



## DASY/EASY – Parameters of Probe : ES3DV3 – SN: 3166

### Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz] <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity (S/m) <sup>F</sup>	ConvF X	ConvF Y	ConvF Z	Alpha <sup>G</sup>	Depth <sup>G</sup> (mm)	Unct. (k=2)
750	41.9	0.89	6.43	6.43	6.43	0.40	1.40	±12.1%
835	41.5	0.90	6.29	6.29	6.29	0.49	1.50	±12.1%
900	41.5	0.97	6.23	6.23	6.23	0.39	1.60	±12.1%
1750	40.1	1.37	5.35	5.35	5.35	0.56	1.36	±12.1%
1900	40.0	1.40	5.16	5.16	5.16	0.66	1.28	±12.1%
2000	40.0	1.40	5.20	5.20	5.20	0.62	1.31	±12.1%
2300	39.5	1.67	5.03	5.03	5.03	0.90	1.08	±12.1%
2450	39.2	1.80	4.76	4.76	4.76	0.90	1.10	±12.1%
2600	39.0	1.96	4.63	4.63	4.63	0.90	1.08	±12.1%

<sup>C</sup> 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.

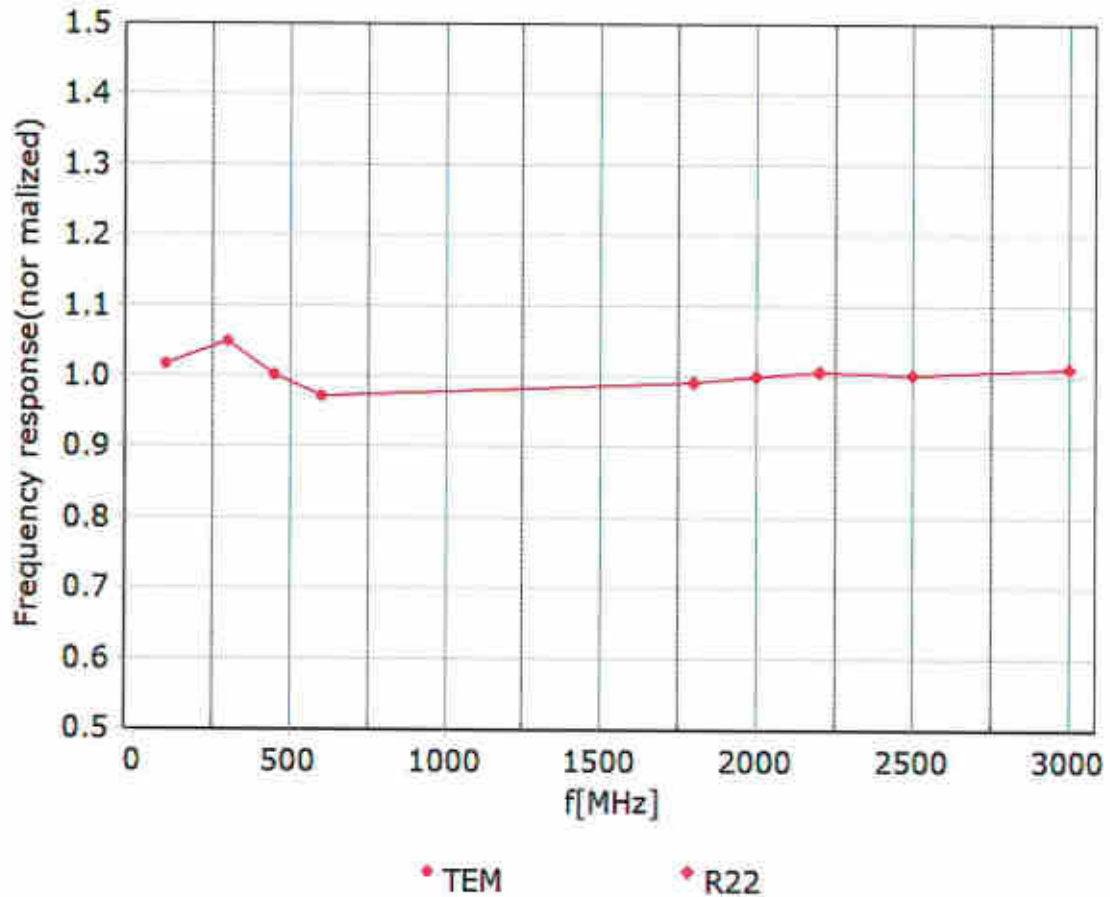
<sup>F</sup> At frequency below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> 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.



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](mailto:ctl@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:  $\pm 7.4\%$  ( $k=2$ )

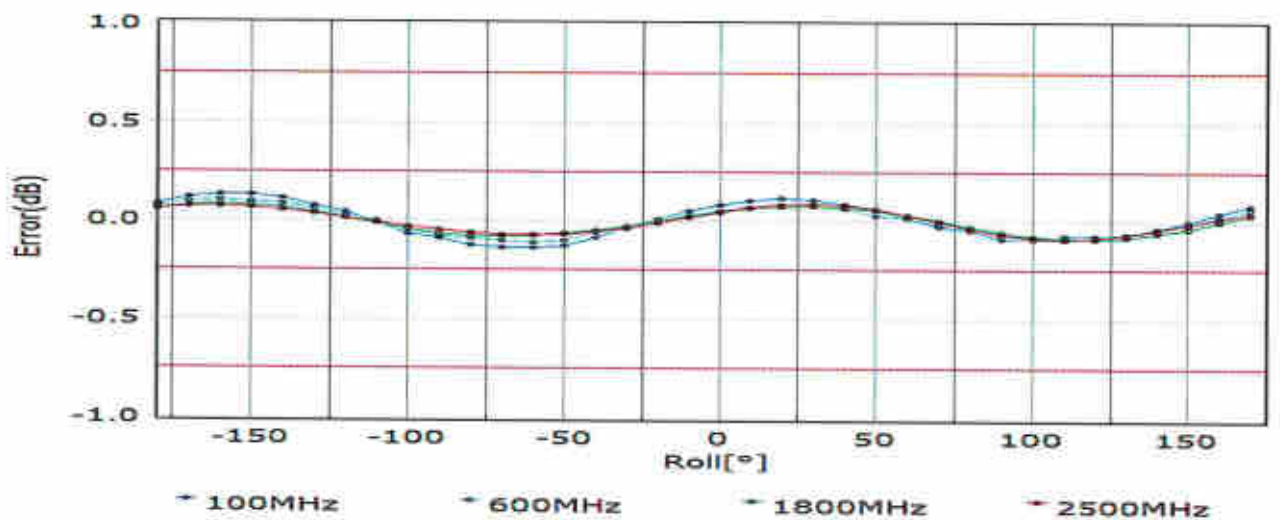
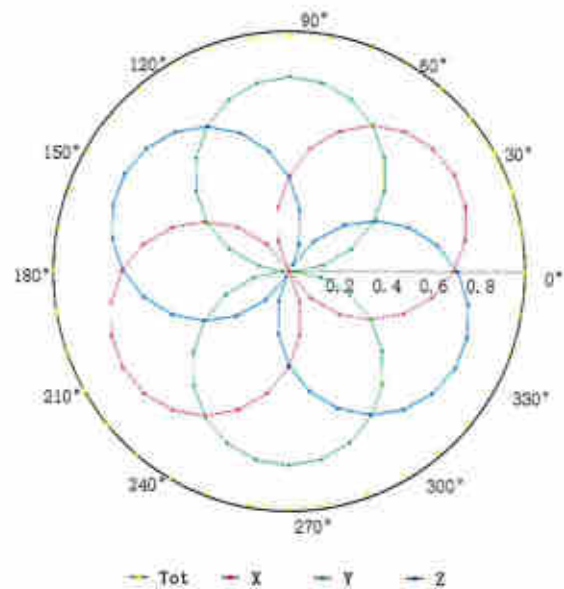
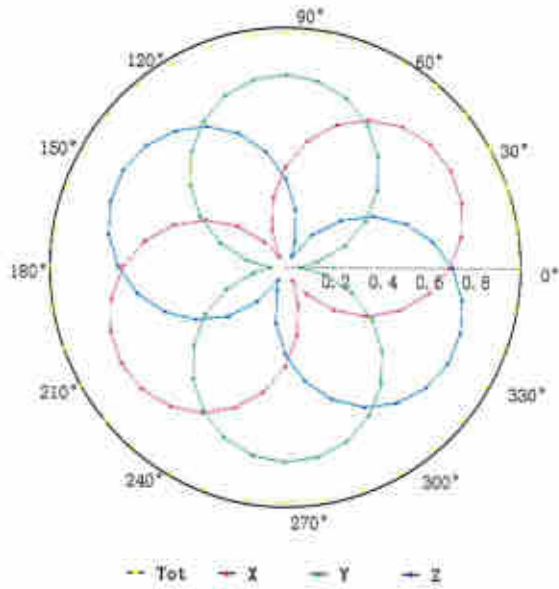


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 Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504  
 E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

