

<GSM Conducted Power>

1. For DTM multi-slot class mode, the device was linked with base station simulator (Agilent E5515C) and transmit maximum power on maximum number of TX slots, i.e. one CS timeslot, and additional PS timeslots (1 for DTM class 5 and 9, 2 for DTM class 11) in one TDMA frame.
2. Agilent E5515C was used to setup the device operated under DTM mode for power measurement and SAR testing. For conducted power, the power of the burst for voice and the power of the bursts for data was reported separately in the table below, and the frame-average power is derived below to determine SAR testing.

$$DTM \text{ frame average power (dBm)} = 10 * \log [\sum(\text{power of each slot, in mW})/8]$$

3. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
4. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE / DTM modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS (4Tx slots) for GSM850/GSM1900 is considered as the primary mode.
5. Other configurations of GSM / GPRS / EDGE / DTM are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode, SAR measurement is not required for the secondary mode
6. Power reduction which is triggered by hotspot mode is implemented in GSM1900 band, for hotspot mode SAR testing EUT was set in reduced power mode and GPRS 4Tx slot due to its highest frame-average power.

GSM850		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (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	31.83	32.22	32.31	33.20	22.83	23.22	23.31	24.20
	GPRS 1 Tx slot	31.84	32.25	32.33	33.20	22.84	23.25	23.33	24.20
	GPRS 2 Tx slots	29.95	30.19	30.00	30.20	23.95	24.19	24.00	24.20
	GPRS 3 Tx slots	27.77	27.97	28.08	28.20	23.51	23.71	23.82	23.94
	GPRS 4 Tx slots	26.76	26.97	26.55	27.20	23.76	23.97	23.55	24.20
	EDGE 1 Tx slot	26.51	26.69	26.79	28.00	17.51	17.69	17.79	19.00
	EDGE 2 Tx slots	24.64	25.07	25.00	26.50	18.64	19.07	19.00	20.50
	EDGE 3 Tx slots	22.81	23.14	23.19	24.50	18.55	18.88	18.93	20.24
	EDGE 4 Tx slots	21.67	22.22	22.12	23.50	18.67	19.22	19.12	20.50
DTM Multi-slot class 5	GSM 1 Tx slot	30.08	30.09	30.03	30.20	23.96	23.95	23.87	24.18
	GPRS 1 Tx slot	29.87	29.84	29.74	30.20				
DTM Multi-slot class 9	GSM 1 Tx slot	30.10	30.12	29.98	30.20	23.96	23.96	23.84	24.18
	GPRS 1 Tx slot	29.85	29.84	29.73	30.20				
DTM Multi-slot class 11	GSM 1 Tx slot	27.82	28.11	27.94	28.20	23.40	23.62	23.51	23.94
	GPRS 2 Tx slots	27.57	27.76	27.68	28.20				
DTM Multi-slot class 5	GSM 1 Tx slot	29.67	30.01	29.65	30.20	21.87	22.18	21.86	22.71
	EDGE 1 Tx slot	24.83	25.06	24.85	26.50				
DTM Multi-slot class 9	GSM 1 Tx slot	30.07	30.19	30.02	30.20	22.11	22.28	22.10	22.71
	EDGE 1 Tx slot	24.52	24.87	24.66	26.50				
DTM Multi-slot class 11	GSM 1 Tx slot	27.21	27.56	27.24	28.20	20.44	20.86	20.70	21.85
	EDGE 2 Tx slots	22.55	23.07	23.13	24.50				

GSM1900		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		512	661	810		512	661	810	
Frequency (MHz)		1850.2	1880	1909.8	1850.2	1880	1909.8		
	GSM 1 Tx slot	29.27	30.14	29.87	30.70	20.27	21.14	20.87	21.70
	GPRS 1 Tx slot	29.31	30.17	29.87	30.70	20.31	21.17	20.87	21.70
	GPRS 2 Tx slots	27.34	27.70	27.66	27.70	21.34	21.70	21.66	21.70
	GPRS 3 Tx slots	25.33	25.52	25.66	25.70	21.07	21.26	21.40	21.44
	GPRS 4 Tx slots	24.37	24.51	24.55	24.70	21.37	21.51	21.55	21.70
	EDGE 1 Tx slot	25.65	26.09	25.77	27.00	16.65	17.09	16.77	18.00
	EDGE 2 Tx slots	23.63	24.25	23.91	25.50	17.63	18.25	17.91	19.50
	EDGE 3 Tx slots	21.66	22.04	21.91	23.50	17.40	17.78	17.65	19.24
	EDGE 4 Tx slots	20.77	20.90	20.50	22.50	17.77	17.90	17.50	19.50
DTM Multi-slot class 5	GSM 1 Tx slot	27.26	27.70	27.51	27.70	21.13	21.66	21.39	21.68
	GPRS 1 Tx slot	27.03	27.66	27.31	27.70				
DTM Multi-slot class 9	GSM 1 Tx slot	27.22	27.59	27.51	27.70	21.08	21.59	21.39	21.68
	GPRS 1 Tx slot	26.98	27.63	27.30	27.70				
DTM Multi-slot class 11	GSM 1 Tx slot	25.08	25.55	25.55	25.70	20.69	21.28	21.16	21.44
	GPRS 2 Tx slots	24.89	25.53	25.35	25.70				
DTM Multi-slot class 5	GSM 1 Tx slot	27.70	27.66	27.41	27.70	20.10	20.19	20.06	20.72
	EDGE 1 Tx slot	23.61	24.02	24.14	25.50				
DTM Multi-slot class 9	GSM 1 Tx slot	27.36	27.70	27.65	27.70	19.87	20.16	20.16	20.72
	EDGE 1 Tx slot	23.66	23.82	23.95	25.50				
DTM Multi-slot class 11	GSM 1 Tx slot	24.24	25.07	25.63	25.70	18.38	19.14	19.26	20.10
	EDGE 2 Tx slots	21.55	22.23	21.90	23.50				

GSM1900		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		512	661	810		512	661	810	
Frequency (MHz)		1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot		27.05	27.98	27.70	28.20	18.05	18.98	18.70	19.20
GPRS 1 Tx slot		27.08	28.02	27.75	28.20	18.08	19.02	18.75	19.20
GPRS 2 Tx slots		24.44	24.89	24.69	25.20	18.44	18.89	18.69	19.20
GPRS 3 Tx slots		21.88	22.83	22.73	23.20	17.62	18.57	18.47	18.94
GPRS 4 Tx slots		20.85	21.69	21.60	22.20	17.85	18.69	18.60	19.20
EDGE 1 Tx slot		25.08	25.94	25.69	27.00	16.08	16.94	16.69	18.00
EDGE 2 Tx slots		23.83	24.21	24.05	25.50	17.83	18.21	18.05	19.50
EDGE 3 Tx slots		21.63	22.22	21.99	23.50	17.37	17.96	17.73	19.24
EDGE 4 Tx slots		20.71	21.30	20.85	22.50	17.71	18.30	17.85	19.50
DTM Multi-slot class 5	GSM 1 Tx slot	24.45	24.95	24.71	25.20	18.37	18.86	18.61	19.18
	GPRS 1 Tx slot	24.34	24.80	24.55	25.20				
DTM Multi-slot class 9	GSM 1 Tx slot	24.46	24.95	24.68	25.20	18.37	18.86	18.59	19.18
	GPRS 1 Tx slot	24.31	24.80	24.55	25.20				
DTM Multi-slot class 11	GSM 1 Tx slot	21.83	22.79	22.75	23.20	17.53	18.50	18.46	18.94
	GPRS 2 Tx slots	21.77	22.75	22.71	23.20				
DTM Multi-slot class 5	GSM 1 Tx slot	23.88	24.58	24.64	25.20	17.71	18.37	18.32	19.33
	EDGE 1 Tx slot	23.58	24.19	24.01	25.50				
DTM Multi-slot class 9	GSM 1 Tx slot	24.09	24.80	23.70	25.20	17.83	18.44	17.77	19.33
	EDGE 1 Tx slot	23.59	24.09	23.88	25.50				
DTM Multi-slot class 11	GSM 1 Tx slot	22.01	22.44	22.48	23.20	17.46	18.06	17.88	19.14
	EDGE 2 Tx slots	21.57	22.26	21.96	23.50				

<WCDMA Conducted Power>

- 1.The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
- 2.The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
- 3.For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.
- 4.Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
- 5.Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than $\frac{1}{4}$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

- a.The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b.The RF path losses were compensated into the measurements.
- c.A call was established between EUT and Base Station with following setting:
 - i. Set Gain Factors (β_c and β_d) and parameters were set according to each
 - ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
 - iii. Set RMC 12.2Kbps + HSDPA mode.
 - iv. Set Cell Power = -86 dBm
 - v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
 - vi. Select HSDPA Uplink Parameters
 - vii. Set Delta ACK, Delta NACK and Delta CQI = 8
 - viii. Set Ack-Nack Repetition Factor to 3
 - ix. Set CQI Feedback Cycle (k) to 4 ms
 - x. Set CQI Repetition Factor to 2
 - xi. Power Ctrl Mode = All Up bits
- d.The transmitted maximum output power was recorded.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{HS} = 24/15 * \beta_c$.

Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. For all other combinations of DPDCCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

Setup Configuration

HSUPA Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting * :
 - i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
 - ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
 - iii. Set Cell Power = -86 dBm
 - iv. Set Channel Type = 12.2k + HSPA
 - v. Set UE Target Power
 - vi. Power Ctrl Mode= Alternating bits
 - vii. Set and observe the E-TFCI
 - viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 5/15$ with $\beta_{hs} = 5/15 * \beta_c$.

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
 - i. Set RMC 12.2Kbps + HSDPA mode.
 - ii. Set Cell Power = -25 dBm
 - iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
 - iv. Select HSDPA Uplink Parameters
 - v. Set Gain Factors (β_c and β_d) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
 - a). Subtest 1: $\beta_c/\beta_d=2/15$
 - b). Subtest 2: $\beta_c/\beta_d=12/15$
 - c). Subtest 3: $\beta_c/\beta_d=15/8$
 - d). Subtest 4: $\beta_c/\beta_d=15/4$
 - vi. Set Delta ACK, Delta NACK and Delta CQI = 8
 - vii. Set Ack-Nack Repetition Factor to 3
 - viii. Set CQI Feedback Cycle (k) to 4 ms
 - ix. Set CQI Repetition Factor to 2
 - x. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification. A summary of these settings are illustrated below:

C.8.1.12 Fixed Reference Channel Definition H-Set 12

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

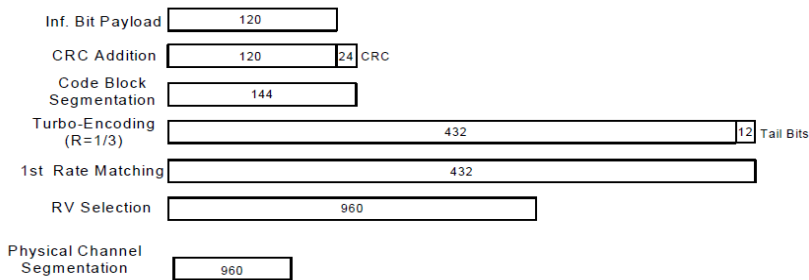


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration



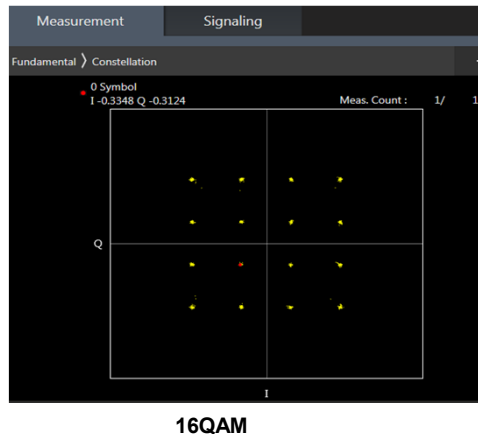
Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938	1537	1638	1738	4357	4407	4458			
Frequency (MHz)		1852.4	1880	1907.6	1712.4	1732.6	1752.6	826.4	836.4	846.6			
3GPP Rel 99	AMR 12.2Kbps	23.18	23.46	23.43	23.70	23.25	23.33	23.28	23.70	24.45	24.64	24.65	24.70
3GPP Rel 99	RMC 12.2Kbps	23.20	23.47	23.45	23.70	23.29	23.35	23.31	23.70	24.46	24.64	24.66	24.70
3GPP Rel 6	HSDPA Subtest-1	22.47	22.86	22.71	23.00	22.68	22.68	22.56	23.00	23.49	23.65	23.68	24.00
3GPP Rel 6	HSDPA Subtest-2	22.45	22.83	22.71	23.00	22.67	22.67	22.58	23.00	23.45	23.63	23.69	24.00
3GPP Rel 6	HSDPA Subtest-3	21.88	22.33	22.19	22.50	22.17	22.15	22.05	22.50	22.95	23.17	23.13	23.50
3GPP Rel 6	HSDPA Subtest-4	21.90	22.33	22.16	22.50	22.17	22.16	22.05	22.50	22.99	23.18	23.15	23.50
3GPP Rel 8	DC-HSDPA Subtest-1	22.48	22.93	22.75	23.00	22.78	22.62	22.61	23.00	23.57	23.62	23.76	24.00
3GPP Rel 8	DC-HSDPA Subtest-2	22.48	22.81	22.61	23.00	22.59	22.58	22.64	23.00	23.38	23.69	23.60	24.00
3GPP Rel 8	DC-HSDPA Subtest-3	21.87	22.31	22.20	22.50	22.19	22.21	22.01	22.50	23.04	23.27	23.21	23.50
3GPP Rel 8	DC-HSDPA Subtest-4	21.83	22.24	22.07	22.50	22.14	22.21	22.04	22.50	23.01	23.11	23.05	23.50
3GPP Rel 6	HSUPA Subtest-1	22.36	22.83	22.69	23.00	22.63	22.67	22.56	23.00	23.51	23.64	23.67	24.00
3GPP Rel 6	HSUPA Subtest-2	20.37	20.81	20.71	21.00	20.64	20.68	20.57	21.00	21.52	21.67	21.65	22.00
3GPP Rel 6	HSUPA Subtest-3	21.36	21.84	21.71	22.00	21.63	21.68	21.56	22.00	22.50	22.64	22.66	23.00
3GPP Rel 6	HSUPA Subtest-4	20.39	20.82	20.72	21.00	20.66	20.67	20.58	21.00	21.52	21.65	21.67	22.00
3GPP Rel 6	HSUPA Subtest-5	22.40	22.90	22.70	23.00	22.70	22.70	22.60	23.00	23.50	23.70	23.30	24.00

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513	
Rx Channel		9662	9800	9938		1537	1638	1738	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6	
3GPP Rel 99	AMR 12.2Kbps	18.36	18.55	18.63	18.70	18.50	18.41	18.31	18.70
3GPP Rel 99	RMC 12.2Kbps	18.38	18.57	18.67	18.70	18.54	18.42	18.35	18.70
3GPP Rel 6	HSDPA Subtest-1	17.41	17.75	17.70	18.00	17.85	17.71	17.53	18.00
3GPP Rel 6	HSDPA Subtest-2	17.40	17.77	17.69	18.00	17.83	17.71	17.54	18.00
3GPP Rel 6	HSDPA Subtest-3	16.93	17.26	17.19	17.50	17.37	17.22	17.03	17.50
3GPP Rel 6	HSDPA Subtest-4	16.90	17.24	17.19	17.50	17.40	17.15	16.99	17.50
3GPP Rel 8	DC-HSDPA Subtest-1	17.45	17.67	17.74	18.00	17.86	17.79	17.47	18.00
3GPP Rel 8	DC-HSDPA Subtest-2	17.46	17.87	17.70	18.00	17.84	17.61	17.51	18.00
3GPP Rel 8	DC-HSDPA Subtest-3	16.92	17.17	17.14	17.50	17.32	17.13	17.08	17.50
3GPP Rel 8	DC-HSDPA Subtest-4	16.81	17.34	17.24	17.50	17.31	17.06	16.96	17.50
3GPP Rel 6	HSUPA Subtest-1	17.41	17.74	17.73	18.00	17.87	17.73	17.56	18.00
3GPP Rel 6	HSUPA Subtest-2	15.44	15.73	15.69	16.00	15.87	15.74	15.58	16.00
3GPP Rel 6	HSUPA Subtest-3	16.41	16.78	16.70	17.00	16.86	16.65	16.55	17.00
3GPP Rel 6	HSUPA Subtest-4	15.39	15.80	15.72	16.00	15.91	15.73	15.57	16.00
3GPP Rel 6	HSUPA Subtest-5	17.40	17.80	17.70	18.00	17.80	17.70	17.50	18.00

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B12/B26 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE band 2/4/5/17 SAR test was covered by Band 25/66/26/17; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is \leq the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.





