	13385	13385		
1.4	QPSK	1	0	1716	1745	1773.3	1773.3		
1.4	QPSK	3	0	1693	1708	1760	1760	18.5	0
1.4	QPSK	3	0	1696	1702	1761	1761		
1.4	QPSK	3	1	1694	1702	1761	1761		
1.4	QPSK	3	3	1686	1705	1768	1768	18.5	0
1.4	QPSK	3	3	1681	1701	1760	1760		
1.4	QPSK	6	0	1691	1697	1759	1759	18.5	0
1.4	16QAM	1	0	1712	1713	1768	1768		
1.4	16QAM	1	3	1719	1743	1791	1791		
1.4	16QAM	1	3	1715	1736	1788	1788	18.5	0
1.4	16QAM	3	0	1690	1703	1773	1773		
1.4	16QAM	3	1	1698	1708	1776	1776		
1.4	16QAM	3	3	1689	1701	1765	1765	18.5	0
1.4	16QAM	6	0	1689	1712	1766	1766		
1.4	16QAM	1	0	1705	1716	1781	1781		
1.4	16QAM	1	3	1699	1719	1781	1781	18.5	0
1.4	16QAM	1	5	1702	1716	1779	1779		
1.4	16QAM	3	0	1696	1716	1773	1773		
1.4	16QAM	3	3	1696	1714	1770	1770	18.5	0
1.4	16QAM	6	0	1688	1701	1767	1767	18.5	0

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			
Frequency (MHz)				2580	2595	2610			
20	QPSK	1	0	20.17	19.91	19.93	21	0	
20	QPSK	1	49	20.70	20.41	20.57			
20	QPSK	1	99	20.96	20.27	20.37			
20	QPSK	50	0	20.43	20.43	20.42	21	0	
20	QPSK	50	24	20.67	20.23	20.25			
20	QPSK	50	50	20.39	20.45	20.54			
20	QPSK	100	0	20.57	20.17	20.18	21	0	
20	16QAM	1	0	20.20	19.95	20.23			
20	16QAM	1	49	20.26	20.26	20.30			
20	16QAM	1	99	20.37	20.13	20.20	21	0	
20	16QAM	50	0	19.33	19.48	19.47			
20	16QAM	50	24	19.67	19.18	19.18			
20	16QAM	50	50	19.32	19.51	19.59	21	0	
20	16QAM	100	0	19.39	19.11	19.22			
20	64QAM	1	0	19.50	19.57	19.62			
20	64QAM	1	49	19.73	19.43	19.46	21	0	
20	64QAM	1	99	19.63	19.40	19.48			
20	64QAM	50	0	19.46	19.40	19.39			
20	64QAM	50	24	19.36	19.21	19.12	21	0	
20	64QAM	50	50	19.69	19.44	19.49			
20	64QAM	100	0	19.33	19.16	19.18			
Channel				37825	38050	38175	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2577.5	2595	2612.5			
15	QPSK	1	0	20.54	20.33	20.40	21	0	
15	QPSK	1	37	20.32	20.10	20.12			
15	QPSK	1	74	20.59	20.33	20.36			
15	QPSK	36	0	20.29	20.16	20.21	21	0	
15	QPSK	36	20	20.38	20.24	20.32			
15	QPSK	36	39	20.42	20.45	20.54			
15	QPSK	75	0	20.44	20.15	20.41	21	0	
15	16QAM	1	0	20.31	20.26	20.26			
15	16QAM	1	37	20.33	19.93	20.20			
15	16QAM	1	74	20.41	20.26	20.29	21	0	
15	16QAM	36	0	19.66	19.24	19.51			
15	16QAM	36	20	19.53	19.33	19.38			
15	16QAM	36	39	19.58	19.20	19.43	21	0	
15	16QAM	75	0	19.58	19.42	19.47			
15	64QAM	1	0	19.49	19.22	19.54			
15	64QAM	1	37	19.30	19.52	19.07	21	0	
15	64QAM	1	74	19.96	19.32	19.59			
15	64QAM	36	0	19.43	19.31	19.37			
15	64QAM	36	20	19.61	19.30	19.51	21	0	
15	64QAM	36	39	19.46	19.22	19.31			
15	64QAM	75	0	19.32	19.25	19.44			
Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2575	2595	2615			
10	QPSK	1	0	20.69	20.29	20.33	21	0	
10	QPSK	1	25	20.28	20.34	20.56			
10	QPSK	1	49	20.64	20.27	20.39			
10	QPSK	25	0	20.85	20.41	20.49	21	0	
10	QPSK	25	12	20.80	20.13	20.58			
10	QPSK	25	25	20.44	20.28	20.62			
10	QPSK	50	0	20.63	20.22	20.64	21	0	
10	16QAM	1	0	20.66	20.57	20.54			
10	16QAM	1	25	20.51	20.21	20.59			
10	16QAM	1	49	20.51	20.51	20.65	21	0	
10	16QAM	25	0	19.74	19.35	19.52			
10	16QAM	25	12	19.38	19.51	19.51			
10	16QAM	25	25	19.40	19.45	19.44	21	0	
10	16QAM	50	0	19.48	19.50	19.38			
10	64QAM	1	0	19.84	19.38	19.71			
10	64QAM	1	25	19.76	19.56	19.70	21	0	
10	64QAM	1	49	19.77	19.60	19.74			
10	64QAM	25	0	19.41	19.42	19.50			
10	64QAM	25	12	19.59	19.15	19.59	21	0	
10	64QAM	25	25	19.75	19.44	19.55			
10	64QAM	50	0	19.41	19.24	19.53			
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2577.5	2595	2617.5			
5	QPSK	1	0	20.48	20.39	20.55	21	0	
5	QPSK	1	12	20.23	20.29	20.31			
5	QPSK	1	24	20.33	20.13	20.41			
5	QPSK	12	0	20.66	20.18	20.56	21	0	
5	QPSK	12	7	20.33	20.33	20.50			
5	QPSK	12	13	20.69	20.24	20.32			
5	QPSK	25	0	20.53	20.16	20.34	21	0	
5	16QAM	1	0	20.84	20.42	20.59			
5	16QAM	1	12	20.56	20.54	20.59			
5	16QAM	1	24	20.52	20.34	20.53	21	0	
5	16QAM	12	0	19.85	19.21	19.38			
5	16QAM	12	7	19.66	19.26	19.51			
5	16QAM	12	13	19.67	19.16	19.53	21	0	
5	16QAM	25	0	19.78	19.21	19.60			
5	64QAM	1	0	19.79	19.36	19.65			
5	64QAM	1	12	19.72	19.89	19.78	21	0	
5	64QAM	1	24	19.80	19.53	19.37			
5	64QAM	12	0	19.54	19.31	19.48			
5	64QAM	12	7	19.54	19.26	19.62	21	0	
5	64QAM	12	13	19.67	19.29	19.55			
5	64QAM	25	0	19.53	19.54	19.62			