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

**f=600 MHz, TEM**

**f=1800 MHz, R22**

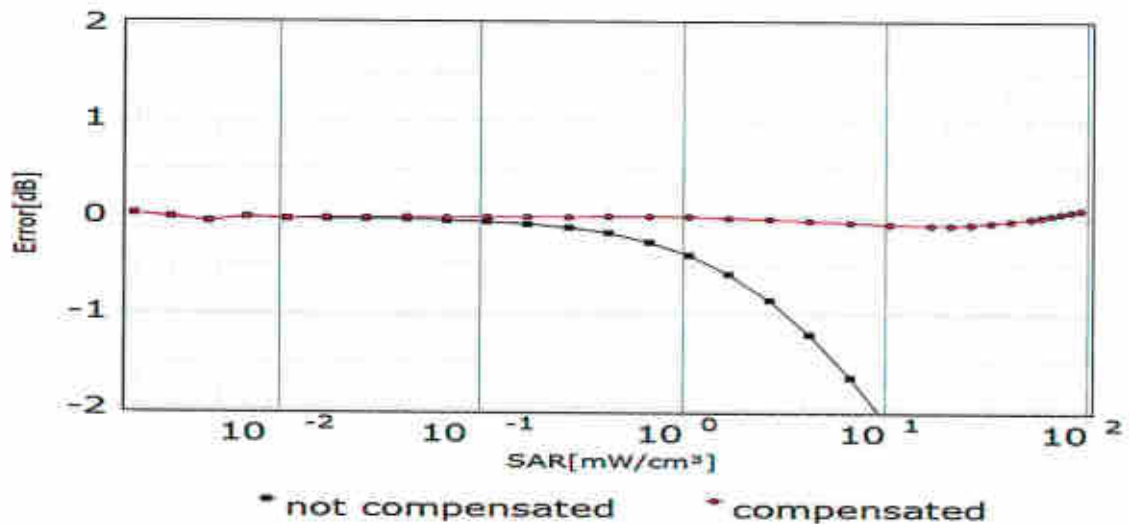
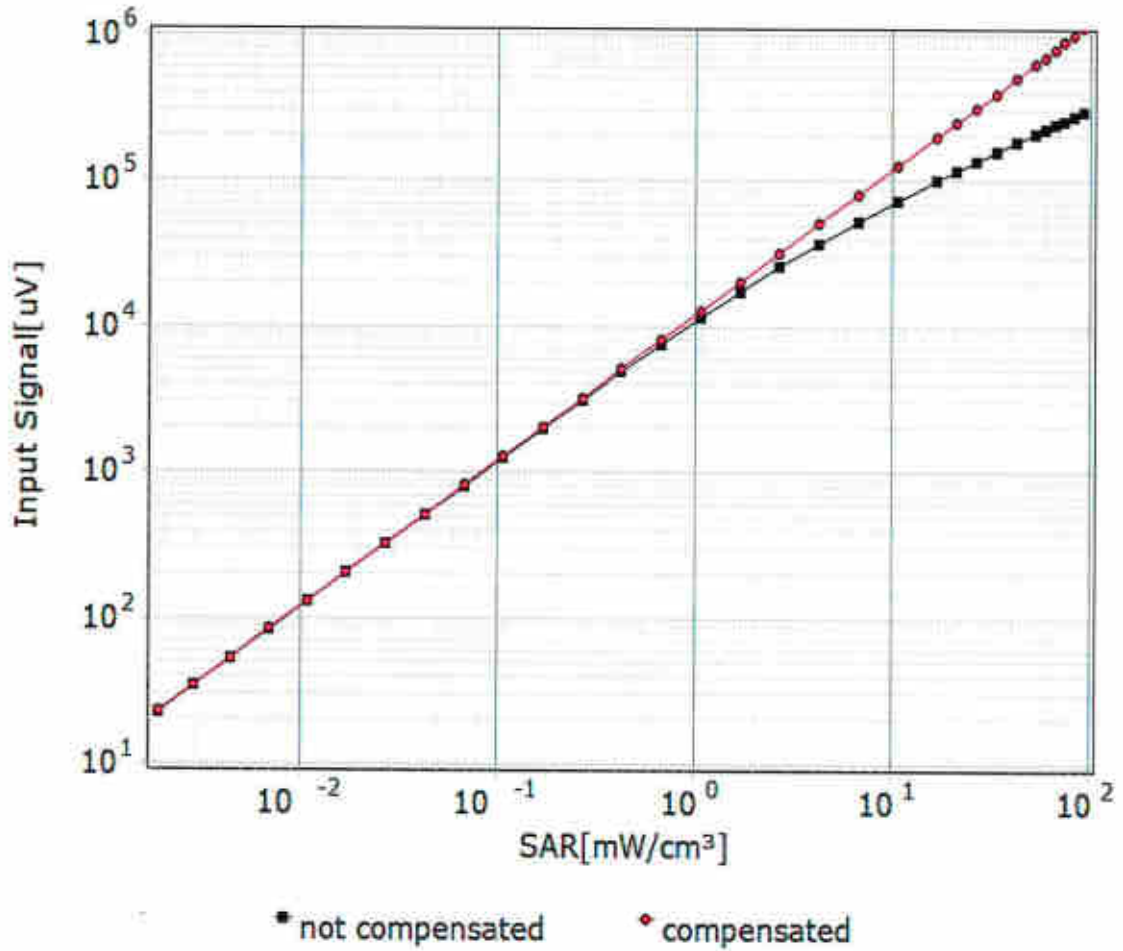


Uncertainty of Axial Isotropy Assessment:  $\pm 1.2\%$  ( $k=2$ )



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Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504  
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

## Dynamic Range f(SAR<sub>head</sub>) (TEM cell, f = 900 MHz)



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



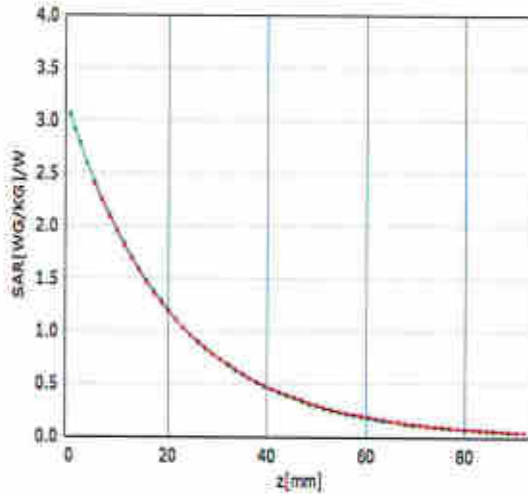


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E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

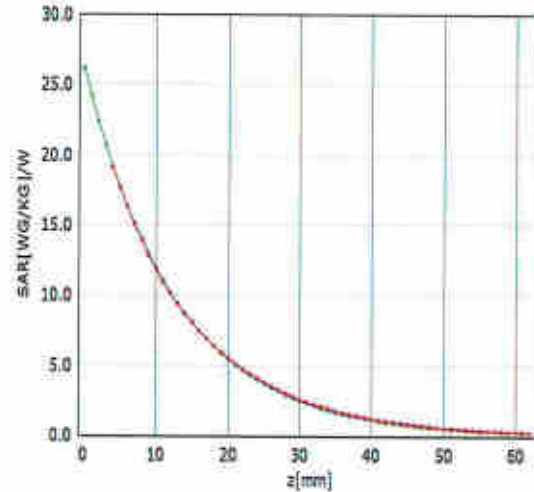
## Conversion Factor Assessment

f=750 MHz,WGLS R9(H\_convF)

f=1750 MHz,WGLS R22(H\_convF)

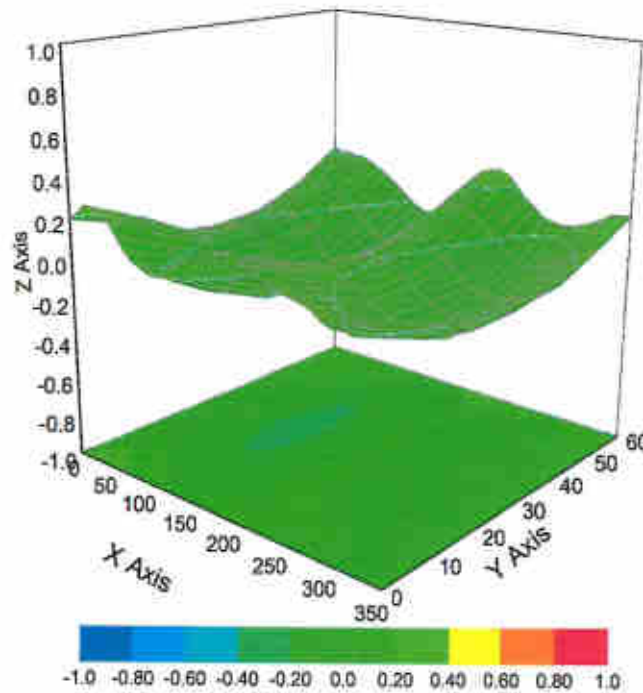


\* analytical \* measured



\* analytical \* measured

## Deviation from Isotropy in Liquid



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



## DASY/EASY – Parameters of Probe: ES3DV3 – SN: 3166

### Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	6.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	10mm
Tip Diameter	4mm
Probe Tip to Sensor X Calibration Point	2mm
Probe Tip to Sensor Y Calibration Point	2mm
Probe Tip to Sensor Z Calibration Point	2mm
Recommended Measurement Distance from Surface	3mm



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**Appendix E. Conducted RF Output Power Table**

The detailed power table are shown as follows.



Reduced Power Mode for Hotspot On

GSM 1900 TX Channel Frequency (MHz)	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
GSM 1 Tx slot	26.97	27.09	27.15	28.00	17.87	18.09	18.15	19.00
GPRS 1 Tx slot	26.97	27.08	27.14	28.00	17.97	18.08	18.14	19.00
GPRS 2 Tx slot	25.83	25.88	25.89	26.50	19.83	19.88	19.89	20.50
GPRS 3 Tx slot	23.54	23.61	23.76	24.50	19.28	19.35	19.50	20.24
GPRS 4 Tx slot	22.16	22.59	22.76	23.50	19.85	19.89	19.79	20.50
EDGE 1 Tx slot	25.80	25.91	26.31	28.00	16.80	16.61	16.31	17.00
EDGE 2 Tx slot	24.37	24.10	24.00	25.00	18.37	18.10	18.00	19.00
EDGE 3 Tx slot	22.32	21.97	21.85	23.00	18.06	17.71	17.59	18.74
EDGE 4 Tx slot	21.04	20.88	20.88	22.00	18.04	17.88	17.85	19.00

Band TX Channel Rx Channel Frequency (MHz)	WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
	962	960	9538		1312	1413	1513	
3GPP Rel 99	1853.4	1800	1857.6	17.50	17.24	17.24	17.24	
3GPP Rel 99	17.45	17.94	17.92	18.50	16.26	16.33	16.28	
3GPP Rel 99	17.46	17.56	17.54	18.50	16.33	16.34	16.31	
3GPP Rel 6	16.81	16.96	16.94	17.50	15.65	15.66	15.65	
3GPP Rel 6	16.85	16.89	17.01	17.50	15.62	15.71	15.89	
3GPP Rel 6	16.25	16.47	16.64	17.00	15.11	15.18	15.17	
3GPP Rel 6	16.21	16.71	16.61	17.00	15.12	15.05	15.20	
3GPP Rel 8	16.80	16.90	17.11	17.50	15.54	15.73	15.83	
3GPP Rel 8	16.79	16.96	17.09	17.50	15.27	15.68	15.64	
3GPP Rel 8	16.30	16.41	16.61	17.00	15.14	15.20	15.10	
3GPP Rel 8	16.36	16.36	16.63	17.00	15.13	15.30	15.21	
3GPP Rel 6	16.97	16.85	16.94	17.50	15.65	15.65	15.56	
3GPP Rel 6	14.94	15.01	15.02	15.50	13.65	13.61	13.54	
3GPP Rel 6	15.91	15.96	16.04	16.00	14.83	14.38	14.48	
3GPP Rel 6	15.01	15.09	15.06	15.50	13.65	13.65	13.56	
3GPP Rel 6	16.78	16.65	17.09	17.50	15.54	15.64	15.56	