Band 5												
BW (MHz)	Modulation	RB Size	RB Offset	Power Low	Power Middle	Power High	Tune-up limit	MPR				
Channel				29459	29559	29659	(dBm)	(dB)				
Frequency (MHz)				829	836.5	844						
10	QPSK	1	0	24.27	24.51	24.53	25	0				
10	QPSK	1	25	24.14	24.48	24.02						
10	QPSK	1	49	24.12	24.42	24.28						
10	QPSK	25	0	23.33	23.58	23.58						
10	QPSK	25	12	23.33	23.55	23.17	24	1				
10	QPSK	25	25	23.31	23.56	23.05						
10	QPSK	50	0	23.34	23.56	23.29						
10	16QAM	1	0	23.16	23.39	23.38						
10	16QAM	1	25	23.05	23.35	23.23	24	1				
10	16QAM	1	49	23.05	23.30	23.26						
10	16QAM	25	0	21.83	22.08	22.06						
10	16QAM	25	12	21.87	22.07	22.05						
10	16QAM	25	25	21.81	22.09	21.96	23	2				
10	16QAM	50	0	21.84	22.08	22.04						
10	64QAM	1	0	22.04	22.20	22.24						
10	64QAM	1	25	21.97	22.30	21.44			23	2		
10	64QAM	1	49	21.84	22.25	21.66						
10	64QAM	25	0	20.90	21.11	20.95						
10	64QAM	25	12	20.89	21.13	20.55	22	3				
10	64QAM	25	25	20.85	21.13	20.30						
10	64QAM	50	0	20.90	21.11	20.66						
Channel				29675	29675	29675			Tune-up limit	MPR		
Frequency (MHz)				851.5	836.5	846.5	(dBm)	(dB)				
5	QPSK	1	0	24.36	24.52	23.89	25	0				
5	QPSK	1	12	24.24	24.51	23.99						
5	QPSK	1	24	24.14	24.49	24.05						
5	QPSK	12	0	23.37	23.59	22.95						
5	QPSK	12	7	23.34	23.63	23.07	24	1				
5	QPSK	12	13	23.27	23.56	23.14						
5	QPSK	25	0	23.36	23.55	23.00						
5	16QAM	1	0	23.14	23.35	23.02						
5	16QAM	1	12	23.05	23.35	23.07	24	1				
5	16QAM	1	24	23.04	23.31	23.16						
5	16QAM	12	0	21.93	22.14	21.90						
5	16QAM	12	7	21.87	22.16	21.90			23	2		
5	16QAM	12	13	21.79	22.05	22.00						
5	16QAM	25	0	21.86	22.10	21.90						
5	64QAM	1	0	22.12	22.23	21.31						
5	64QAM	1	12	21.96	22.28	21.33	23	2				
5	64QAM	1	24	21.93	22.25	21.41						
5	64QAM	12	0	21.00	21.19	20.24						
5	64QAM	12	7	20.96	21.22	20.31			22	3		
5	64QAM	12	13	20.86	21.15	20.46						
5	64QAM	25	0	20.89	21.07	20.27						
Channel				29415	29525	29635	Tune-up limit	MPR				
Frequency (MHz)				825.5	836.5	847.5	(dBm)	(dB)				
3	QPSK	1	0	24.35	24.51	23.86	25	0				
3	QPSK	1	8	24.29	24.50	24.01						
3	QPSK	1	14	24.23	24.49	23.80						
3	QPSK	8	0	23.36	23.60	22.92						
3	QPSK	8	4	23.37	23.63	23.05	24	1				
3	QPSK	8	7	23.35	23.61	23.00						
3	QPSK	15	0	23.38	23.57	22.97						
3	16QAM	1	0	23.16	23.32	22.90			24	1		
3	16QAM	1	8	23.13	23.44	23.13						
3	16QAM	1	14	23.01	23.31	23.00						
3	16QAM	8	0	21.96	22.17	21.80						
3	16QAM	8	4	21.96	22.20	21.90	23	2				
3	16QAM	8	7	21.89	22.13	22.02						
3	16QAM	15	0	21.93	22.08	21.82						
3	64QAM	1	0	22.09	22.25	21.25			23	2		
3	64QAM	1	8	22.09	22.36	21.53						
3	64QAM	1	14	21.97	22.26	21.49						
3	64QAM	8	0	20.96	21.17	20.26	22	3				
3	64QAM	8	4	20.98	21.23	20.42						
3	64QAM	8	7	20.91	21.17	20.42						
3	64QAM	15	0	20.90	21.12	20.36						
Channel				29407	29555	29543	Tune-up limit	MPR				
Frequency (MHz)				824.7	836.5	846.3	(dBm)	(dB)				
1.4	QPSK	1	0	24.23	24.39	23.63	25	0				
1.4	QPSK	1	3	24.28	24.50	23.87						
1.4	QPSK	1	5	24.20	24.41	23.77						
1.4	QPSK	3	0	24.23	24.43	23.86						
1.4	QPSK	3	1	24.28	24.48	23.89						
1.4	QPSK	3	3	24.21	24.47	23.82						
1.4	QPSK	8	0	23.29	23.44	22.94	24	1				
1.4	16QAM	1	0	23.01	23.23	22.95						
1.4	16QAM	1	3	23.09	23.33	23.07						
1.4	16QAM	1	5	23.01	23.24	22.97			24	1		
1.4	16QAM	3	0	22.82	23.04	22.72						
1.4	16QAM	3	1	22.85	23.05	22.78						
1.4	16QAM	3	3	22.80	23.05	22.76						
1.4	16QAM	8	0	21.87	22.06	21.82	23	2				
1.4	64QAM	1	0	21.94	22.17	21.38						
1.4	64QAM	1	3	22.01	22.28	21.49						
1.4	64QAM	1	5	21.93	22.15	21.41			23	2		
1.4	64QAM	3	0	21.93	22.12	21.36						
1.4	64QAM	3	1	22.00	22.19	21.41						
1.4	64QAM	3	3	21.92	22.18	21.37						
1.4	64QAM	6	0	20.82	21.02	20.33	22	3				