Band 41 (2.6G Band)													
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Side Ch./Freq.	Power Middle Ch./Freq.	Power High Side Ch./Freq.	Power High Ch./Freq.	Power High Ch./Freq.	Tune-up limit (dBm)	MPR (dB)			
Channel													
Frequency (MHz)				39750	40185	40600	41055	41490					
20	QPSK	1	0	20.75	20.90	20.51	20.55	20.78	22	0			
20	QPSK	1	49	20.63	20.68	20.75	20.91	21.08					
20	QPSK	1	99	20.30	20.24	20.25	20.47	20.48					
20	QPSK	50	0	20.27	20.39	20.18	20.42	20.51					
20	QPSK	50	24	20.59	20.40	20.60	20.81	20.91	22	0			
20	QPSK	50	50	20.10	20.21	20.09	20.29	20.41					
20	QPSK	100	0	20.35	20.48	20.20	20.57	20.85					
20	16QAM	1	0	20.81	20.63	20.74	20.77	20.55					
20	16QAM	1	49	20.14	20.13	20.24	20.76	20.73	22	0			
20	16QAM	1	99	20.71	20.61	20.66	20.72	21.03					
20	16QAM	50	0	20.50	20.71	20.29	20.44	20.67					
20	16QAM	50	24	20.54	20.76	20.51	20.51	20.76					
20	16QAM	50	50	20.30	20.62	20.37	20.43	20.61	22	0			
20	16QAM	100	0	20.84	20.54	20.76	20.75	20.69					
20	64QAM	1	0	20.73	20.86	20.52	20.61	20.76					
20	64QAM	1	49	20.56	20.60	20.80	20.95	21.05					
20	64QAM	1	99	20.40	20.55	20.61	20.52	20.55	22	0			
20	64QAM	50	0	20.83	20.90	20.52	20.58	20.74					
20	64QAM	50	24	20.91	20.95	20.83	20.87	20.98					
20	64QAM	50	50	20.77	20.76	20.82	20.81	20.84					
20	64QAM	100	0	20.78	20.74	20.86	20.83	20.91	22	0			
Frequency (MHz)				39725	40173	40620	41068	41515			Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				25935	25483	25933	26378	26825					
15	QPSK	1	0	20.61	20.63	20.16	20.35	20.86			22	0	
15	QPSK	1	37	20.50	20.65	20.49	20.25	20.67					
15	QPSK	1	74	20.39	20.43	20.40	20.48	20.67					
15	QPSK	36	0	20.92	20.97	20.69	20.37	20.88					
15	QPSK	36	20	20.97	20.97	20.92	20.58	20.87	22	0			
15	QPSK	36	39	21.01	21.06	21.00	20.63	20.99					
15	QPSK	75	0	20.84	20.98	20.80	20.45	20.99					
15	16QAM	1	0	20.50	20.37	20.24	20.37	20.48					
15	16QAM	1	37	20.58	20.77	20.63	20.84	20.71	22	0			
15	16QAM	1	74	20.21	20.44	20.50	20.44	20.48					
15	16QAM	36	0	20.82	20.95	20.68	20.30	20.61					
15	16QAM	36	20	20.90	20.94	20.83	20.57	20.99					
15	16QAM	36	39	20.88	20.94	20.95	20.63	20.98	22	0			
15	16QAM	75	0	20.89	20.94	20.82	20.46	20.50					
15	64QAM	1	0	20.49	20.33	20.20	20.22	20.22					
15	64QAM	1	37	21.01	20.99	20.99	20.51	20.47					
15	64QAM	1	74	20.24	20.36	20.41	20.40	20.34	22	0			
15	64QAM	36	0	20.86	20.92	20.55	21.04	20.96					
15	64QAM	36	20	20.81	20.89	20.61	21.05	21.01					
15	64QAM	36	39	20.78	20.86	20.88	20.99	20.92					
15	64QAM	75	0	20.90	20.87	20.85	20.92	20.86	22	0			
Frequency (MHz)				39700	40160	40620	41080	41540			Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				25910	2547	2593	2639	2685					
10	QPSK	1	0	20.94	20.99	20.83	20.91	20.96			22	0	
10	QPSK	1	25	21.05	20.67	20.88	20.96	20.87					
10	QPSK	1	49	20.82	20.69	20.76	20.84	20.85					
10	QPSK	25	0	20.42	20.42	20.42	20.42	20.42					
10	QPSK	25	12	20.57	20.85	20.64	20.63	20.71	22	0			
10	QPSK	25	25	20.55	20.78	20.58	20.61	20.71					
10	QPSK	50	0	20.42	20.78	20.55	20.60	20.68					
10	16QAM	1	0	20.48	20.64	20.37	20.45	20.75					
10	16QAM	1	25	20.51	20.75	20.58	20.58	20.68	22	0			
10	16QAM	1	49	20.48	20.67	20.50	20.55	20.70					
10	16QAM	25	0	20.42	20.84	20.58	20.59	20.73					
10	16QAM	25	12	20.52	20.89	20.63	20.64	20.74					
10	16QAM	25	25	20.51	20.77	20.55	20.64	20.66	22	0			
10	16QAM	50	0	20.46	20.79	20.55	20.60	20.67					
10	64QAM	1	0	20.95	20.96	20.80	20.86	21.08					
10	64QAM	1	25	20.81	20.91	20.76	20.92	20.98					
10	64QAM	1	49	20.98	20.94	20.78	20.85	21.01	22	0			
10	64QAM	25	12	20.95	21.05	20.95	21.01	21.03					
10	64QAM	25	25	20.93	20.98	21.00	20.82	20.98					
10	64QAM	50	0	20.88	20.96	20.91	20.90	20.89					
Channel													
Frequency (MHz)				39675	40148	40600	41063	41505	Tune-up limit (dBm)	MPR (dB)			
Frequency (MHz)				24985	25488	25933	26403	26875					
5	QPSK	1	0	20.62	20.76	20.67	20.65	20.70	22	0			
5	QPSK	1	12	20.93	21.04	20.94	20.92	20.75					
5	QPSK	1	24	20.97	21.01	21.00	20.95	20.94					
5	QPSK	12	0	20.51	20.76	20.64	20.75	20.76					
5	QPSK	12	7	20.51	20.84	20.56	20.62	20.66	22	0			
5	QPSK	12	13	20.42	20.73	20.62	20.58	20.67					
5	QPSK	25	0	20.48	20.83	20.59	20.61	20.72					
5	16QAM	1	0	20.56	20.81	20.60	20.63	20.73					
5	16QAM	1	12	20.61	20.70	20.73	20.77	20.70	22	0			
5	16QAM	1	24	20.46	20.72	20.55	20.61	20.65					
5	16QAM	12	0	20.46	20.72	20.60	20.59	20.66					
5	16QAM	12	7	20.45	20.71	20.50	20.58	20.62					
5	16QAM	12	13	20.48	20.75	20.56	20.57	20.62	22	0			
5	16QAM	25	0	20.43	20.58	20.60	20.60	20.72					
5	64QAM	1	0	20.61	20.76	20.76	20.76	20.76					
5	64QAM	1	12	20.81	20.77	20.88	20.79	20.85					
5	64QAM	1	24	20.89	20.92	21.03	20.95	21.01	22	0			
5	64QAM	12	0	20.91	20.96	20.99	21.00	21.03					
5	64QAM	12	7	20.94	21.04	21.01	20.81	21.05					
5	64QAM	12	13	20.86	20.91	20.93	20.96	21.01					
5	64QAM	25	0	20.88	20.96	20.98	20.95	21.00					