Band 2 (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									
Frequency (MHz)									
20	QPSK	1	0	18.04	18.24	17.99	18.5	0	
20	QPSK	1	49	17.97	18.09	18.06			
20	QPSK	1	99	17.95	17.92	18.07			
20	QPSK	50	0	17.90	18.15	18.04			
20	QPSK	50	24	17.95	18.11	18.14			
20	QPSK	50	50	17.93	18.00	18.00	18.5	0	
20	QPSK	100	0	17.96	18.07	18.04			
20	16QAM	1	0	18.10	17.93	18.11			
20	16QAM	1	49	18.16	18.10	18.12	18.5	0	
20	16QAM	1	99	18.12	18.21	18.12			
20	16QAM	50	0	17.78	17.92	17.96			
20	16QAM	50	24	17.87	18.03	18.09			
20	16QAM	50	50	18.00	17.93	17.96	18.5	0	
20	16QAM	100	0	17.94	17.84	17.93			
20	64QAM	1	0	18.12	18.22	17.96			
20	64QAM	1	49	18.12	18.08	18.10	18.5	0	
20	64QAM	1	99	18.10	18.01	18.12			
20	64QAM	50	0	17.79	17.89	18.00			
20	64QAM	50	24	17.84	17.97	18.05			
20	64QAM	50	50	17.84	17.99	17.95	18.5	0	
20	64QAM	100	0	17.94	17.92	17.85			
Channel									
Frequency (MHz)									
15	QPSK	1	0	17.81	18.01	18.07	18.5	0	
15	QPSK	1	37	17.83	17.97	18.07			
15	QPSK	1	74	17.80	17.90	18.10			
15	QPSK	36	0	17.96	17.99	18.07			
15	QPSK	36	20	17.98	18.12	18.14	18.5	0	
15	QPSK	36	39	17.98	18.01	18.07			
15	QPSK	75	0	17.92	18.05	18.07			
15	16QAM	1	0	18.00	18.04	18.07			
15	16QAM	1	37	18.02	18.11	18.01	18.5	0	
15	16QAM	1	74	18.02	18.01	18.03			
15	16QAM	36	0	17.88	18.02	18.12			
15	16QAM	36	20	18.01	18.05	18.07			
15	16QAM	36	39	17.91	18.08	18.11	18.5	0	
15	16QAM	75	0	17.93	17.97	17.96			
15	64QAM	1	0	18.02	18.09	18.12			
15	64QAM	1	37	17.92	18.12	18.12	18.5	0	
15	64QAM	1	74	17.96	18.07	18.10			
15	64QAM	36	0	17.81	17.92	18.02			
15	64QAM	36	20	17.82	18.04	18.01			
15	64QAM	36	39	17.82	17.91	18.08	18.5	0	
15	64QAM	75	0	17.83	17.95	17.95			
Channel									
Frequency (MHz)									
10	QPSK	1	0	18.14	18.15	18.11	18.5	0	
10	QPSK	1	25	17.87	18.13	18.05			
10	QPSK	1	49	18.08	18.17	18.03			
10	QPSK	25	0	17.81	18.05	18.03			
10	QPSK	25	12	17.95	18.05	18.07	18.5	0	
10	QPSK	25	25	17.87	18.01	18.06			
10	QPSK	50	0	17.93	18.03	18.17			
10	16QAM	1	0	18.01	18.01	18.10			
10	16QAM	1	25	18.12	18.10	18.01	18.5	0	
10	16QAM	1	49	18.12	18.10	18.22			
10	16QAM	25	0	17.89	17.85	18.05			
10	16QAM	25	12	17.93	17.89	17.97	18.5	0	
10	16QAM	25	25	17.79	18.01	18.08			
10	64QAM	1	0	18.14	18.12	18.14			
10	64QAM	1	25	18.03	18.10	18.01	18.5	0	
10	64QAM	1	49	18.02	18.02	18.03			
10	64QAM	25	0	17.84	17.89	17.99			
10	64QAM	25	12	17.87	18.01	17.90	18.5	0	
10	64QAM	25	25	17.91	17.93	17.90			
10	64QAM	50	0	17.85	17.96	18.00			
Channel									
Frequency (MHz)									
5	QPSK	1	0	18.06	18.11	18.10	18.5	0	
5	QPSK	1	12	18.00	18.20	18.16			
5	QPSK	1	24	17.87	17.85	18.02			
5	QPSK	12	0	17.98	17.97	18.07			
5	QPSK	12	7	18.00	18.03	18.10	18.5	0	
5	QPSK	12	13	17.93	18.05	18.07			
5	QPSK	25	0	17.93	17.97	18.03			
5	16QAM	1	0	18.00	18.01	18.12			
5	16QAM	1	12	18.12	17.99	18.10	18.5	0	
5	16QAM	1	24	18.02	18.12	18.11			
5	16QAM	12	0	17.90	18.02	18.04			
5	16QAM	12	7	18.05	18.04	18.13	18.5	0	
5	16QAM	12	13	17.96	18.02	17.99			
5	16QAM	25	0	17.90	17.76	18.03			
5	64QAM	1	0	18.05	18.09	18.12			
5	64QAM	1	12	18.08	18.01	18.19	18.5	0	
5	64QAM	1	24	18.16	18.12	18.08			
5	64QAM	12	0	17.78	17.92	18.02			
5	64QAM	12	7	17.85	17.98	17.93	18.5	0	
5	64QAM	12	13	17.88	18.07	18.03			
5	64QAM	25	0	17.89	17.88	17.97			
Channel									
Frequency (MHz)									
3	QPSK	1	0	17.88	18.05	17.96	18.5	0	
3	QPSK	1	8	18.02	18.01	18.22			
3	QPSK	1	14	17.78	17.92	17.99			
3	QPSK	8	0	17.98	18.15	18.08			
3	QPSK	8	4	17.94	18.08	18.06	18.5	0	
3	QPSK	8	7	17.91	17.96	18.05			
3	QPSK	15	0	17.93	18.06	18.08			
3	16QAM	1	0	18.07	18.01	18.02			
3	16QAM	1	8	18.04	17.97	18.01	18.5	0	
3	16QAM	1	14	18.11	18.11	18.01			
3	16QAM	8	0	17.93	17.99	18.18			
3	16QAM	8	4	18.06	18.10	18.16	18.5	0	
3	16QAM	8	7	18.11	17.98	18.20			
3	16QAM	15	0	17.91	18.00	17.92			
3	64QAM	1	0	18.15	18.17	18.06			
3	64QAM	1	8	17.97	18.12	18.21	18.5	0	
3	64QAM	1	14	18.17	18.11	18.10			
3	64QAM	8	0	18.00	17.95	17.96			
3	64QAM	8	4	18.00	18.00	18.01	18.5	0	
3	64QAM	8	7	17.90	17.90	17.90			
3	64QAM	15	0	17.92	17.86	17.95			
Channel									
Frequency (MHz)									
1.4	QPSK	1	0	17.83	17.91	17.95	18.5	0	
1.4	QPSK	1	3	17.82	18.04	17.97			
1.4	QPSK	1	5	17.86	17.89	17.94			
1.4	QPSK	3	0	17.79	17.88	17.98			
1.4	QPSK	3	1	17.80	17.84	18.13			
1.4	QPSK	3	3	18.00	17.87	18.10	18.5	0	
1.4	QPSK	6	0	17.74	17.91	17.95			
1.4	16QAM	1	0	17.98	18.01	18.12			
1.4	16QAM	1	3	18.01	18.01	18.02	18.5	0	
1.4	16QAM	1	5	18.12	18.17	18.05			
1.4	16QAM	3	0	17.83	18.18	18.01			
1.4	16QAM	3	1	17.88	18.10	18.14			
1.4	16QAM	3	3	18.15	18.06	18.17			
1.4	16QAM	6	0	17.88	18.04	18.04	18.5	0	
1.4	64QAM	1	0	17.88	17.87	18.09			
1.4	64QAM	1	3	18.08	18.10	18.19			
1.4	64QAM	1	5	17.78	17.81	18.01	18.5	0	
1.4	64QAM	3	0	17.68	17.72	18.00			
1.4	64QAM	3	1	17.77	18.04	18.02			
1.4	64QAM	3	3	17.62	17.76	18.00			
1.4	64QAM	6	0	17.75	17.80	17.91	18.5	0	

Band 4 (AWS Band)									
Part 27L (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	16.38	16.52	16.50	17	0	
20	QPSK	1	49	16.51	16.49	16.46			
20	QPSK	1	99	16.29	16.29	16.38			
20	QPSK	50	0	16.41	16.42	16.32			
20	QPSK	50	24	16.41	16.33	16.37			
20	QPSK	50	50	16.28	16.25	16.39	1		