Band 7									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low	Power Middle	Power High	Tune-up limit	MPR	
	n			Ch. / Freq.	Ch. / Freq.	Ch. / Freq.	(dBm)	(dB)	
Channel				2505	2535	2560			
Frequency (MHz)				2510	2535	2560			
20	QPSK	1	0	24.52	24.63	24.45			
20	QPSK	1	49	24.44	24.60	23.67	25	0	
20	QPSK	1	99	24.45	24.58	23.98			
20	QPSK	50	0	23.50	23.86	23.09			
20	QPSK	50	24	23.82	23.68	22.91	24	1	
20	QPSK	50	50	23.62	23.74	23.09			
20	QPSK	100	0	23.57	23.68	22.83			
20	16QAM	1	0	23.24	23.39	23.34			
20	16QAM	1	49	23.28	23.44	22.94	24	1	
20	16QAM	1	99	23.41	23.44	23.13			
20	16QAM	50	0	21.98	22.18	22.05			
20	16QAM	50	24	22.13	22.21	21.98	23	2	
20	16QAM	50	50	22.12	22.24	21.94			
20	16QAM	100	0	22.08	22.19	21.98			
20	64QAM	1	0	22.07	22.23	22.10			
20	64QAM	1	49	22.11	22.31	21.15	23	2	
20	64QAM	1	99	22.30	22.33	21.26			
20	64QAM	50	0	21.01	21.23	20.62			
20	64QAM	50	24	21.14	21.22	20.18	22	3	
20	64QAM	50	50	21.14	21.27	20.05			
20	64QAM	100	0	21.15	21.19	20.31			
Channel				2605	2100	2135			
Frequency (MHz)				2607.5	2535	2562.5	Tune-up limit (dBm)	MPR (dB)	
15	QPSK	1	0	24.27	24.55	24.04			
15	QPSK	1	37	24.46	24.58	23.45	25	0	
15	QPSK	1	74	24.57	24.66	24.10			
15	QPSK	36	0	23.47	23.66	22.90			
15	QPSK	36	20	23.56	23.67	22.74	24	1	
15	QPSK	36	39	23.57	23.71	22.91			
15	QPSK	75	0	23.57	23.67	22.70			
15	16QAM	1	0	23.24	23.36	23.26			
15	16QAM	1	37	23.29	23.47	22.81	24	1	
15	16QAM	1	74	23.39	23.46	23.20			
15	16QAM	36	0	21.97	22.17	22.02			
15	16QAM	36	20	22.07	22.16	21.92	23	2	
15	16QAM	36	39	22.08	22.23	22.04			
15	16QAM	75	0	22.06	22.18	21.96			
15	64QAM	1	0	21.94	22.21	21.70			
15	64QAM	1	37	22.23	22.39	21.01	23	2	
15	64QAM	1	74	22.32	22.33	21.37			
15	64QAM	36	0	21.01	21.21	20.20			
15	64QAM	36	20	21.11	21.24	20.60	22	3	
15	64QAM	36	39	21.13	21.25	20.10			
15	64QAM	75	0	21.07	21.18	20.10			
Channel				2800	2100	2140	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2505	2535	2565			
10	QPSK	1	0	24.13	24.31	23.67			
10	QPSK	1	25	24.10	24.29	23.61	25	0	
10	QPSK	1	49	24.16	24.36	24.11			
10	QPSK	25	0	23.30	23.43	22.68			
10	QPSK	25	12	23.32	23.45	22.84	24	1	
10	QPSK	25	25	23.33	23.50	23.08			
10	QPSK	50	0	23.34	23.43	22.71			
10	16QAM	1	0	23.03	23.19	23.03			
10	16QAM	1	25	23.06	23.19	23.01	24	1	
10	16QAM	1	49	23.04	23.22	23.00			
10	16QAM	25	0	21.82	21.92	21.74			
10	16QAM	25	12	21.83	21.98	21.77	23	2	
10	16QAM	25	25	21.83	22.00	21.80			
10	16QAM	50	0	21.84	21.94	21.75			
10	64QAM	1	0	21.83	22.05	21.25			
10	64QAM	1	25	21.91	22.12	21.07	23	2	
10	64QAM	1	49	21.92	22.09	21.41			
10	64QAM	25	0	20.84	20.99	20.01			
10	64QAM	25	12	20.86	21.01	20.09	22	3	
10	64QAM	25	25	20.86	21.04	20.14			
10	64QAM	50	0	20.88	20.99	20.04			
Channel				2975	2100	2145	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2922.5	2535	2567.5			
5	QPSK	1	0	24.18	24.29	23.72			
5	QPSK	1	12	24.23	24.37	23.91	25	0	
5	QPSK	1	24	24.15	24.35	24.11			
5	QPSK	12	0	23.30	23.42	22.94			
5	QPSK	12	7	23.30	23.44	23.14	24	1	
5	QPSK	12	13	23.31	23.50	23.25			
5	QPSK	25	0	23.29	23.41	22.95			
5	16QAM	1	0	23.03	23.15	22.96			
5	16QAM	1	12	23.00	23.21	22.92	24	1	
5	16QAM	1	24	23.02	23.17	22.95			
5	16QAM	12	0	21.85	21.98	21.82			
5	16QAM	12	7	21.83	21.95	21.80	23	2	
5	16QAM	12	13	21.82	22.02	21.79			
5	16QAM	25	0	21.83	21.97	21.79			
5	64QAM	1	0	21.71	22.04	21.19			
5	64QAM	1	12	21.83	22.12	21.36	23	2	
5	64QAM	1	24	21.97	22.12	21.64			
5	64QAM	12	0	20.65	21.00	20.12			
5	64QAM	12	7	20.89	21.00	20.32	22	3	
5	64QAM	12	13	20.86	21.05	20.41			
5	64QAM	25	0	20.81	20.96	20.16			



Band 12									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low	Power Middle	Power High	Tune-up	MPR	
	n			Ch. / Freq.	Ch. / Freq.	Ch. / Freq.	limit	(dB)	
Channel				23055	23065	23130			
Frequency (MHz)				704	707.5	711			
10	QPSK	1	0	24.10	24.59	24.60	25	0	
10	QPSK	1	25	24.49	24.58	24.44			
10	QPSK	1	49	24.53	24.42	24.01			
10	QPSK	25	0	23.57	23.70	23.71	24	1	
10	QPSK	25	12	23.68	23.69	23.52			
10	QPSK	25	25	23.65	23.70	23.09			
10	QPSK	50	0	23.71	23.71	23.44	24	1	
10	16QAM	1	0	23.43	23.48	23.48			
10	16QAM	1	25	23.37	23.48	23.40			
10	16QAM	1	49	23.38	23.46	23.23	23	2	
10	16QAM	25	0	22.24	22.24	22.19			
10	16QAM	25	12	22.22	22.25	22.20			
10	16QAM	25	25	22.14	22.21	22.16	23	2	
10	16QAM	50	0	22.22	22.22	22.16			
10	64QAM	1	0	21.48	22.09	22.31			
10	64QAM	1	25	22.17	22.41	21.68	23	2	
10	64QAM	1	49	22.31	21.81	21.25			
10	64QAM	25	0	20.76	21.12	21.09			
10	64QAM	25	12	21.10	21.22	20.79	22	3	
10	64QAM	25	25	21.21	21.08	20.38			
10	64QAM	50	0	20.96	21.02	20.65			
Channel				23035	23065	23195			
Frequency (MHz)				701.5	707.5	711.5			
5	QPSK	1	0	24.04	24.58	24.32	25	0	
5	QPSK	1	12	24.51	24.59	23.95			
5	QPSK	1	24	24.57	24.80	23.80			
5	QPSK	12	0	23.42	23.73	23.19	24	1	
5	QPSK	12	7	23.59	23.71	23.00			
5	QPSK	12	13	23.66	23.72	22.98			
5	QPSK	25	0	23.51	23.70	22.99	24	1	
5	16QAM	1	0	23.29	23.46	23.36			
5	16QAM	1	12	23.42	23.45	23.10			
5	16QAM	1	24	23.41	23.46	23.08	23	2	
5	16QAM	12	0	22.33	22.31	22.10			
5	16QAM	12	7	22.27	22.25	21.99			
5	16QAM	12	13	22.20	22.27	21.94	23	2	
5	16QAM	25	0	22.25	22.23	22.03			
5	64QAM	1	0	21.31	22.16	21.70			
5	64QAM	1	12	21.83	22.36	21.26	23	2	
5	64QAM	1	24	22.21	22.13	21.13			
5	64QAM	12	0	20.62	21.34	20.42			
5	64QAM	12	7	20.85	21.30	20.24	22	3	
5	64QAM	12	13	20.89	21.28	20.12			
5	64QAM	25	0	20.73	21.27	20.19			
Channel				23025	23065	23165			
Frequency (MHz)				700.5	707.5	714.5			
3	QPSK	1	0	24.11	24.59	23.98	25	0	
3	QPSK	1	8	24.58	24.58	23.97			
3	QPSK	1	14	24.53	24.80	23.71			
3	QPSK	8	0	23.33	23.72	22.93	24	1	
3	QPSK	8	4	23.59	23.73	22.97			
3	QPSK	8	7	23.56	23.73	22.92			
3	QPSK	15	0	23.42	23.68	22.93	24	1	
3	16QAM	1	0	23.25	23.45	23.14			
3	16QAM	1	8	23.45	23.53	23.15			
3	16QAM	1	14	23.40	23.50	22.97	23	2	
3	16QAM	8	0	22.33	22.30	22.07			
3	16QAM	8	4	22.32	22.28	22.08			
3	16QAM	8	7	22.28	22.31	22.04	23	2	
3	16QAM	15	0	22.29	22.26	22.02			
3	64QAM	1	0	21.47	22.34	21.17			
3	64QAM	1	8	21.92	22.47	21.24	23	2	
3	64QAM	1	14	21.90	22.36	21.09			
3	64QAM	8	0	20.57	21.32	20.14			
3	64QAM	8	4	20.84	21.29	20.18	22	3	
3	64QAM	8	7	20.85	21.30	20.16			
3	64QAM	15	0	20.83	21.25	20.10			
Channel				23017	23065	23173			
Frequency (MHz)				699.7	707.5	715.3			
1.4	QPSK	1	0	23.96	24.52	23.73	25	0	
1.4	QPSK	1	3	24.18	24.60	23.68			
1.4	QPSK	1	5	24.19	24.54	23.50			
1.4	QPSK	3	0	24.19	24.53	23.85	24	1	
1.4	QPSK	3	1	24.23	24.58	23.80			
1.4	QPSK	3	3	24.30	24.58	23.75			
1.4	QPSK	6	0	23.24	23.60	22.82	24	1	
1.4	16QAM	1	0	23.21	23.34	22.98			
1.4	16QAM	1	3	23.48	23.45	23.12			
1.4	16QAM	1	5	23.34	23.37	23.05	24	1	
1.4	16QAM	3	0	23.16	23.13	22.91			
1.4	16QAM	3	1	23.22	23.14	22.94			
1.4	16QAM	3	3	23.04	23.15	22.89	23	2	
1.4	16QAM	6	0	22.25	22.19	22.02			
1.4	64QAM	1	0	21.34	22.27	21.19			
1.4	64QAM	1	3	21.53	22.38	21.21	23	2	
1.4	64QAM	1	5	21.53	22.26	21.14			
1.4	64QAM	3	0	21.40	22.24	21.10			
1.4	64QAM	3	1	21.52	22.29	21.15	22	3	
1.4	64QAM	3	3	21.63	22.28	21.07			
1.4	64QAM	6	0	20.41	21.13	20.00			