UL CA

Full Power Head SAR										Tune up Power (dBm)	
CA_41C											
Combination 20MHz+20MHz (100RB+100RB)											
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)	
			RB Size	RB offset	RB Size	RB offset					
39750	39948	QPSK	1	49	0	0	1	0	23.73	25.00	
40185	39987	QPSK	1	49	0	0	1	0	23.31	25.00	
40620	40422	QPSK	1	49	0	0	1	0	23.21	25.00	
41055	40857	QPSK	1	49	0	0	1	0	23.18	25.00	
41490	41292	QPSK	1	49	0	0	1	0	23.25	25.00	
Hotspot on Sensor On										Tune up Power (dBm)	
CA_41C											
Combination 20MHz+20MHz (100RB+100RB)											
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)	
			RB Size	RB offset	RB Size	RB offset					
39750	39948	QPSK	100	0	0	0	1	0	19.83	21.00	
40185	39987	QPSK	100	0	0	0	1	0	19.69	21.00	
40620	40422	QPSK	100	0	0	0	1	0	19.42	21.00	
41055	40857	QPSK	100	0	0	0	1	0	19.5	21.00	
41490	41292	QPSK	100	0	0	0	1	0	19.56	21.00	
Handheld											
CA_41C											
Combination 20MHz+20MHz (100RB+100RB)											
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)	
			RB Size	RB offset	RB Size	RB offset					
39750	39948	QPSK	50	24	0	0	1	0	20.54	22	
40185	39987	QPSK	50	24	0	0	1	0	20.21	22	
40620	40422	QPSK	50	24	0	0	1	0	20.57	22	
41055	40857	QPSK	50	24	0	0	1	0	20.23	22	
41490	41292	QPSK	50	24	0	0	1	0	20.46	22	