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										
Frequency (MHz)										
20	QPSK	1	0	18.45	18.60	18.58	19	0		
20	QPSK	1	49	18.37	18.42	18.38				
20	QPSK	1	99	18.32	18.39	18.22				
20	QPSK	50	0	18.36	18.53	18.47				
20	QPSK	50	24	18.42	18.49	18.49				
20	QPSK	50	50	18.46	18.50	18.41				
20	QPSK	100	0	18.40	18.56	18.46				
20	16QAM	1	0	18.48	18.43	18.44				
20	16QAM	1	49	18.35	18.42	18.45				
20	16QAM	1	99	18.40	18.35	18.39				
20	16QAM	50	0	18.46	18.53	18.45				
20	16QAM	50	24	18.48	18.34	18.55				
20	16QAM	50	50	18.54	18.56	18.58				
20	16QAM	100	0	18.44	18.59	18.45				
20	64QAM	1	0	18.45	18.36	18.36				
20	64QAM	1	49	18.35	18.44	18.41				
20	64QAM	1	99	18.45	18.34	18.44				
20	64QAM	50	0	18.57	18.59	18.35				
20	64QAM	50	24	18.55	18.54	18.45				
20	64QAM	50	50	18.35	18.55	18.53				
20	64QAM	100	0	18.51	18.55	18.45				
Channel										
Frequency (MHz)										
15	QPSK	1	0	18.30	18.48	18.46	19	0		
15	QPSK	1	37	18.42	18.41	18.44				
15	QPSK	1	74	18.42	18.44	18.42				
15	QPSK	36	0	18.43	18.56	18.48				
15	QPSK	36	20	18.44	18.53	18.43				
15	QPSK	36	39	18.42	18.51	18.43				
15	QPSK	75	0	18.44	18.54	18.46				
15	16QAM	1	0	18.43	18.45	18.42				
15	16QAM	1	37	18.45	18.42	18.34				
15	16QAM	1	74	18.34	18.45	18.35				
15	16QAM	36	0	18.50	18.57	18.54				
15	16QAM	36	20	18.48	18.45	18.54				
15	16QAM	36	39	18.49	18.55	18.51				
15	16QAM	75	0	18.49	18.45	18.53				
15	64QAM	1	0	18.41	18.34	18.41				
15	64QAM	1	37	18.35	18.41	18.35				
15	64QAM	1	74	18.45	18.45	18.40				
15	64QAM	36	0	18.58	18.55	18.55				
15	64QAM	36	20	18.59	18.56	18.45				
15	64QAM	36	39	18.52	18.45	18.35				
15	64QAM	75	0	18.56	18.36	18.54				
Channel										
Frequency (MHz)										
10	QPSK	1	0	18.32	18.45	18.37	19	0		
10	QPSK	1	25	18.30	18.37	18.38				
10	QPSK	1	49	18.24	18.44	18.34				
10	QPSK	25	0	18.39	18.44	18.41				
10	QPSK	25	12	18.38	18.44	18.45				
10	QPSK	25	37	18.43	18.56	18.34				
10	QPSK	50	0	18.41	18.43	18.41				
10	16QAM	1	0	18.44	18.41	18.35				
10	16QAM	1	25	18.53	18.41	18.41				
10	16QAM	1	49	18.19	18.35	18.44				
10	16QAM	25	0	18.45	18.59	18.55				
10	16QAM	25	12	18.42	18.58	18.55				
10	16QAM	25	25	18.45	18.55	18.57				
10	16QAM	50	0	18.45	18.49	18.59				
10	64QAM	1	0	18.34	18.53	18.48				
10	64QAM	1	25	18.41	18.35	18.41				
10	64QAM	1	49	18.40	18.33	18.35				
10	64QAM	25	0	18.53	18.54	18.58				
10	64QAM	25	12	18.51	18.55	18.55				
10	64QAM	25	25	18.54	18.54	18.55				
10	64QAM	50	0	18.53	18.57	18.57				
Channel										
Frequency (MHz)										
5	QPSK	1	0	18.21	18.49	18.32	19	0		
5	QPSK	1	12	18.11	18.40	18.26				
5	QPSK	1	24	18.29	18.44	18.37				
5	QPSK	12	0	18.35	18.54	18.37				
5	QPSK	12	7	18.43	18.55	18.48				
5	QPSK	12	13	18.36	18.50	18.39				
5	QPSK	25	0	18.36	18.51	18.34				
5	16QAM	1	0	18.55	18.35	18.33				
5	16QAM	1	12	18.41	18.35	18.42				
5	16QAM	1	24	18.51	18.41	18.21				
5	16QAM	12	0	18.44	18.59	18.54				
5	16QAM	12	7	18.56	18.45	18.53				
5	16QAM	12	13	18.52	18.55	18.54				
5	16QAM	25	0	18.50	18.55	18.51				
5	64QAM	1	0	18.46	18.56	18.41				
5	64QAM	1	12	18.35	18.42	18.41				
5	64QAM	1	24	18.41	18.35	18.35				
5	64QAM	12	0	18.55	18.55	18.50				
5	64QAM	12	7	18.58	18.51	18.55				
5	64QAM	12	13	18.45	18.53	18.54				
5	64QAM	25	0	18.48	18.56	18.49				

Band 66										
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										
Frequency (MHz)										
20	QPSK	1	0	18.35	18.51	18.25	17	0		
20	QPSK	1	49	18.35	18.21	18.25				
20	QPSK	1	99	18.16	18.17	18.17				
20	QPSK	50	0	18.16	18.32	18.10				
20	QPSK	50	24	18.20	18.32	18.18				
20	QPSK	50	50	18.24	18.22	18.16				
20	QPSK	100	0	18.20	18.36	18.19				
20	16QAM	1	0	18.28	18.17	18.10				
20	16QAM	1	49	18.25	18.31	18.34				
20	16QAM	1	99	18.36	18.17	18.48				
20	16QAM	50	0	18.22	18.40	18.32				
20	16QAM	50	24	18.32	18.35	18.30				
20	16QAM	50	50	18.34	18.37	18.31				
20	16QAM	100	0	18.37	18.42	18.35				
20	64QAM	1	0	18.16	18.34	18.08				
20	64QAM	1	49	18.56	18.45	18.58				
20	64QAM	1	99	18.35	18.43	18.02				
20	64QAM	50	0	18.41	18.43	18.23				
20	64QAM	50	24	18.30	18.32	18.30				
20	64QAM	50	50	18.29	18.38	18.29				
20	64QAM	100	0	18.42	18.46	18.31				
Channel										
Frequency (MHz)										
15	QPSK	1	0	18.21	18.19	18.23	17	0		
15	QPSK	1	37	18.21	18.11	18.11				
15	QPSK	1	74	18.00	18.23	18.08				
15	QPSK	36	0	18.28	18.22	18.17				
15	QPSK	36	20	18.22	18.32	18.19				
15	QPSK	36	39	18.21	18.30	18.15				
15	QPSK	75	0	18.22	18.27	18.15				
15	16QAM	1	0	18.31	18.20	18.02				
15	16QAM	1	37	18.33	18.45	18.23				
15	16QAM	1	74	18.15	18.35	18.35				
15	16QAM	36	0	18.38	18.28	18.38				
15	16QAM	36	20	18.41	18.44	18.27				
15	16QAM	36	39	18.28	18.44	18.34				
15	16QAM	75	0	18.27	18.41	18.19				
15	64QAM	1	0	18.19	18.00	18.08				
15	64QAM	1	37	18.33	18.37	18.11				
15	64QAM	1	74	18.08	18.43	18.04				
15	64QAM	36	0	18.34	18.41	18.29				
15	64QAM	36	20	18.47	18.56	18.33				
15	64QAM	36	39	18.35	18.47	18.31				
15	64QAM	75	0	18.33	18.41	18.29				
Channel										
Frequency (MHz)										
10	QPSK	1	0	18.30	18.24	18.14	17	0		
10	QPSK	1	25	18.42	18.42	18.20				
10	QPSK	1	49	18.26	18.22	18.17				
10	QPSK	25	0	18.23	18.24	18.11				
10	QPSK	25	12	18.27	18.29	18.11				
10	QPSK	25	37	18.22	18.26	18.05				
10	QPSK	50	0	18.30	18.30	18.15				
10	16QAM	1	0	18.40	18.45	18.14				
10	16QAM	1	25	18.41	18.17	18.21				
10	16QAM	1	49	18.91	18.10	18.16				
10	16QAM	25	0	18.41	18.37	18.24				
10	16QAM	25	12	18.34	18.37	18.20				
10	16QAM	25	25	18.30	18.42	18.27				
10	16QAM	50	0	18.37	18.41	18.26				
10	64QAM	1	0	18.12	18.25	18.15				
10	64QAM	1	25	18.23	18.30	18.20				
10	64QAM	1	49	18.26	18.96	18.99				



Reduced Power Mode for Seonser On

GSM 1900 TX Channel	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
Frequency (MHz)	182.2	183	183.8	182.2	183	183.8	182.2	183
GSM 1 Tx slot	27.82	27.78	28.04	29.50	18.62	18.79	19.04	20.50
GPRS 1 Tx slot	27.82	27.78	28.03	29.50	18.82	18.78	19.03	20.50
GPRS 2 Tx slot	26.49	26.59	26.59	28.00	20.49	20.59	20.59	22.00
GPRS 3 Tx slot	24.32	24.47	24.40	26.00	20.06	20.21	20.14	21.74
GPRS 4 Tx slot	23.21	23.24	23.48	25.00	20.21	20.24	20.49	22.00
EDGE 1 Tx slot	25.80	25.91	25.31	26.00	16.80	16.61	16.31	17.00
EDGE 2 Tx slot	24.37	24.10	24.00	25.00	16.37	16.10	16.00	16.00
EDGE 3 Tx slot	22.32	21.97	21.85	23.00	16.06	17.71	17.09	18.74
EDGE 4 Tx slot	21.04	20.88	20.88	22.00	16.04	17.85	17.85	19.00

Band TX Channel	WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	
	562	940	9538		1312	1413	1513		
Rx Channel	962	9600	9538	1312	1413	1513	1312	1413	
Frequency (MHz)	182.2	183	183.8	1724.4	1724.5	1724.5	1724.4	1724.5	
3GPP Rel 99	AMR 12.2kops	19.04	19.14	19.13	20.00	16.55	16.62	16.60	17.50
3GPP Rel 99	RMC 12.2kops	19.07	19.17	19.15	20.00	16.58	16.63	16.61	17.50
3GPP Rel 6	HSDPA Subtest-1	18.39	18.55	18.43	19.00	15.76	15.88	15.85	16.50
3GPP Rel 6	HSDPA Subtest-2	18.40	18.54	18.42	19.00	15.81	15.94	15.88	16.50
3GPP Rel 6	HSDPA Subtest-3	17.95	18.03	17.94	18.50	15.22	15.51	15.27	16.00
3GPP Rel 6	HSDPA Subtest-4	17.91	17.99	17.97	18.50	15.26	15.76	15.33	16.00
3GPP Rel 8	DCHSDPA Subtest-1	18.39	18.53	18.42	19.00	15.71	15.88	15.94	16.50
3GPP Rel 8	DCHSDPA Subtest-2	18.40	18.52	18.43	19.00	15.78	15.85	15.85	16.50
3GPP Rel 8	DCHSDPA Subtest-3	17.96	18.02	17.93	18.50	15.28	15.42	15.32	16.00
3GPP Rel 8	DCHSDPA Subtest-4	17.92	18.00	17.95	18.50	15.26	15.42	15.41	16.00
3GPP Rel 6	HSUPA Subtest-1	18.23	18.36	18.31	19.00	15.63	15.61	15.75	16.50
3GPP Rel 6	HSUPA Subtest-2	16.19	16.40	16.32	17.00	13.69	13.84	13.72	14.50
3GPP Rel 6	HSUPA Subtest-3	17.23	17.33	17.32	18.00	14.72	14.73	14.99	16.50
3GPP Rel 6	HSUPA Subtest-4	16.23	16.31	16.26	17.00	13.71	13.81	13.72	14.50
3GPP Rel 6	HSUPA Subtest-5	18.20	18.30	18.30	19.00	15.56	15.65	15.75	16.50