Band 13									
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				782					
Frequency (MHz)									
10	QPSK	1	0		24.34		25	0	
10	QPSK	1	25		24.41				
10	QPSK	1	49		24.40				
10	QPSK	25	0		22.94				
10	QPSK	25	12		23.34		24	1	
10	QPSK	25	25		23.55				
10	QPSK	50	0		23.53				
10	16QAM	1	0		23.23				
10	16QAM	1	25		23.28		24	1	
10	16QAM	1	49		23.24				
10	16QAM	25	0		21.87				
10	16QAM	25	12		22.03		23	2	
10	16QAM	25	25		22.08				
10	16QAM	50	0		22.04				
10	64QAM	1	0		21.59				
10	64QAM	1	25		21.36		23	2	
10	64QAM	1	49		22.13				
10	64QAM	25	0		20.00				
10	64QAM	25	12		20.41		22	3	
10	64QAM	25	25		21.07				
10	64QAM	50	0		20.83				
Channel				23206	23230	23266	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				770.5	762	764.5			
5	QPSK	1	0	23.89	23.72	24.05	25	0	
5	QPSK	1	12	23.68	23.99	24.26			
5	QPSK	1	24	23.85	24.38	24.24			
5	QPSK	12	0	23.01	22.74	23.27			
5	QPSK	12	7	22.70	23.15	23.30	24	1	
5	QPSK	12	13	22.74	23.47	23.35			
5	QPSK	25	0	22.82	23.14	23.30			
5	16QAM	1	0	22.90	22.90	23.02			
5	16QAM	1	12	22.62	23.14	23.04	24	1	
5	16QAM	1	24	22.91	23.29	23.04			
5	16QAM	12	0	21.68	21.82	21.87			
5	16QAM	12	7	21.62	22.09	21.85	23	2	
5	16QAM	12	13	21.86	22.10	21.88			
5	16QAM	25	0	21.65	22.01	21.84			
5	64QAM	1	0	21.33	21.17	21.68			
5	64QAM	1	12	21.00	21.53	21.96	23	2	
5	64QAM	1	24	21.21	22.09	21.96			
5	64QAM	12	0	20.18	20.17	20.70			
5	64QAM	12	7	20.03	20.62	20.69			
5	64QAM	12	13	20.09	20.81	20.94	22	3	
5	64QAM	25	0	20.00	20.42	20.79			



Band 17									
BW (MHz)	Modulation	RB Size	RB Offset	Power Low	Power Middle	Power High	Tune-up limit (dBm)	MPR (dB)	
Channel				Ch. 1 Freq.	Ch. 2 Freq.	Ch. 3 Freq.			
Frequency (MHz)				709	710	711			
10	QPSK	1	0	24.44	24.39	24.39			
10	QPSK	1	25	24.36	24.37	24.30	25	0	
10	QPSK	1	49	24.33	24.28	24.28			
10	QPSK	25	0	23.48	23.43	23.47			
10	QPSK	25	12	23.56	23.49	23.50	24	1	
10	QPSK	25	25	23.57	23.49	23.51			
10	QPSK	50	0	23.54	23.44	23.47			
10	16QAM	1	0	23.31	23.26	23.24			
10	16QAM	1	25	23.25	23.25	23.18	24	1	
10	16QAM	1	49	23.19	23.19	23.18			
10	16QAM	25	0	22.03	21.98	21.99			
10	16QAM	25	12	22.09	21.99	22.02	23	2	
10	16QAM	25	25	22.05	21.99	22.02			
10	16QAM	50	0	22.06	21.96	22.00			
10	64QAM	1	0	22.20	22.18	22.16			
10	64QAM	1	25	22.17	22.16	22.11	23	2	
10	64QAM	1	49	22.05	22.08	22.09			
10	64QAM	25	0	21.06	20.99	21.03			
10	64QAM	25	12	21.13	21.05	21.08	22	3	
10	64QAM	25	25	21.09	21.01	21.04			
10	64QAM	50	0	21.11	21.00	21.02			
Channel				2375	2376	2375			
Frequency (MHz)				706.5	710	713.5			
5	QPSK	1	0	24.41	24.38	24.35	25	0	
5	QPSK	1	12	24.42	24.40	24.38			
5	QPSK	1	24	24.40	24.35	24.29			
5	QPSK	12	0	23.59	23.48	23.46			
5	QPSK	12	7	23.59	23.50	23.44	24	1	
5	QPSK	12	13	23.59	23.44	23.40			
5	QPSK	25	0	23.59	23.48	23.43			
5	16QAM	1	0	23.32	23.18	23.19			
5	16QAM	1	12	23.32	23.22	23.14	24	1	
5	16QAM	1	24	23.33	23.15	23.16			
5	16QAM	12	0	22.16	22.04	21.97			
5	16QAM	12	7	22.17	22.02	21.98	23	2	
5	16QAM	12	13	22.13	21.98	21.94			
5	16QAM	25	0	22.14	21.99	21.94			
5	64QAM	1	0	22.27	22.14	22.11			
5	64QAM	1	12	22.25	22.18	21.95	23	2	
5	64QAM	1	24	22.23	22.07	21.83			
5	64QAM	12	0	21.24	21.10	21.02			
5	64QAM	12	7	21.21	21.09	20.95	22	3	
5	64QAM	12	13	21.16	21.08	20.88			
5	64QAM	25	0	21.15	21.04	20.89			