		DL CA Full Power													
2CC															
Configure	CA Configuration (BCS)	PCC							SCC				Power		
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)	
Inter-Band	CA_2A-4A	2	20	1860	18700	QPSK	1	0	4	20	2132.5	2175	22.90	22.94	
	CA_2A-5A	2	20	1860	18700	QPSK	1	0	5	10	881.5	2525	22.87	22.94	
	CA_2A-7A	2	20	1860	18700	QPSK	1	0	7	20	2655	3100	22.89	22.94	
	CA_2A-12A	2	20	1860	18700	QPSK	1	0	12	10	737.5	5095	22.91	22.94	
	CA_2A-13A	2	20	1860	18700	QPSK	1	0	13	10	751	5230	22.88	22.94	
	CA_2A-14A	2	20	1860	18700	QPSK	1	0	14	10	763	5330	22.83	22.94	
	CA_2A-17A	2	10	1855	18650	QPSK	1	0	17	10	740	5790	22.72	22.81	
	CA_2A-29A	2	20	1860	18700	QPSK	1	0	29	10	722.5	9715	22.84	22.94	
	CA_2A-30A	2	20	1860	18700	QPSK	1	0	30	10	2355	9820	22.78	22.94	
	CA_2A-66A	2	20	1860	18700	QPSK	1	0	66	20	2155	66886	22.90	22.94	
	CA_2A-71A	2	20	1860	18700	QPSK	1	0	71	20	637	68786	22.69	22.94	
	CA_4A-5A	4	20	1732.5	20175	QPSK	1	99	5	10	881.5	2525	22.67	22.98	
	CA_4A-7A	4	20	1732.5	20175	QPSK	1	99	7	20	2655	3100	22.54	22.98	
	CA_4A-12A	4	20	1732.5	20175	QPSK	1	99	12	10	737.5	5095	22.74	22.98	
	CA_4A-13A	4	20	1732.5	20175	QPSK	1	99	13	10	751	5230	22.69	22.98	
	CA_4A-17A	4	10	1732.5	20175	QPSK	1	0	17	10	740	5790	22.40	22.98	
	CA_4A-29A	4	20	1732.5	20175	QPSK	1	99	29	10	722.5	9715	22.74	22.98	
	CA_4A-30A	4	20	1732.5	20175	QPSK	1	99	30	10	2355	9820	22.91	22.98	
	CA_4A-71A	4	20	1732.5	20175	QPSK	1	99	71	20	637	68786	22.58	22.98	
	CA_5A-7A	5	10	836.5	20525	QPSK	1	49	7	20	2655	3100	22.77	23.01	
	CA_5A-30A	5	10	836.5	20525	QPSK	1	49	30	10	2355	9820	22.98	23.01	
	CA_5A-66A	5	10	836.5	20525	QPSK	1	49	66	20	2155	66886	22.93	23.01	
	CA_7A-12A	7	20	2560	21350	QPSK	1	99	12	10	737.5	5095	23.04	23.46	
	CA_7A-66A	7	20	2560	21350	QPSK	1	99	66	20	2155	66886	23.05	23.46	
	CA_12A-30A	12	10	707.5	23095	QPSK	1	0	30	10	2355	9820	22.86	22.90	
	CA_12A-66A	12	10	707.5	23095	QPSK	1	0	66	20	2155	66886	22.75	22.90	
	CA_13A-66A	13	10	782	23230	QPSK	1	0	66	20	2155	66886	22.56	22.63	
	CA_14A-30A	14	10	793	23330	QPSK	1	49	30	10	2355	9820	22.65	22.72	
	CA_14A-66A	14	10	793	23330	QPSK	1	49	66	20	2155	66886	22.68	22.72	
	CA_25A-26A	25	20	1905	26590	QPSK	1	0	26	15	876.5	8865	22.78	22.93	
	CA_25A-41A	25	20	1905	26590	QPSK	1	0	41	20	2593	40620	22.82	22.93	
	CA_26A-41A	26	15	831.5	26865	QPSK	1	74	41	20	2593	40620	22.50	23.08	
	CA_29A-30A	30	10	2310	27710	QPSK	1	0	29	10	722.5	9715	22.71	22.92	
	CA_29A-66A	66	20	1770	132572	QPSK	1	99	29	10	722.5	9715	23.15	23.36	
	CA_30A-66A	30	10	2310	27710	QPSK	1	0	66	20	2155	66886	22.87	22.92	
	CA_66A-71A	66	20	1770	132572	QPSK	1	99	71	20	637	68786	23.23	23.36	
Inter-Band	Non-Contiguous	CA_2A-2A	2	20	1860	18700	QPSK	1	0	2	5	1987.5	1175	22.87	22.94
		CA_4A-4A	4	20	1732.5	20175	QPSK	1	99	4	5	2152.5	2375	22.53	22.98
		CA_7A-7A	7	20	2560	21350	QPSK	1	99	7	5	2622.5	2775	23.01	23.46
		CA_25A-25A	25	20	1905	26590	QPSK	1	0	25	5	1932.5	8065	22.77	22.93
		CA_41A-41A	41	20	2680	39750	QPSK	1	49	41	5	2498.5	41565	23.91	24.02
	Contiguous	CA_66A-66A	66	20	1770	132572	QPSK	1	99	66	5	2112.5	66461	23.19	23.36
		CA_2C	2	20	1860	18700	QPSK	1	0	2	20	1959.80	898	22.82	22.94
		CA_5B	5	10	836.5	20501	QPSK	1	49	5	10	891.40	20600	22.75	23.01
		CA_7C	7	20	2560	21350	QPSK	1	99	7	20	2660.20	3152	22.97	23.46
		CA_12B	12	5	707.5	23058	QPSK	1	0	12	10	744.70	23130	22.78	22.90
		CA_38C	38	20	2580	37850	QPSK	1	99	38	20	2599.80	38048	23.17	23.29
		CA_41C	41	20	2680	39750	QPSK	1	49	41	20	2660.20	39948	23.78	24.02
CA_66B	66	15	1772.5	132597	QPSK	1	74	66	5	2188.20	67218	23.08	23.14		
	CA_66C	66	20	1770	132072	QPSK	1	99	66	20	2170.20	132270	23.25	23.36	