Band 2 (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									
Frequency (MHz)									
20	QPSK	1	0	20.35	20.42	20.33			
20	QPSK	1	49	20.15	20.01	20.21	21	0	
20	QPSK	1	99	20.21	20.15	20.06			
20	QPSK	50	0	20.31	20.35	20.33			
20	QPSK	50	24	20.16	20.11	20.11			
20	QPSK	50	50	19.95	20.05	20.11	21	0	
20	QPSK	100	0	20.04	20.06	20.02			
20	16QAM	1	0	19.98	20.22	20.11			
20	16QAM	1	49	20.08	20.32	20.29	21	0	
20	16QAM	1	99	20.03	19.88	20.20			
20	16QAM	50	0	20.01	20.01	20.01			
20	16QAM	50	24	19.89	20.14	20.05			
20	16QAM	50	50	20.04	20.08	20.09	21	0	
20	16QAM	100	0	20.05	20.04	20.02			
20	64QAM	1	0	19.97	20.01	19.92			
20	64QAM	1	49	19.98	20.11	20.20	21	0	
20	64QAM	1	99	19.75	19.99	20.13			
20	64QAM	50	0	19.91	20.04	19.99			
20	64QAM	50	24	19.95	20.10	20.11			
20	64QAM	50	50	20.04	20.06	20.13	21	0	
20	64QAM	100	0	20.08	20.05	19.89			
Channel									
Frequency (MHz)									
15	QPSK	1	0	19.79	19.88	20.01			
15	QPSK	1	37	19.83	19.91	19.98	21	0	
15	QPSK	1	74	19.73	20.02	19.97			
15	QPSK	36	0	19.83	20.00	20.12			
15	QPSK	36	20	19.87	20.01	20.07	21	0	
15	QPSK	36	39	19.79	19.99	20.08			
15	QPSK	75	0	19.80	20.04	20.08			
15	16QAM	1	0	20.11	20.16	20.00			
15	16QAM	1	37	20.16	20.24	19.99	21	0	
15	16QAM	1	74	20.04	20.10	20.08			
15	16QAM	36	0	19.98	20.18	20.20			
15	16QAM	36	20	20.00	20.25	20.23			
15	16QAM	36	39	19.91	20.15	20.20	21	0	
15	16QAM	75	0	19.93	20.16	20.15			
15	64QAM	1	0	20.22	20.11	20.13			
15	64QAM	1	37	20.10	20.21	20.13	21	0	
15	64QAM	1	74	20.09	20.18	20.11			
15	64QAM	36	0	20.05	20.17	20.10			
15	64QAM	36	20	19.94	20.20	20.05			
15	64QAM	36	39	19.92	20.20	20.13	21	0	
15	64QAM	75	0	19.96	20.09	19.99			
Channel									
Frequency (MHz)									
10	QPSK	1	0	19.95	20.00	20.06			
10	QPSK	1	25	19.83	19.84	20.09	21	0	
10	QPSK	1	49	19.83	19.92	19.95			
10	QPSK	25	0	19.84	19.89	19.94			
10	QPSK	25	12	19.90	19.90	20.08	21	0	
10	QPSK	25	25	19.84	19.94	19.96			
10	QPSK	50	0	19.89	19.87	19.94			
10	16QAM	1	0	19.92	19.99	20.15			
10	16QAM	1	25	20.15	20.12	19.94	21	0	
10	16QAM	1	49	20.06	20.19	20.33			
10	16QAM	25	0	19.96	20.10	20.18			
10	16QAM	25	12	19.96	20.09	20.10	21	0	
10	16QAM	25	25	19.84	19.95	20.17			
10	16QAM	50	0	19.93	20.00	20.08			
10	64QAM	1	0	20.11	20.10	20.11			
10	64QAM	1	25	20.10	19.99	20.06	21	0	
10	64QAM	1	49	20.08	20.09	20.08			
10	64QAM	25	0	19.84	20.02	20.12			
10	64QAM	25	12	19.83	20.01	20.14	21	0	
10	64QAM	25	25	20.07	20.00	20.09			
10	64QAM	50	0	19.92	20.00	20.12			
Channel									
Frequency (MHz)									
5	QPSK	1	0	19.71	19.73	19.95			
5	QPSK	1	12	19.67	19.78	19.96	21	0	
5	QPSK	1	24	19.72	19.80	19.86			
5	QPSK	12	0	19.73	19.88	19.88			
5	QPSK	12	7	19.75	19.92	19.93	21	0	
5	QPSK	12	13	19.73	19.83	19.88			
5	QPSK	25	0	19.69	19.84	19.86			
5	16QAM	1	0	19.98	19.97	20.00			
5	16QAM	1	12	20.08	20.01	20.00	21	0	
5	16QAM	1	24	20.11	20.10	19.95			
5	16QAM	12	0	19.92	20.08	20.00			
5	16QAM	12	7	19.94	20.10	20.12	21	0	
5	16QAM	12	13	19.83	20.06	19.99			
5	16QAM	25	0	19.93	19.90	19.91			
5	64QAM	1	0	20.13	20.01	19.89			
5	64QAM	1	12	20.17	20.12	19.94	21	0	
5	64QAM	1	24	20.01	19.94	19.99			
5	64QAM	12	0	19.99	19.99	19.87			
5	64QAM	12	7	20.09	19.92	20.04	21	0	
5	64QAM	12	13	19.93	19.95	20.06			
5	64QAM	25	0	19.86	19.92	19.94			
Channel									
Frequency (MHz)									
3	QPSK	1	0	19.81	19.83	19.95			
3	QPSK	1	8	19.77	19.88	19.96	21	0	
3	QPSK	1	14	19.82	19.90	19.96			
3	QPSK	8	0	19.82	19.88	19.98			
3	QPSK	8	4	19.85	20.02	20.03	21	0	
3	QPSK	8	7	19.83	19.93	19.98			
3	QPSK	15	0	19.79	19.94	19.96			
3	16QAM	1	0	20.08	20.07	20.10			
3	16QAM	1	8	20.18	20.11	20.10	21	0	
3	16QAM	1	14	20.21	20.20	19.95			
3	16QAM	8	0	20.02	20.18	20.10			
3	16QAM	8	4	20.04	20.20	20.22	21	0	
3	16QAM	8	7	19.99	20.16	20.09			
3	16QAM	15	0	20.03	20.00	20.01			
3	64QAM	1	0	20.23	20.11	19.99			
3	64QAM	1	8	20.27	20.22	20.04	21	0	
3	64QAM	1	14	20.11	20.04	20.09			
3	64QAM	8	0	20.09	19.99	19.97			
3	64QAM	8	4	20.19	20.02	20.14	21	0	
3	64QAM	8	7	20.03	20.05	20.16			
3	64QAM	15	0	19.96	20.02	20.04			
Channel									
Frequency (MHz)									
1.4	QPSK	1	0	19.75	19.84	19.91			
1.4	QPSK	1	3	19.83	19.90	19.87	21	0	
1.4	QPSK	1	5	19.66	19.82	19.90			
1.4	QPSK	3	0	19.76	19.85	19.94			
1.4	QPSK	3	1	19.90	19.88	19.92			
1.4	QPSK	3	3	19.75	19.80	19.93			
1.4	QPSK	6	0	19.74	19.84	19.80	21	0	
1.4	16QAM	1	0	19.98	20.10	20.08			
1.4	16QAM	1	3	19.89	20.16	20.18			
1.4	16QAM	1	5	19.71	20.12	19.99	21	0	
1.4	16QAM	3	0	19.87	19.93	19.92			
1.4	16QAM	3	1	19.81	19.92	20.04			
1.4	16QAM	3	3	19.91	19.93	19.96			
1.4	16QAM	6	0	19.91	19.99	20.02	21	0	
1.4	64QAM	1	0	20.19	19.95	20.00			
1.4	64QAM	1	3	19.99	20.16	20.27			
1.4	64QAM	1	5	19.99	20.11	19.96	21	0	
1.4	64QAM	3	0	19.93	20.02	19.99			
1.4	64QAM	3	1	20.07	20.02	19.91			
1.4	64QAM	3	3	20.06	20.12	20.04			
1.4	64QAM	6	0	19.81	20.01	20.05	21	0	

Band 4 (AWS Band)									
Part 27L (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	16.98	17.10	17.05			
20	QPSK	1	49	17.09	16.85	16.82	18	0	
20	QPSK	1	99	16.94	16.87	17.01			
20	QPSK	50	0	16.94	16.86	16.94			
20	QPSK	50	24	16.97	16.89	16.95			
20	QPSK	50	50	16.83	16.92				