Band 26									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low	Power Middle	Power High	Tune-up limit	MPR	
	n			Ch. Freq.	Ch. Freq.	Ch. Freq.	(dBm)	(dB)	
Channel				26705	26865	26995			
Frequency (MHz)				821.5	831.5	841.5			
15	QPSK	1	0	24.33	24.35	24.42			
15	QPSK	1	37	24.25	24.32	24.39	25	0	
15	QPSK	1	74	24.28	24.32	24.31			
15	QPSK	36	0	23.43	23.48	23.56			
15	QPSK	36	20	23.43	23.54	23.62	24	1	
15	QPSK	36	39	23.41	23.47	23.53			
15	QPSK	75	0	23.43	23.53	23.52			
15	16QAM	1	0	23.19	23.17	23.28			
15	16QAM	1	37	23.09	23.21	23.23	24	1	
15	16QAM	1	74	23.12	23.16	23.17			
15	16QAM	36	0	21.94	22.00	22.07			
15	16QAM	36	20	21.96	22.03	22.10	23	2	
15	16QAM	36	39	21.97	21.99	22.05			
15	16QAM	75	0	21.98	22.05	22.03			
15	64QAM	1	0	22.03	22.07	22.18			
15	64QAM	1	37	22.08	22.06	22.16	23	2	
15	64QAM	1	74	22.08	22.11	22.03			
15	64QAM	36	0	21.09	21.07	21.10			
15	64QAM	36	20	21.12	21.09	21.14	22	3	
15	64QAM	36	39	21.05	21.03	21.10			
15	64QAM	75	0	21.05	21.07	21.07			
Channel				26706	26870	26990			
Frequency (MHz)				819	831.5	844			
10	QPSK	1	0	24.24	24.24	24.41			
10	QPSK	1	25	24.14	24.17	24.34	25	0	
10	QPSK	1	49	24.09	24.16	24.25			
10	QPSK	25	0	23.32	23.29	23.45			
10	QPSK	25	12	23.30	23.29	23.44	24	1	
10	QPSK	25	25	23.21	23.27	23.41			
10	QPSK	50	0	23.26	23.32	23.39			
10	16QAM	1	0	23.10	23.10	23.24			
10	16QAM	1	25	23.00	23.09	23.22	24	1	
10	16QAM	1	49	23.01	23.05	23.14			
10	16QAM	25	0	21.84	21.79	21.94			
10	16QAM	25	12	21.82	21.79	21.95	23	2	
10	16QAM	25	25	21.73	21.78	21.91			
10	16QAM	50	0	21.80	21.83	21.91			
10	64QAM	1	0	22.02	22.02	22.17			
10	64QAM	1	25	21.97	21.99	22.14	23	2	
10	64QAM	1	49	21.86	21.86	22.07			
10	64QAM	25	0	20.81	20.84	20.99			
10	64QAM	25	12	20.87	20.85	21.01	22	3	
10	64QAM	25	25	20.75	20.83	20.86			
10	64QAM	50	0	20.85	20.90	20.94			
Channel				26715	26865	27015			
Frequency (MHz)				816.5	831.5	846.5			
5	QPSK	1	0	24.18	24.22	24.38			
5	QPSK	1	12	24.18	24.26	24.28	25	0	
5	QPSK	1	24	24.03	24.24	24.30			
5	QPSK	12	0	23.27	23.30	23.31			
5	QPSK	12	7	23.24	23.35	23.38	24	1	
5	QPSK	12	13	23.17	23.30	23.36			
5	QPSK	25	0	23.21	23.33	23.33			
5	16QAM	1	0	23.02	23.08	23.25			
5	16QAM	1	12	22.96	23.10	23.17	24	1	
5	16QAM	1	24	22.90	23.12	23.14			
5	16QAM	12	0	21.79	21.89	22.00			
5	16QAM	12	7	21.78	21.88	22.00	23	2	
5	16QAM	12	13	21.70	21.83	21.88			
5	16QAM	25	0	21.75	21.83	21.94			
5	64QAM	1	0	21.87	21.99	21.86			
5	64QAM	1	12	21.82	22.03	21.91	23	2	
5	64QAM	1	24	21.82	22.01	21.98			
5	64QAM	12	0	20.86	20.89	20.76			
5	64QAM	12	7	20.84	20.94	20.83	22	3	
5	64QAM	12	13	20.77	20.87	20.78			
5	64QAM	25	0	20.73	20.86	20.70			
Channel				26705	26865	27005			
Frequency (MHz)				815.5	831.5	847.5			
3	QPSK	1	0	24.18	24.22	24.34			
3	QPSK	1	8	24.20	24.29	24.38	25	0	
3	QPSK	1	14	24.05	24.23	24.28			
3	QPSK	8	0	23.24	23.29	23.37			
3	QPSK	8	4	23.22	23.36	23.44	24	1	
3	QPSK	8	7	23.17	23.28	23.37			
3	QPSK	15	0	23.21	23.31	23.39			
3	16QAM	1	0	22.97	23.02	23.18			
3	16QAM	1	8	22.99	23.15	23.19	24	1	
3	16QAM	1	14	22.88	23.06	23.13			
3	16QAM	8	0	21.82	21.86	21.99			
3	16QAM	8	4	21.85	21.92	22.00	23	2	
3	16QAM	8	7	21.79	21.87	21.91			
3	16QAM	15	0	21.77	21.85	21.93			
3	64QAM	1	0	21.95	21.98	21.75			
3	64QAM	1	8	21.92	22.08	21.93	23	2	
3	64QAM	1	14	21.85	22.02	21.92			
3	64QAM	8	0	20.83	20.85	20.99			
3	64QAM	8	4	20.84	20.91	21.00	22	3	
3	64QAM	8	7	20.79	20.88	20.83			
3	64QAM	15	0	20.80	20.87	20.78			
Channel				26697	26865	27033			
Frequency (MHz)				814.7	831.5	848.3			
1.4	QPSK	1	0	24.05	24.13	24.24			
1.4	QPSK	1	3	24.15	24.23	24.26	25	0	
1.4	QPSK	1	5	24.03	24.10	24.17			
1.4	QPSK	3	0	24.11	24.13	24.26			
1.4	QPSK	3	1	24.14	24.23	24.29			
1.4	QPSK	3	3	24.09	24.18	24.23	24	1	
1.4	QPSK	6	0	23.19	23.25	23.30			
1.4	16QAM	1	0	22.89	22.97	23.07			
1.4	16QAM	1	3	22.96	23.05	23.11	24	1	
1.4	16QAM	1	5	22.89	22.94	22.98			
1.4	16QAM	3	0	22.71	22.73	22.86			
1.4	16QAM	3	1	22.75	22.83	22.90			
1.4	16QAM	3	3	22.69	22.77	22.83			
1.4	16QAM	6	0	21.78	21.84	21.88	23	2	
1.4	64QAM	1	0	21.87	21.89	21.86			
1.4	64QAM	1	3	21.90	22.01	21.86	23	2	
1.4	64QAM	1	5	21.83	21.90	21.77			
1.4	64QAM	3	0	21.82	21.85	21.76			
1.4	64QAM	3	1	21.87	21.94	21.85			
1.4	64QAM	3	3	21.79	21.90	21.81			
1.4	64QAM	6	0	20.72	20.79	20.68	22	3	