Bluetooth BR/EDR

Mode	Channel	Frequency (MHz)	Average power (dBm)									Tune-up Limit
			Packet Type									
			DH1	DH3	DH5	2DH1	2DH3	2DH5	3DH1	3DH3	3DH5	
Bluetooth	CH 0	2402	8.20	8.24	8.32	6.27	5.69	5.22	6.25	5.51	5.34	10
	CH 39	2441	8.92	8.94	9.31	6.71	6.51	5.86	6.66	6.10	5.91	
	CH 78	2480	8.47	8.77	9.19	7.32	6.82	6.55	6.86	6.57	6.24	

Bluetooth LE

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
LE	CH 00	2402	2.45
	CH 19	2440	3.49
	CH 39	2480	4.56
Tune-up Limit			5

Bluetooth LE v5.0

Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
LE	CH 00	2402		2.82
	CH 19	2440		3.57
	CH 39	2480		4.70
Tune-up Limit				5

Full Power						
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	21.07	22.50	100.00
		6	2437	20.94	22.50	
		11	2462	21.11	22.50	
	802.11g 6Mbps	1	2412	19.03	20.50	98.28
		6	2437	18.90	20.50	
		11	2462	19.19	20.50	
	802.11n-HT20 MCS0	1	2412	18.87	20.50	98.15
		6	2437	18.77	20.50	
		11	2462	19.10	20.50	

5GHz WLAN	Ant 1					
5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	36	5180	17.22	19.00	98.28
		40	5200	17.97	19.50	
		44	5220	17.90	19.50	
		48	5240	17.87	19.50	
	802.11n-HT20 MCS0	36	5180	16.30	18.00	98.16
		40	5200	16.75	18.50	
		44	5220	16.67	18.50	
		48	5240	16.81	18.50	
	802.11n-HT40 MCS0	38	5190	10.85	12.50	96.76
		46	5230	16.23	18.00	
		36	5180	16.34	18.00	
		40	5200	16.98	18.50	
	802.11ac-VHT20 MCS0	44	5220	16.88	18.50	98.01
		48	5240	16.87	18.50	
		38	5190	10.80	12.50	
		46	5230	15.75	17.50	
	802.11ac-VHT40 MCS0	42	5210	10.42	12.00	93.08

5GHz WLAN	Ant 1					
5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	52	5260	17.80	19.50	98.28
		56	5280	17.84	19.50	
		60	5300	17.91	19.50	
		64	5320	17.86	19.50	
	802.11n-HT20 MCS0	52	5260	16.81	18.50	98.16
		56	5280	16.92	18.50	
		60	5300	17.00	18.50	
		64	5320	16.95	18.50	
	802.11n-HT40 MCS0	54	5270	16.43	18.00	96.76
		62	5310	15.26	17.00	
		52	5260	16.85	18.50	
		56	5280	16.95	18.50	
	802.11ac-VHT20 MCS0	60	5300	16.92	18.50	98.01
		64	5320	16.98	18.50	
		54	5270	15.72	17.50	
		62	5310	15.89	17.50	
	802.11ac-VHT40 MCS0	58	5290	14.54	16.50	93.08