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									
Frequency (MHz)									
20	QPSK	1	0	18.45	18.60	18.58	19	0	
20	QPSK	1	49	18.37	18.42	18.38			
20	QPSK	1	99	18.32	18.39	18.32			
20	QPSK	50	0	18.36	18.53	18.47			
20	QPSK	50	24	18.42	18.49	18.49			
20	QPSK	50	50	18.46	18.50	18.41			
20	QPSK	100	0	18.40	18.56	18.46			
20	16QAM	1	0	18.48	18.43	18.44			
20	16QAM	1	49	18.36	18.42	18.45			
20	16QAM	1	99	18.40	18.35	18.39			
20	16QAM	50	0	18.46	18.53	18.45			
20	16QAM	50	24	18.48	18.34	18.55			
20	16QAM	50	50	18.54	18.56	18.58			
20	16QAM	100	0	18.44	18.59	18.45			
20	64QAM	1	0	18.46	18.36	18.36			
20	64QAM	1	49	18.35	18.44	18.41			
20	64QAM	1	99	18.45	18.34	18.44			
20	64QAM	50	0	18.57	18.59	18.35			
20	64QAM	50	24	18.55	18.54	18.45			
20	64QAM	50	50	18.35	18.55	18.53			
20	64QAM	100	0	18.51	18.55	18.45			
Channel									
Frequency (MHz)									
15	QPSK	1	0	18.30	18.48	18.46	19	0	
15	QPSK	1	37	18.42	18.41	18.44			
15	QPSK	1	74	18.42	18.44	18.42			
15	QPSK	36	0	18.43	18.56	18.48			
15	QPSK	36	20	18.44	18.53	18.43			
15	QPSK	36	39	18.42	18.51	18.43			
15	QPSK	75	0	18.44	18.54	18.46			
15	16QAM	1	0	18.43	18.45	18.42			
15	16QAM	1	37	18.45	18.42	18.34			
15	16QAM	1	74	18.34	18.45	18.35			
15	16QAM	36	0	18.50	18.51	18.54			
15	16QAM	36	20	18.48	18.45	18.54			
15	16QAM	36	39	18.49	18.55	18.51			
15	16QAM	75	0	18.49	18.45	18.53			
15	64QAM	1	0	18.41	18.34	18.41			
15	64QAM	1	37	18.35	18.41	18.35			
15	64QAM	1	74	18.45	18.45	18.40			
15	64QAM	36	0	18.58	18.55	18.55			
15	64QAM	36	20	18.59	18.56	18.45			
15	64QAM	36	39	18.52	18.45	18.35			
15	64QAM	75	0	18.56	18.36	18.54			
Channel									
Frequency (MHz)									
10	QPSK	1	0	18.32	18.45	18.37	19	0	
10	QPSK	1	25	18.30	18.37	18.38			
10	QPSK	1	49	18.24	18.44	18.34			
10	QPSK	25	0	18.39	18.44	18.41			
10	QPSK	25	12	18.38	18.44	18.45			
10	QPSK	25	35	18.43	18.56	18.34			
10	QPSK	50	0	18.41	18.43	18.41			
10	16QAM	1	0	18.44	18.41	18.35			
10	16QAM	1	25	18.53	18.41	18.41			
10	16QAM	1	49	18.19	18.35	18.44			
10	16QAM	25	0	18.45	18.59	18.55			
10	16QAM	25	12	18.42	18.58	18.55			
10	16QAM	25	25	18.45	18.55	18.57			
10	16QAM	50	0	18.45	18.49	18.59			
10	64QAM	1	0	18.34	18.53	18.48			
10	64QAM	1	25	18.41	18.36	18.41			
10	64QAM	1	49	18.40	18.33	18.35			
10	64QAM	25	0	18.53	18.54	18.58			
10	64QAM	25	12	18.51	18.55	18.55			
10	64QAM	25	25	18.54	18.54	18.55			
10	64QAM	50	0	18.53	18.57	18.57			
Channel									
Frequency (MHz)									
5	QPSK	1	0	18.21	18.49	18.32	19	0	
5	QPSK	1	12	18.11	18.40	18.26			
5	QPSK	1	24	18.29	18.44	18.37			
5	QPSK	12	0	18.35	18.54	18.37			
5	QPSK	12	7	18.43	18.55	18.48			
5	QPSK	12	13	18.36	18.50	18.39			
5	QPSK	25	0	18.36	18.51	18.34			
5	16QAM	1	0	18.55	18.36	18.33			
5	16QAM	1	12	18.41	18.36	18.42			
5	16QAM	1	24	18.51	18.41	18.21			
5	16QAM	12	0	18.44	18.59	18.54			
5	16QAM	12	7	18.56	18.45	18.53			
5	16QAM	12	13	18.52	18.55	18.54			
5	16QAM	25	0	18.50	18.55	18.51			
5	64QAM	1	0	18.46	18.56	18.41			
5	64QAM	1	12	18.35	18.42	18.41			
5	64QAM	1	24	18.41	18.36	18.36			
5	64QAM	12	0	18.55	18.55	18.50			
5	64QAM	12	7	18.58	18.51	18.55			
5	64QAM	12	13	18.45	18.53	18.54			
5	64QAM	25	0	18.48	18.56	18.49			

Band 66									
Channel									
Frequency (MHz)									
20	QPSK	1	0	17.13	17.14	16.98	18	0	
20	QPSK	1	49	16.96	17.08	16.98			
20	QPSK	1	99	16.92	17.04	16.99			
20	QPSK	50	0	16.95	17.00	16.93			
20	QPSK	50	24	17.00	16.96	16.90			
20	QPSK	50	50	16.94	17.00	16.91			
20	QPSK	100	0	17.00	16.96	16.94			
20	16QAM	1	0	16.95	16.94	16.83			
20	16QAM	1	49	16.85	16.94	16.88			
20	16QAM	1	99	16.91	16.99	16.85			
20	16QAM	50	0	16.80	16.85	16.77			
20	16QAM	50	24	16.84	16.87	16.89			
20	16QAM	50	50	16.78	16.90	16.72			
20	16QAM	100	0	16.84	16.84	16.71			
20	64QAM	1	0	16.71	17.05	16.82			
20	64QAM	1	49	16.90	16.65	16.90			
20	64QAM	1	99	17.08	16.88	16.78			
20	64QAM	50	0	16.82	16.87	16.79			
20	64QAM	50	24	16.90	16.94	16.86			
20	64QAM	50	50	16.80	16.84	16.87			
20	64QAM	100	0	16.84	16.89	16.79			
Channel									
Frequency (MHz)									
15	QPSK	1	0	16.93	16.85	17.03	18	0	
15	QPSK	1	37	17.01	16.95	16.94			
15	QPSK	1	74	16.91	16.89	16.93			
15	QPSK	36	0	16.97	16.90	16.90			
15	QPSK	36	20	16.99	16.89	16.95			
15	QPSK	36	39	16.95	16.95	16.86			
15	QPSK	75	0	17.00	16.98	16.99			
15	16QAM	1	0	16.89	16.95	16.70			
15	16QAM	1	37	16.82	16.85	16.82			
15	16QAM	1	74	17.10	16.99	16.92			
15	16QAM	36	0	16.96	16.74	16.94			
15	16QAM	36	20	16.88	16.86	16.87			
15	16QAM	36	39	16.84	16.77	16.83			
15	16QAM	75	0	16.84	16.77	16.78			
15	64QAM	1	0	17.01	16.85	16.85			
15	64QAM	1	37	16.75	16.79	16.95			
15	64QAM	1	74	16.88	16.91	16.83			
15	64QAM	36	0	16.99	16.91	16.96			
15	64QAM	36	20	17.06	16.98	16.96			
15	64QAM	36	39	16.93	16.84	16.86			
15	64QAM	75	0	16.87	16.78	16.78			
Channel									
Frequency (MHz)									
10	QPSK	1	0	16.95	16.90	16.94	18	0	
10	QPSK	1	25	16.87	16.86	16.83			
10	QPSK	1	49	16.88	17.02	16.99			
10	QPSK	25	0	16.85	17.03	17.00			
10	QPSK	25	12	16.99	17.03	16.91			
10	QPSK	25	25	16.92	16.99	16.94			
10	QPSK	50	0	17.00	16.94	16.90			
10	16QAM	1	0	16.70	16.91	16.95			
10	16QAM	1	25	16.67	16.90	16.98			
10	16QAM	1	49	16.83	16.90	16.79			
10	16QAM	25	0	16.86	16.95	16.82			
10	16QAM	25	12	16.93	16.90	16.79			
10	16QAM	25	25	16.71	16.86	16.77			
10	16QAM	50	0	16.91	16.71	16.91			
10	64QAM	1	0	17.07	16.95	16.98			
10	64QAM	1	25	17.07	17.00	16.93			
10	64QAM	1	49	16.93	16.92	16.67			
10	64QAM	25	0	16.78	16.86	16.72			
10	64QAM	25	12	16.87	16.87	16.87			
10	64QAM	25	25	16.83	16.87	16.86			
10	64QAM	50	0	16.87	16.94	16.78			
Channel									
Frequency (MHz)									
5	QPSK	1	0	16.98	16.83	16.96	18	0	
5	QPSK	1	12	16.95	17.07	16.91			
5	QPSK	1	24	16.96	16.91	16.89			
5	QPSK	12	0	17.02	17.00	16.94			
5	QPSK	12	7	17.07	17.08	16.94			
5	QPSK	12	13	16.97	17.06	16.96			
5	QPSK	25	0	17.07	17.02	16.92			
5	16QAM	1	0	16.85	17.07	16.85			
5	16QAM	1	12	16.95	16.91	16.90			
5	16QAM	1	24	16.84	17.01	16.95			
5	16QAM	12	0	16.77	16.87	16.85			
5	16QAM	12	7	16.85					





Reduced Power Mode for Handheld On

GSM 1900 TX Channel Frequency (MHz)	Best Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
	512	661	810		512	661	810	
GSM 1 Tx slot	27.97	28.12	28.10	29.00	18.97	19.12	19.10	20.00
GPRS 1 Tx slots	27.97	28.11	28.09	29.00	18.97	19.11	19.09	20.00
GPRS 2 Tx slots	26.56	26.61	26.75	27.50	20.56	20.61	20.75	21.50
GPRS 3 Tx slots	24.45	24.55	24.59	25.50	20.19	20.29	20.33	21.24
GPRS 4 Tx slots	23.44	23.38	23.45	24.50	20.44	20.38	20.45	21.50
EDGE 1 Tx slot	25.80	25.61	25.31	26.00	16.80	16.61	16.31	17.00
EDGE 2 Tx slots	24.37	24.10	24.00	25.00	15.37	15.10	15.00	16.00
EDGE 3 Tx slots	22.32	21.97	21.85	23.00	13.06	12.71	12.59	13.74
EDGE 4 Tx slots	21.04	20.85	20.65	22.00	12.04	11.85	11.65	13.00