Band 5									
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch /	Power Middle Ch /	Power High Ch /	Tune-up limit (dBm)	MPR (dB)	
Channel				20450	20525	20600			
Frequency (MHz)				829	836.5	844			
10	QPSK	1	0	23.72	23.66	23.59			
10	QPSK	1	25	23.58	23.50	23.47	24.5		0
10	QPSK	1	49	23.57	23.50	23.04			
10	QPSK	25	0	22.81	22.70	22.61			
10	QPSK	25	12	22.79	22.67	22.59	23.5		1
10	QPSK	25	25	22.75	22.69	22.44			
10	QPSK	50	0	22.79	22.74	22.55			
10	16QAM	1	0	22.82	22.50	22.43			
10	16QAM	1	25	22.49	22.44	22.39	23.5		1
10	16QAM	1	49	22.45	22.40	22.25			
10	16QAM	25	0	21.31	21.15	21.09			
10	16QAM	25	12	21.31	21.15	21.12	22.5		2
10	16QAM	25	25	21.25	21.17	21.07			
10	16QAM	50	0	21.32	21.24	21.10			
10	64QAM	1	0	21.55	21.37	21.30			
10	64QAM	1	25	21.45	21.37	21.12	22.5		2
10	64QAM	1	49	21.40	21.30	20.84			
10	64QAM	25	0	20.35	20.23	20.05			
10	64QAM	25	12	20.34	20.21	20.02	21.5		3
10	64QAM	25	25	20.27	20.24	19.90			
10	64QAM	50	0	20.34	20.29	19.89			
Channel				20425	20525	20625			
Frequency (MHz)				826.5	836.5	846.5			
5	QPSK	1	0	23.71	23.64	23.62			
5	QPSK	1	12	23.70	23.61	23.54	24.5		0
5	QPSK	1	24	23.63	23.57	23.27			
5	QPSK	12	0	22.83	22.70	22.65			
5	QPSK	12	7	22.80	22.70	22.58	23.5		1
5	QPSK	12	13	22.72	22.64	22.48			
5	QPSK	25	0	22.78	22.70	22.61			
5	16QAM	1	0	22.66	22.47	22.43			
5	16QAM	1	12	22.55	22.41	22.28	23.5		1
5	16QAM	1	24	22.46	22.41	22.22			
5	16QAM	12	0	21.40	21.21	21.19			
5	16QAM	12	7	21.38	21.25	21.11	22.5		2
5	16QAM	12	13	21.28	21.18	21.04			
5	16QAM	25	0	21.32	21.21	21.09			
5	64QAM	1	0	21.57	21.43	21.38			
5	64QAM	1	12	21.46	21.33	21.21	22.5		2
5	64QAM	1	24	21.42	21.31	20.65			
5	64QAM	12	0	20.44	20.25	20.24			
5	64QAM	12	7	20.40	20.28	20.12	21.5		3
5	64QAM	12	13	20.32	20.21	19.79			
5	64QAM	25	0	20.36	20.25	19.99			
Channel				20415	20525	20635			
Frequency (MHz)				825.5	836.5	847.5			
3	QPSK	1	0	23.70	23.62	23.40			
3	QPSK	1	8	23.69	23.62	23.21	24.5		0
3	QPSK	1	14	23.63	23.54	23.04			
3	QPSK	8	0	22.81	22.62	22.38			
3	QPSK	8	4	22.82	22.69	22.25	23.5		1
3	QPSK	8	7	22.77	22.62	22.18			
3	QPSK	15	0	22.77	22.68	22.24			
3	16QAM	1	0	22.58	22.38	22.37			
3	16QAM	1	8	22.60	22.49	22.32	23.5		1
3	16QAM	1	14	22.46	22.35	22.20			
3	16QAM	8	0	21.40	21.20	21.14			
3	16QAM	8	4	21.38	21.27	21.14	22.5		2
3	16QAM	8	7	21.32	21.24	21.07			
3	16QAM	15	0	21.36	21.22	21.08			
3	64QAM	1	0	21.55	21.36	20.94			
3	64QAM	1	8	21.56	21.37	20.79	22.5		2
3	64QAM	1	14	21.44	21.29	20.62			
3	64QAM	8	0	20.44	20.22	19.81			
3	64QAM	8	4	20.40	20.25	19.72	21.5		3
3	64QAM	8	7	20.33	20.20	19.62			
3	64QAM	15	0	20.33	20.24	19.69			
Channel				20407	20525	20643			
Frequency (MHz)				824.7	836.5	848.3			
1.4	QPSK	1	0	23.65	23.44	23.10			
1.4	QPSK	1	3	23.69	23.57	23.10	24.5		0
1.4	QPSK	1	5	23.62	23.46	22.98			
1.4	QPSK	3	0	23.69	23.48	23.07			
1.4	QPSK	3	1	23.71	23.57	23.08			
1.4	QPSK	3	3	23.65	23.52	23.02			
1.4	QPSK	6	0	22.75	22.60	22.16	23.5		1
1.4	16QAM	1	0	22.49	22.33	22.20			
1.4	16QAM	1	3	22.51	22.43	22.23			
1.4	16QAM	1	5	22.42	22.31	22.11	23.5		1
1.4	16QAM	3	0	22.38	22.09	21.97			
1.4	16QAM	3	1	22.32	22.19	21.99			
1.4	16QAM	3	3	22.23	22.11	21.94			
1.4	16QAM	6	0	21.35	21.20	21.03	22.5		2
1.4	64QAM	1	0	21.45	21.23	20.84			
1.4	64QAM	1	3	21.44	21.31	20.56			
1.4	64QAM	1	5	21.38	21.28	20.50	22.5		2
1.4	64QAM	3	0	21.40	21.21	20.60			
1.4	64QAM	3	1	21.44	21.32	20.62			
1.4	64QAM	3	3	21.39	21.21	20.54			
1.4	64QAM	6	0	20.27	20.16	19.50	21.5		3



Band 13									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. /	Power Middle Ch. /	Power High Ch. /	Tune-up limit (dBm)	MPR (dB)	
Channel				23230					
Frequency (MHz)				782					
10	QPSK	1	0		22.86		24.5	0	
10	QPSK	1	25		23.13				
10	QPSK	1	49		24.02				
10	QPSK	25	0		22.23		23.5	1	
10	QPSK	25	12		22.04				
10	QPSK	25	25		22.21				
10	QPSK	50	0		22.64		23.5	1	
10	16QAM	1	0		21.84				
10	16QAM	1	25		22.39				
10	16QAM	1	49		23.22		22.5	2	
10	16QAM	25	0		20.76				
10	16QAM	25	12		21.12				
10	16QAM	25	25		21.34		22.5	2	
10	16QAM	50	0		21.01				
10	64QAM	1	0		20.02				
10	64QAM	1	25		20.59		21.5	3	
10	64QAM	1	49		21.38				
10	64QAM	25	0		19.03				
10	64QAM	25	12		19.10		21.5	3	
10	64QAM	25	25		19.42				
10	64QAM	50	0		19.14				
Channel				23205			23230	23255	
Frequency (MHz)				779.5			782	784.5	
5	QPSK	1	0	22.46	23.41	23.06	24.5	0	
5	QPSK	1	12	23.32	23.15	23.43			
5	QPSK	1	24	23.26	23.41	23.95			
5	QPSK	12	0	21.90	22.27	21.73	23.5	1	
5	QPSK	12	7	22.44	21.79	22.34			
5	QPSK	12	13	22.30	21.81	22.95			
5	QPSK	25	0	22.27	22.02	22.31	23.5	1	
5	16QAM	1	0	21.90	22.77	22.44			
5	16QAM	1	12	22.79	22.47	22.82			
5	16QAM	1	24	22.75	22.73	23.27	22.5	2	
5	16QAM	12	0	20.34	21.34	20.93			
5	16QAM	12	7	21.30	21.01	21.47			
5	16QAM	12	13	21.46	20.90	22.10	22.5	2	
5	16QAM	25	0	20.79	21.06	21.45			
5	64QAM	1	0	20.04	20.77	20.64			
5	64QAM	1	12	20.68	20.63	21.01	21.5	3	
5	64QAM	1	24	20.85	20.74	21.33			
5	64QAM	12	0	19.00	19.45	19.09			
5	64QAM	12	7	19.37	19.14	19.55	21.5	3	
5	64QAM	12	13	19.61	19.00	20.30			
5	64QAM	25	0	19.07	19.09	19.55			