5GHz WLAN	Ant 1					
5.5GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	100	5500	17.91	19.50	98.28
		116	5580	17.94	19.50	
		132	5660	18.17	19.50	
		140	5700	18.10	19.50	
	802.11n-HT20 MCS0	100	5500	16.72	18.50	98.16
		116	5580	16.96	18.50	
		132	5660	16.92	18.50	
		140	5700	16.86	18.50	
	802.11n-HT40 MCS0	102	5510	16.37	18.00	96.76
		110	5550	16.35	18.00	
		134	5670	15.75	17.50	
		100	5500	16.90	18.50	
	802.11ac-VHT20 MCS0	116	5580	16.98	18.50	98.01
		132	5660	17.04	18.50	
		140	5700	16.91	18.50	
		102	5510	15.67	17.50	
	802.11ac-VHT40 MCS0	110	5550	15.62	17.50	96.47
		134	5670	15.85	17.50	
		106	5530	14.00	15.00	

5GHz WLAN	Ant 1					
5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	149	5745	15.87	17.50	98.28
		157	5785	15.44	16.50	
		165	5825	15.24	16.50	
	802.11n-HT20 MCS0	149	5745	15.70	17.50	98.16
		157	5785	15.29	16.50	
		165	5825	15.07	16.50	
	802.11n-HT40 MCS0	151	5755	14.57	16.50	96.76
		159	5795	14.13	15.50	
	802.11ac-VHT20 MCS0	149	5745	15.70	17.50	98.01
		157	5785	15.30	16.50	
		165	5825	15.11	16.50	
	802.11ac-VHT40 MCS0	151	5755	14.64	16.50	96.47
		159	5795	14.18	15.50	
		155	5775	14.79	16.50	

Reduced Power Mode for Head						
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	18.26	20.00	100.00
		6	2437	18.21	20.00	
		11	2462	18.31	20.00	
	802.11g 6Mbps	1	2412	18.60	20.00	98.28
		6	2437	18.70	20.00	
		11	2462	18.91	20.00	
	802.11n-HT20 MCS0	1	2412	18.46	20.00	98.15
		6	2437	18.48	20.00	
		11	2462	18.70	20.00	

Reduced Power Mode for Hotspot On

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	19.49	21.00	100.00
		6	2437	19.28	21.00	
		11	2462	19.64	21.00	
	802.11g 6Mbps	1	2412	19.03	20.50	98.28
		6	2437	18.90	20.50	
		11	2462	19.19	20.50	
	802.11n-HT20 MCS0	1	2412	18.87	20.50	98.15
		6	2437	18.77	20.50	
		11	2462	19.10	20.50	

5GHz WLAN	Ant 1					
5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	36	5180	9.69	11.00	98.28
		40	5200	9.56	11.00	
		44	5220	9.66	11.00	
		48	5240	9.53	11.00	
	802.11n-HT20 MCS0	36	5180	8.44	10.00	98.16
		40	5200	8.40	10.00	
		44	5220	8.37	10.00	
		48	5240	8.56	10.00	
	802.11n-HT40 MCS0	38	5190	7.88	9.50	96.76
		46	5230	8.06	9.50	
	802.11ac-VHT20 MCS0	36	5180	8.54	10.00	98.01
		40	5200	8.40	10.00	
		44	5220	8.33	10.00	
		48	5240	8.38	10.00	
	802.11ac-VHT40 MCS0	38	5190	7.44	9.00	96.47
		46	5230	7.70	9.00	
	802.11ac-VHT80 MCS0	42	5210	7.80	9.50	93.08

5GHz WLAN	Ant 1					
5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	149	5745	9.69	11.00	98.28
		157	5785	8.73	10.00	
		165	5825	8.89	10.00	
	802.11n-HT20 MCS0	149	5745	9.27	11.00	98.16
		157	5785	8.91	10.00	
		165	5825	8.72	10.00	
	802.11n-HT40 MCS0	151	5755	8.19	9.50	96.76
		159	5795	7.56	8.50	
	802.11ac-VHT20 MCS0	149	5745	9.37	11.00	98.01
		157	5785	8.75	10.00	
		165	5825	8.61	10.00	
	802.11ac-VHT40 MCS0	151	5755	8.31	9.50	96.47
		159	5795	7.57	8.50	
	802.11ac-VHT80 MCS0	155	5775	8.23	9.50	93.08

Reduced Power Mode for P-Sensor On

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	20.09	21.50	100.00
		6	2437	20.05	21.50	
		11	2462	20.12	21.50	
	802.11g 6Mbps	1	2412	19.03	20.50	98.28
		6	2437	18.90	20.50	
		11	2462	19.19	20.50	
	802.11n-HT20 MCS0	1	2412	18.87	20.50	98.15
		6	2437	18.77	20.50	
		11	2462	19.10	20.50	

5GHz WLAN		Ant 1				
5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	36	5180	9.69	11.00	98.28
		40	5200	9.56	11.00	
		44	5220	9.66	11.00	
		48	5240	9.53	11.00	
	802.11n-HT20 MCS0	36	5180	8.44	10.00	98.16
		40	5200	8.40	10.00	
		44	5220	8.37	10.00	
		48	5240	8.56	10.00	
	802.11n-HT40 MCS0	38	5190	7.88	9.50	96.76
		46	5230	8.06	9.50	
	802.11ac-VHT20 MCS0	36	5180	8.54	10.00	98.01
		40	5200	8.40	10.00	
		44	5220	8.33	10.00	
		48	5240	8.38	10.00	
	802.11ac-VHT40 MCS0	38	5190	7.44	9.00	96.47
		46	5230	7.57	9.00	
	802.11ac-VHT80 MCS0	42	5210	7.80	9.50	93.08