Band TX Channel Rx Channel Frequency (MHz)	WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
	5492	5600	5638		1312	1419	1513	
	5692	5800	5938		1537	1636	1738	
	1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99 AMR 12.2kops	20.13	20.15	20.13	21.00	19.09	19.11	19.12	20.00
3GPP Rel 99 AMR 10.2kops	20.15	20.17	20.15	21.00	19.11	19.15	19.14	20.00
3GPP Rel 6 HSDPA Subclass 1	19.41	19.44	19.44	20.00	18.32	18.47	18.48	19.00
3GPP Rel 6 HSDPA Subclass 2	19.42	19.54	19.43	20.00	18.36	18.49	18.54	19.00
3GPP Rel 6 HSDPA Subclass 3	18.84	19.01	18.84	19.50	17.82	17.98	18.01	18.50
3GPP Rel 6 HSDPA Subclass 4	18.85	19.03	18.98	19.50	17.85	17.98	18.04	18.50
3GPP Rel 8 DCHSDPA Subclass 1	19.34	19.46	19.45	20.00	18.33	18.46	18.49	19.00
3GPP Rel 8 DCHSDPA Subclass 2	19.34	19.45	19.46	20.00	18.35	18.48	18.53	19.00
3GPP Rel 8 DCHSDPA Subclass 3	18.88	19.03	18.95	19.50	17.81	17.97	17.98	18.50
3GPP Rel 8 DCHSDPA Subclass 4	18.84	19.00	18.86	19.50	17.83	17.95	17.99	18.50
3GPP Rel 6 HSUPA Subclass 1	19.40	19.51	19.41	20.00	18.19	18.31	18.28	19.00
3GPP Rel 6 HSUPA Subclass 2	17.35	17.45	17.41	18.00	16.23	16.36	16.28	17.00
3GPP Rel 6 HSUPA Subclass 3	16.37	16.41	16.25	16.00	15.21	15.36	15.36	16.00
3GPP Rel 6 HSUPA Subclass 4	17.45	17.40	17.43	18.00	16.17	16.30	16.29	17.00
3GPP Rel 6 HSUPA Subclass 5	19.24	19.50	19.46	20.00	18.20	18.40	18.40	19.00



Band 2 (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												
Frequency (MHz)												
20	QPSK	1	0	20.43	20.70	20.46	21.5	0				
20	QPSK	1	49	20.53	20.44	20.61						
20	QPSK	1	99	20.53	20.64	20.50						
20	QPSK	50	0	20.47	20.67	20.57	21.5	0				
20	QPSK	50	24	20.51	20.60	20.66						
20	QPSK	50	50	20.53	20.61	20.63						
20	QPSK	100	0	20.50	20.58	20.57	21.5	0				
20	QPSK	100	0	20.50	20.56	20.57						
20	QPSK	100	0	20.50	20.56	20.57						
20	16QAM	1	49	20.42	20.45	20.60	21.5	0				
20	16QAM	1	99	20.59	20.45	20.64						
20	16QAM	50	0	20.22	20.35	20.28						
20	16QAM	50	24	20.34	20.40	20.50	21.5	0				
20	16QAM	50	50	20.34	20.30	20.43						
20	16QAM	100	0	20.38	20.40	20.33						
20	16QAM	1	0	20.36	20.38	20.63	21.5	0				
20	16QAM	1	49	20.45	20.41	20.50						
20	16QAM	1	99	20.27	20.64	20.14						
20	64QAM	50	0	19.84	19.92	19.95	21	0.5				
20	64QAM	50	24	19.89	19.97	19.65						
20	64QAM	50	50	19.91	19.91	19.97						
20	64QAM	100	0	19.97	19.89	19.90	21	0.5				
Channel												
Frequency (MHz)												
15	QPSK	1	0	20.47	20.62	20.63	21.5	0				
15	QPSK	1	37	20.44	20.55	20.68						
15	QPSK	1	74	20.41	20.38	20.48						
15	QPSK	36	0	20.50	20.65	20.65	21.5	0				
15	QPSK	36	20	20.53	20.45	20.65						
15	QPSK	36	39	20.56	20.64	20.60						
15	QPSK	75	0	20.47	20.65	20.63	21.5	0				
15	QPSK	75	0	20.64	20.68	20.69						
15	QPSK	75	1	20.57	20.45	20.54						
15	16QAM	1	74	20.54	20.62	20.58	21.5	0				
15	16QAM	36	0	20.38	20.38	20.50						
15	16QAM	36	20	20.38	20.60	20.50						
15	16QAM	36	39	20.31	20.52	20.43	21.5	0				
15	16QAM	75	0	20.32	20.49	20.58						
15	16QAM	1	0	20.34	20.43	20.35						
15	64QAM	1	37	20.35	20.45	20.44	21.5	0				
15	64QAM	1	74	20.45	20.35	20.45						
15	64QAM	36	0	19.86	20.05	20.05						
15	64QAM	36	20	19.92	19.94	19.72	21	0.5				
15	64QAM	36	39	19.98	19.97	19.10						
15	64QAM	75	0	19.80	19.99	19.98						
Channel												
Frequency (MHz)												
10	QPSK	1	0	20.51	20.56	20.62	21.5	0				
10	QPSK	1	25	20.41	20.45	20.67						
10	QPSK	1	49	20.52	20.64	20.65						
10	QPSK	25	0	20.56	20.61	20.65	21.5	0				
10	QPSK	25	12	20.49	20.68	20.65						
10	QPSK	25	25	20.46	20.61	20.66						
10	QPSK	50	0	20.50	20.57	20.62	21.5	0				
10	QPSK	50	1	20.54	20.44	20.55						
10	QPSK	50	25	20.65	20.16	20.49						
10	16QAM	1	49	20.41	20.63	20.33	21.5	0				
10	16QAM	25	0	20.37	20.48	20.46						
10	16QAM	25	12	20.32	20.41	20.53						
10	16QAM	25	25	20.27	20.47	20.49	21.5	0				
10	16QAM	50	0	20.29	20.46	20.44						
10	16QAM	50	1	20.28	20.53	20.40						
10	64QAM	1	25	20.63	20.40	20.43	21.5	0				
10	64QAM	1	49	20.65	20.44	20.48						
10	64QAM	25	0	19.85	20.03	20.01						
10	64QAM	25	12	19.81	20.02	20.03	21	0.5				
10	64QAM	25	25	19.81	19.97	19.93						
10	64QAM	50	0	19.83	19.99	20.00						
Channel												
Frequency (MHz)												
5	QPSK	1	0	20.48	20.56	20.44	21.5	0				
5	QPSK	1	12	20.58	20.57	20.53						
5	QPSK	1	24	20.42	20.41	20.51						
5	QPSK	12	0	20.52	20.64	20.61	21.5	0				
5	QPSK	12	7	20.56	20.57	20.65						
5	QPSK	12	13	20.46	20.60	20.61						
5	QPSK	25	0	20.45	20.60	20.53	21.5	0				
5	16QAM	1	0	20.45	20.62	20.32						
5	16QAM	1	12	20.14	20.61	20.39						
5	16QAM	1	24	20.38	20.45	20.49	21.5	0				
5	16QAM	12	0	20.38	20.50	20.53						
5	16QAM	12	7	20.35	20.40	20.53						
5	16QAM	12	13	20.42	20.43	20.47	21.5	0				
5	16QAM	25	0	20.30	20.43	20.49						
5	64QAM	1	0	20.32	20.35	20.50						
5	64QAM	1	12	20.41	20.64	20.68	21.5	0				
5	64QAM	1	24	20.61	20.59	20.65						
5	64QAM	12	0	19.90	20.08	19.96						
5	64QAM	12	7	19.95	20.05	19.95	21	0.5				
5	64QAM	12	13	19.92	20.09	20.02						
5	64QAM	25	0	19.81	19.92	19.86						
Channel												
Frequency (MHz)												
3	QPSK	1	0	20.51	20.54	20.58	21.5	0				
3	QPSK	1	8	20.45	20.52	20.61						
3	QPSK	1	14	20.39	20.64	20.60						
3	QPSK	8	0	20.52	20.66	20.69	21.5	0				
3	QPSK	8	4	20.58	20.66	20.66						
3	QPSK	8	7	20.55	20.63	20.64						
3	QPSK	15	0	20.55	20.60	20.62	21.5	0				
3	16QAM	1	0	20.44	20.51	20.49						
3	16QAM	1	8	20.45	20.50	20.36						
3	16QAM	1	14	20.45	20.42	20.35	21.5	0				
3	16QAM	8	0	20.36	20.56	20.54						
3	16QAM	8	4	20.62	20.50	20.41						
3	16QAM	8	7	20.51	20.46	20.40	21.5	0				
3	16QAM	15	0	20.30	20.38	20.38						
3	64QAM	1	0	20.58	20.51	20.45						
3	64QAM	1	8	20.41	20.57	20.40	21.5	0				
3	64QAM	1	14	20.69	20.49	20.69						
3	64QAM	8	0	19.77	19.81	19.95						
3	64QAM	8	4	19.79	19.75	19.88	21	0.5				
3	64QAM	8	7	19.77	19.91	19.94						
3	64QAM	15	0	19.80	19.97	20.00						
Channel												
Frequency (MHz)												
1.4	QPSK	1	0	20.45	20.51	20.55	21.5	0				
1.4	QPSK	1	3	20.51	20.56	20.61						
1.4	QPSK	1	5	20.35	20.53	20.51						
1.4	QPSK	3	0	20.52	20.56	20.59	21.5	0				
1.4	QPSK	3	1	20.55	20.64	20.51						
1.4	QPSK	3	3	20.56	20.62	20.58						
1.4	QPSK	6	0	20.56	20.67	20.65	21.5	0				
1.4	16QAM	1	0	20.26	20.48	20.46						
1.4	16QAM	1	3	20.31	20.45	20.52						
1.4	16QAM	1	5	20.54	20.46	20.45	21.5	0				
1.4	16QAM	3	0	20.35	20.24	20.36						
1.4	16QAM	3	1	20.41	20.58	20.55						
1.4	16QAM	3	3	20.39	20.38	20.40	21.5	0				
1.4	16QAM	6	0	20.37	20.49	20.47						
1.4	16QAM	1	0	20.17	20.42	20.45						
1.4	64QAM	1	3	20.48	20.39	20.58	21.5	0				
1.4	64QAM	1	5	20.19	20.41	20.31						
1.4	64QAM	3	0	20.39	20.49	20.58						
1.4	64QAM	3	1	20.40	20.45	20.50	21.5	0				
1.4	64QAM	3	3	20.48	20.45	20.49						
1.4	64QAM	6	0	19.90	19.97	19.85						