5GHz WLAN		Ant 1				
5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	52	5260	9.17	11.00	98.28
		56	5280	9.22	11.00	
		60	5300	9.55	11.00	
		64	5320	9.41	11.00	
	802.11n-HT20 MCS0	52	5260	8.11	10.00	98.16
		56	5280	8.37	10.00	
		60	5300	8.40	10.00	
		64	5320	8.62	10.00	
	802.11n-HT40 MCS0	54	5270	8.10	9.50	96.76
		62	5310	8.38	9.50	
	802.11ac-VHT20 MCS0	52	5260	8.44	10.00	98.01
		56	5280	8.45	10.00	
		60	5300	8.56	10.00	
		64	5320	8.67	10.00	
	802.11ac-VHT40 MCS0	54	5270	7.33	9.00	96.47
		62	5310	7.59	9.00	
	802.11ac-VHT80 MCS0	58	5290	8.65	9.50	93.08

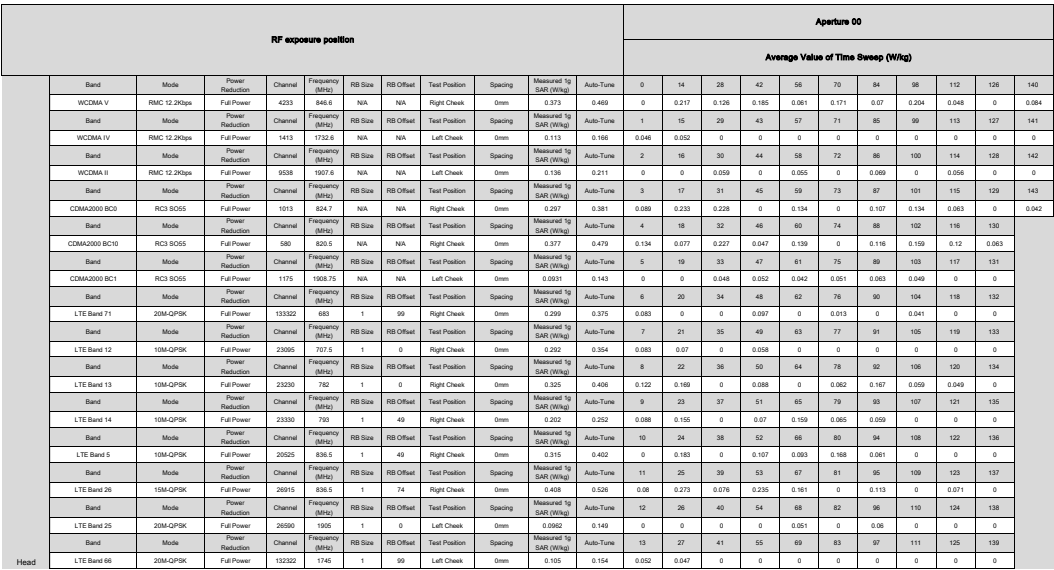
5GHz WLAN		Ant 1				
5.5GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	100	5500	9.99	11.50	98.28
		116	5580	10.06	11.50	
		132	5660	10.09	11.50	
		140	5700	10.11	11.50	
	802.11n-HT20 MCS0	100	5500	9.24	10.50	98.16
		116	5580	9.55	10.50	
		132	5660	9.36	10.50	
		140	5700	9.30	10.50	
	802.11n-HT40 MCS0	102	5510	8.89	10.00	96.76
		110	5550	8.83	10.00	
		134	5670	8.55	9.50	
		100	5500	9.50	10.50	98.01
	802.11ac-VHT20 MCS0	116	5580	9.60	10.50	
		132	5660	9.60	10.50	
		140	5700	9.58	10.50	
	802.11ac-VHT40 MCS0	102	5510	8.22	9.50	96.47
		110	5550	8.20	9.50	
		134	5670	8.30	9.50	
	802.11ac-VHT80 MCS0	106	5530	6.70	7.00	93.08

5GHz WLAN		Ant 1				
5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	149	5745	9.69	11.00	98.28
		157	5785	8.73	10.00	
		165	5825	8.89	10.00	
	802.11n-HT20 MCS0	149	5745	9.27	11.00	98.16
		157	5785	8.91	10.00	
		165	5825	8.72	10.00	
	802.11n-HT40 MCS0	151	5755	8.19	9.50	96.76
		159	5795	7.56	8.50	
		149	5745	9.37	11.00	98.01
	802.11ac-VHT20 MCS0	157	5785	8.75	10.00	
		165	5825	8.61	10.00	
	802.11ac-VHT40 MCS0	151	5755	8.31	9.50	96.47
		159	5795	7.57	8.50	
		155	5775	8.23	9.50	



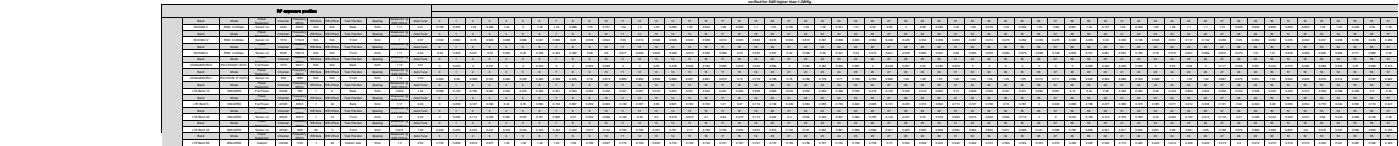
Appendix F. Supplemental Tuner Head & Body SAR Results

The results are shown as follows.