Band 4 (AWS Band)									
Part 27L (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	19.60	19.62	19.56	20.5	0	
20	QPSK	1	49	19.45	19.48	19.52			
20	QPSK	1	99	19.47	19.41	19.51			
20	QPSK	50	0	19.45	19.58	19.57	20.5	0	
20	QPSK	50	24	19.55	19.55	19.55			
20	QPSK	50	50	19.55	19.49	19.50			
20	QPSK	100	0	19.51	19.58	19.50	20.5	0	
20	QPSK	100	0	19.48	19.54	19.32			
20	QPSK	100	0	19.18	19.09	19.10			
20	16QAM	1	49	19.18	19.09	19.10	20.5	0	
20	16QAM	1	99	19.07	19.36	19.22			
20	16QAM	50	0	19.26	19.35	19.34			
20	16QAM	50	24	19.37	19.39	19.36	20.5	0	
20	16QAM	50	50	19.26	19.34				



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									
Frequency (MHz)									
20	QPSK	1	0	21.23	21.36	21.21	22	0	
20	QPSK	1	49	21.34	21.28	21.22			
20	QPSK	1	99	21.23	21.36	21.22	22	0	
20	QPSK	50	0	21.34	21.38	21.12			
20	QPSK	50	24	21.36	21.21	21.22	22	0	
20	QPSK	50	50	21.23	21.22	21.21			
20	QPSK	100	0	21.21	20.22	21.23	22	0	
20	16QAM	1	0	21.26	21.23	21.32			
20	16QAM	1	49	21.36	21.21	21.13	22	0	
20	16QAM	1	99	21.23	21.26	21.21			
20	16QAM	50	0	21.16	21.27	21.37	22	0	
20	16QAM	50	24	21.28	21.38	21.12			
20	16QAM	50	50	21.34	21.31	21.21	22	0	
20	16QAM	100	0	21.38	21.31	21.36			
20	64QAM	1	0	21.21	21.36	21.37	22	0	
20	64QAM	1	49	21.37	21.32	21.35			
20	64QAM	1	99	21.23	21.35	21.23	21	1	
20	64QAM	50	0	20.47	20.47	20.63			
20	64QAM	50	24	20.43	20.44	20.51	21	1	
20	64QAM	50	50	20.55	20.44	20.46			
20	64QAM	100	0	20.43	20.47	20.66			
Channel									
Frequency (MHz)									
15	QPSK	1	0	21.18	21.22	21.19	22	0	
15	QPSK	1	37	21.22	21.27	21.17			
15	QPSK	1	74	21.28	21.36	21.28	22	0	
15	QPSK	36	0	21.06	21.10	21.04			
15	QPSK	36	20	21.09	21.14	21.09	22	0	
15	QPSK	36	39	21.07	21.15	21.08			
15	QPSK	75	0	21.05	21.14	21.06	22	0	
15	16QAM	1	0	21.30	21.00	21.23			
15	16QAM	1	37	21.34	21.11	21.30	22	0	
15	16QAM	1	74	21.12	21.22	21.22			
15	16QAM	36	0	21.13	21.22	21.16	22	0	
15	16QAM	36	20	21.16	21.26	21.20			
15	16QAM	36	39	21.16	21.25	21.18	22	0	
15	16QAM	75	0	21.17	21.22	21.17			
15	64QAM	1	0	21.17	21.29	21.22	22	0	
15	64QAM	1	37	21.18	21.24	21.15			
15	64QAM	1	74	21.32	21.34	21.23	21	1	
15	64QAM	36	0	20.32	20.43	20.44			
15	64QAM	36	20	20.32	20.51	20.42	21	1	
15	64QAM	36	39	20.38	20.36	20.46			
15	64QAM	75	0	20.38	20.45	20.39			
Channel									
Frequency (MHz)									
10	QPSK	1	0	21.24	21.22	21.24	22	0	
10	QPSK	1	25	21.26	21.26	21.27			
10	QPSK	1	49	21.29	21.29	21.33	22	0	
10	QPSK	25	0	21.14	21.08	21.10			
10	QPSK	25	12	21.17	21.10	21.15	22	0	
10	QPSK	25	35	21.12	21.19	21.14			
10	QPSK	50	0	21.12	21.08	21.12	22	0	
10	16QAM	1	0	21.37	21.22	21.15			
10	16QAM	1	25	21.37	21.20	21.13	22	0	
10	16QAM	1	49	21.23	21.21	21.20			
10	16QAM	25	0	21.17	21.17	21.22	22	0	
10	16QAM	25	12	21.22	21.18	21.23			
10	16QAM	25	25	21.23	21.21	21.24	22	0	
10	16QAM	50	0	21.25	21.16	21.22			
10	64QAM	1	0	21.19	21.22	21.24	22	0	
10	64QAM	1	25	21.20	21.22	21.25			
10	64QAM	1	49	21.28	21.25	21.24	21	1	
10	64QAM	25	0	20.31	20.44	20.43			
10	64QAM	25	12	20.41	20.46	20.49	21	1	
10	64QAM	25	25	20.38	20.47	20.51			
10	64QAM	50	0	20.42	20.44	20.50			
Channel									
Frequency (MHz)									
5	QPSK	1	0	21.26	21.22	21.23	22	0	
5	QPSK	1	12	21.28	21.24	21.27			
5	QPSK	1	24	21.30	21.27	21.30	22	0	
5	QPSK	12	0	21.10	21.07	21.08			
5	QPSK	12	7	21.17	21.13	21.13	22	0	
5	QPSK	12	13	21.13	21.07	21.13			
5	QPSK	25	0	21.11	21.08	21.11	22	0	
5	16QAM	1	0	21.33	21.36	21.36			
5	16QAM	1	12	21.34	21.30	21.37	22	0	
5	16QAM	1	24	21.30	21.21	21.30			
5	16QAM	12	0	21.19	21.15	21.19	22	0	
5	16QAM	12	7	21.21	21.23	21.22			
5	16QAM	12	13	21.20	21.21	21.23	22	0	
5	16QAM	25	0	21.18	21.19	21.20			
5	64QAM	1	0	21.17	21.23	21.24	22	0	
5	64QAM	1	12	21.16	21.20	21.23			
5	64QAM	1	24	21.22	21.20	21.20	21	1	
5	64QAM	12	0	20.59	20.47	20.60			
5	64QAM	12	7	20.55	20.43	20.55	21	1	
5	64QAM	12	13	20.55	20.51	20.52			
5	64QAM	25	0	20.40	20.48	20.46			

Band 66									
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									
Frequency (MHz)									
20	QPSK	1	0	19.94	19.92	19.90	20.5	0	
20	QPSK	1	49	19.93	19.91	19.43			
20	QPSK	1	99	19.92	19.93	19.41	20.5	0	
20	QPSK	50	0	19.49	19.61	19.44			
20	QPSK	50	24	19.96	19.60	19.49	20.5	0	
20	QPSK	50	50	19.90	19.60	19.43			
20	QPSK	100	0	19.49	19.60	19.42	20.5	0	
20	16QAM	1	0	19.60	19.46	19.15			
20	16QAM	1	49	19.60	19.61	19.25	20.5	0	
20	16QAM	1	99	19.20	19.44	19.34			
20	16QAM	50	0	19.45	19.44	19.35	20.5	0	
20	16QAM	50	24	19.39	19.54	19.35			
20	16QAM	50	50	19.43	19.52	19.42	20.5	0	
20	16QAM	100	0	19.45	19.48	19.37			
20	64QAM	1	0	19.47	19.45	19.45	20.5	0	
20	64QAM	1	49	19.45	19.55	19.54			
20	64QAM	1	99	19.36	19.45	19.46	20.5	0	
20	64QAM	50	0	19.50	19.55	19.40			
20	64QAM	50	24	19.44	19.51	19.41	20.5	0	
20	64QAM	50	50	19.50	19.46	19.39			
20	64QAM	100	0	19.48	19.55	19.39			
Channel									
Frequency (MHz)									
15	QPSK	1	0	19.39	19.27	19.32	20.5	0	
15	QPSK	1	37	19.36	19.36	19.22			
15	QPSK	1	74	19.37	19.23	19.12	20.5	0	
15	QPSK	36	0	19.31	19.35	19.26			
15	QPSK	36	20	19.33	19.45	19.31	20.5	0	
15	QPSK	36	39	19.32	19.42	19.24			
15	QPSK	75	0	19.35	19.40	19.26	20.5	0	
15	16QAM	1	0	19.36	19.44	19.53			
15	16QAM	1	37	19.27	19.45	19.49	20.5	0	
15	16QAM	1	74	19.45	19.29	19.46			
15	16QAM	36	0	19.46	19.48	19.51	20.5	0	
15	16QAM	36	20	19.48	19.52	19.46			
15	16QAM	36	39	19.39	19.54	19.41	20.5	0	
15	16QAM	75	0	19.52	19.48	19.39			
15	64QAM	1	0	19.45	19.39	19.33	20.5	0	
15	64QAM	1	37	19.45	19.35	19.47			
15	64QAM	1	74	19.55	19.47	19.45	20.5	0	
15	64QAM	36	0	19.50	19.58	19.43			
15	64QAM	36	20	19.52	19.49	19.51	20.5	0	
15	64QAM	36	39	19.52	19.54	19.41			
15	64QAM	75	0	19.36	19.54	19.39			
Channel									
Frequency (MHz)									
10	QPSK	1	0	19.29	19.47	19.32	20.5	0	
10	QPSK	1	25	19.26	19.42	19.27			
10	QPSK	1	49	19.20	19.31	19.21	20.5	0	
10	QPSK	25	0	19.39	19.43	19.28			
10	QPSK	25	12	19.38	19.43	19.30	20.5	0	
10	QPSK	25	35	19.33	19.49	19.31			
10	QPSK	50	0	19.30	19.34	19.26	20.5	0	
10	16QAM	1							