RF exposure position											Aperture 00															
											Average Value of Time Sweep (W/kg)															
Body	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	0	14	28	42	56	70	84	98	112	126	140				
	WCDMA V	RMC 12.2Kbps	sensor	4233	816.5	NA	NA	Back	5mm	1.11	2.31	0.163	0.573	0	0.509	0.55	0.538	0.185	0.61	0.13	0	0.243				
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	1	15	29	43	57	71	85	99	113	127	141				
	WCDMA IV	RMC 12.2Kbps	sensor	1513	1752.6	NA	NA	Front	5mm	1.60	2.67	0.746	0.694	0.404	0.539	0.527	0.13	0.195	0.255	0.131	0.097	0.097				
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	2	16	30	44	58	72	86	100	114	128	142				
	WCDMA I	RMC 12.2Kbps	sensor	9538	1907.6	NA	NA	Front	5mm	1.11	2.44	0.34	0.593	1.01	0.938	0.595	0.35	1.01	0.458	0.804	0.271	0.273				
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	3	17	31	45	59	73	87	101	115	129	143				
	CDMA2000 B2Q	RC1 SC133(F+RCH)	Full power	1013	824.7	NA	NA	Back	5mm	1.13	2.21	0.331	0.958	0.853	0.074	0.072	0	0.451	0.331	0.3	0.187	0.249				
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	4	18	32	46	60	74	88	102	116	130					
	CDMA2000 BC10	RC1 SC133(F+RCH)	Full power	580	820.5	NA	NA	Back	5mm	1.01	2.17	0.451	0.171	0.85	0.127	0.125	0.082	0.454	0.5	0.549	0.241					
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	5	19	33	47	61	75	89	103	117	131					
	CDMA2000 BC1	RC1 SC133(F+RCH)	sensor	800	1585	NA	NA	Front	5mm	1.14	2.42	0.476	0.745	1.1	0.863	0.863	0.87	0.841	0.411	0.168	0.324					
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	6	20	34	48	62	76	90	104	118	132					
	LTE Band 71	20M-QPSK	Full power	13352	683	1	99	Back	5mm	0.141	1.63	0.321	0.099	0.139	0.385	0.267	0.086	0	0.183	0	0.042					
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	7	21	35	49	63	77	91	105	119	133					
	LTE Band 12	10M-QPSK	Full power	23955	707.5	1	0	Back	5mm	0.707	1.44	0.363	0.342	0.337	0.238	0.234	0.14	0	0.122	0.103	0.064					
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	8	22	36	50	64	78	92	106	120	134					
	LTE Band 13	10M-QPSK	Full power	21225	782	1	0	Back	5mm	0.904	1.94	0.57	0.569	0.061	0.327	0.331	0.242	0.388	0.244	0.166	0.134					
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	9	23	37	51	65	79	93	107	121	135					
	LTE Band 14	10M-QPSK	Full power	23330	793	1	49	Back	5mm	0.718	1.5	0.212	0.49	0.048	0.274	0.274	0.241	0.196	0.134	0.092	0					
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	10	24	38	52	66	80	94	108	122	136					
	LTE Band 5	10M-QPSK	Full power	20525	836.5	1	49	Back	5mm	1.17	2.29	0.105	0.734	0.058	0.498	0.505	0.758	0.229	0	0.152	0.041					
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	11	25	39	53	67	81	95	109	123	137					
	LTE Band 26	15M-QPSK	sensor	20915	826.5	1	74	Front	5mm	1.55	2.23	0.193	0.731	0.2	0.761	0.766	0	0.326	0	0.268	0.079					
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	12	26	40	54	68	82	96	110	124	138					
	LTE Band 25	20M-QPSK	sensor	26340	1880	50	0	Front	5mm	0.914	1.95	0.836	0.757	0.869	0.945	0.55	0.966	0.750	0.202	0.301	0.16					
	Band	Mode	Power Reduction	Channel	Frequency (MHz)	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Auto-Tune	13	27	41	55	69	83	97	111	125	139					
	LTE Band 66	20M-QPSK	hotspot	13232	1745	1	99	bottom side	5mm	1.3	2.55	0.964	0.758	0.734	0.405	0.415	0.118	0.291	0.177	0.148	0.107					





Financial Statement Template																																																																																																			
Period: 12 Months Ending 12/31/2024																																																																																																			
Balance Sheet																																																																																																			
Assets																																																																																																			
Liabilities and Equity																																																																																																			
Income Statement																																																																																																			
Expenses																																																																																																			
Profit and Loss																																																																																																			
Cash Flow Statement																																																																																																			
Supplemental Information																																																																																																			