Band 26										
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. /	Power Middle Ch. /	Power High Ch. /	Tune-up limit (dBm)	MPR (dB)		
Channel				26765	26865	26965				
Frequency (MHz)				821.5	831.5	841.5				
15	QPSK	1	0	23.92	23.81	23.80	24.5	0		
15	QPSK	1	37	23.84	23.80	23.71				
15	QPSK	1	74	23.81	23.69	23.48				
15	QPSK	36	0	23.03	22.95	22.88	23.5	1		
15	QPSK	36	20	23.02	22.86	22.83				
15	QPSK	36	39	22.97	22.91	22.85				
15	QPSK	75	0	23.03	22.87	22.83	23.5	1		
15	16QAM	1	0	22.80	22.67	22.66				
15	16QAM	1	37	22.67	22.67	22.59				
15	16QAM	1	74	22.62	22.53	22.41	22.5	2		
15	64QAM	36	0	21.53	21.46	21.37				
15	64QAM	36	20	21.57	21.43	21.30				
15	64QAM	36	39	21.50	21.43	21.33	22.5	2		
15	64QAM	75	0	21.55	21.40	21.36				
15	64QAM	1	0	21.41	21.48	21.56				
15	64QAM	1	37	21.67	21.59	21.48	22.5	2		
15	64QAM	1	74	21.65	21.47	20.99				
15	64QAM	36	0	20.50	20.51	20.43				
15	64QAM	36	20	20.56	20.45	20.38	21.5	3		
15	64QAM	36	39	20.53	20.46	20.37				
15	64QAM	75	0	20.53	20.43	20.36				
Channel				26740	26865	26990	Tune-up limit (dBm)	MPR (dB)		
Frequency (MHz)				819	831.5	844				
10	QPSK	1	0	23.79	23.72	23.54	24.5	0		
10	QPSK	1	25	23.65	23.57	23.43				
10	QPSK	1	49	23.64	23.56	23.34				
10	QPSK	25	0	22.88	22.72	22.60	23.5	1		
10	QPSK	25	12	22.84	22.68	22.58				
10	QPSK	25	25	22.78	22.70	22.58				
10	QPSK	50	0	22.84	22.68	22.55	23.5	1		
10	16QAM	1	0	22.67	22.55	22.46				
10	16QAM	1	25	22.57	22.48	22.39				
10	16QAM	1	49	22.53	22.46	22.29	22.5	2		
10	16QAM	25	0	21.39	21.23	21.11				
10	16QAM	25	12	21.35	21.23	21.08				
10	16QAM	25	25	21.27	21.18	21.05	22.5	2		
10	16QAM	50	0	21.35	21.17	21.06				
10	64QAM	1	0	21.36	21.40	21.27				
10	64QAM	1	25	21.49	21.44	21.30	22.5	2		
10	64QAM	1	49	21.44	21.34	20.87				
10	64QAM	25	0	20.38	20.25	20.13				
10	64QAM	25	12	20.40	20.26	20.13	21.5	3		
10	64QAM	25	25	20.31	20.24	20.08				
10	64QAM	50	0	20.39	20.22	20.08				
Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)		
Frequency (MHz)				816.5	831.5	846.5				
5	QPSK	1	0	23.85	23.62	23.53	24.5	0		
5	QPSK	1	12	23.79	23.65	23.33				
5	QPSK	1	24	23.67	23.63	23.14				
5	QPSK	12	0	22.89	22.72	22.60	23.5	1		
5	QPSK	12	7	22.86	22.76	22.43				
5	QPSK	12	13	22.79	22.68	22.20				
5	QPSK	25	0	22.82	22.66	22.42	23.5	1		
5	16QAM	1	0	22.66	22.46	22.37				
5	16QAM	1	12	22.61	22.52	22.32				
5	16QAM	1	24	22.51	22.46	22.24	22.5	2		
5	16QAM	12	0	21.45	21.29	21.14				
5	16QAM	12	7	21.43	21.31	21.11				
5	16QAM	12	13	21.32	21.22	21.03	22.5	2		
5	16QAM	25	0	21.39	21.21	21.05				
5	64QAM	1	0	21.20	21.43	21.15				
5	64QAM	1	12	21.48	21.48	20.94	22.5	2		
5	64QAM	1	24	21.47	21.43	20.69				
5	64QAM	12	0	20.33	20.33	20.02				
5	64QAM	12	7	20.47	20.38	19.85	21.5	3		
5	64QAM	12	13	20.38	20.27	19.64				
5	64QAM	25	0	20.28	20.22	19.76				
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)		
Frequency (MHz)				815.5	831.5	847.5				
3	QPSK	1	0	23.82	23.63	23.43	24.5	0		
3	QPSK	1	8	23.80	23.70	23.28				
3	QPSK	1	14	23.69	23.61	23.14				
3	QPSK	8	0	22.90	22.71	22.39	23.5	1		
3	QPSK	8	4	22.88	22.77	22.28				
3	QPSK	8	7	22.82	22.68	22.21				
3	QPSK	15	0	22.86	22.66	22.28	23.5	1		
3	16QAM	1	0	22.71	22.44	22.30				
3	16QAM	1	8	22.67	22.54	22.28				
3	16QAM	1	14	22.52	22.46	22.21	22.5	2		
3	16QAM	8	0	21.48	21.29	21.13				
3	16QAM	8	4	21.46	21.36	21.13				
3	16QAM	8	7	21.42	21.26	21.06	22.5	2		
3	16QAM	15	0	21.41	21.21	21.06				
3	64QAM	1	0	21.20	21.37	20.96				
3	64QAM	1	8	21.50	21.50	20.86	22.5	2		
3	64QAM	1	14	21.42	21.44	20.69				
3	64QAM	8	0	20.20	20.30	19.81				
3	64QAM	8	4	20.35	20.34	19.74	21.5	3		
3	64QAM	8	7	20.43	20.29	19.67				
3	64QAM	15	0	20.26	20.23	19.72				
Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)		
Frequency (MHz)				814.7	831.5	848.3				
1.4	QPSK	1	0	23.76	23.53	22.81	24.5	0		
1.4	QPSK	1	3	23.78	23.61	22.87				
1.4	QPSK	1	5	23.67	23.53	22.66				
1.4	QPSK	3	0	23.77	23.56	22.85	23.5	1		
1.4	QPSK	3	1	23.80	23.66	22.85				
1.4	QPSK	3	3	23.75	23.57	22.79				
1.4	QPSK	6	0	22.83	22.65	21.91	23.5	1		
1.4	16QAM	1	0	22.56	22.34	21.93				
1.4	16QAM	1	3	22.59	22.45	21.93				
1.4	16QAM	1	5	22.52	22.36	21.83	23.5	1		
1.4	16QAM	3	0	22.34	22.16	21.74				
1.4	16QAM	3	1	22.41	22.27	21.75				
1.4	16QAM	3	3	22.30	22.15	21.88	22.5	2		
1.4	16QAM	6	0	21.40	21.24	20.76				
1.4	64QAM	1	0	21.24	21.33	20.53				
1.4	64QAM	1	3	21.37	21.40	20.52	22.5	2		
1.4	64QAM	1	5	21.34	21.34	20.50				
1.4	64QAM	3	0	21.21	21.24	20.51				
1.4	64QAM	3	1	21.31	21.37	20.51	21.5	3		
1.4	64QAM	3	3	21.29	21.29	20.52				
1.4	64QAM	6	0	20.18	20.20	19.50				



Band 7									
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)	
Channel				20850	21100	21350			
Frequency (MHz)				2510	2535	2560			
20	QPSK	1	0	19.44	19.45	19.11			
20	QPSK	1	49	19.46	19.50	19.12	20	0	
20	QPSK	1	99	19.54	19.51	19.07			
20	QPSK	50	0	19.51	19.59	19.18			
20	QPSK	50	24	19.63	19.99	19.27	20	0	
20	QPSK	50	50	19.64	19.65	19.28			
20	QPSK	100	0	19.57	19.60	19.19			
20	16QAM	1	0	19.30	19.31	18.96			
20	16QAM	1	49	19.26	19.37	18.95	20	0	
20	16QAM	1	99	19.38	19.35	18.92			
20	16QAM	50	0	19.00	19.11	18.68			
20	16QAM	50	24	19.12	19.12	18.77	20	0	
20	16QAM	50	50	19.11	19.16	18.74			
20	16QAM	100	0	19.11	19.06	18.66			
20	64QAM	1	0	19.12	19.15	18.79			
20	64QAM	1	49	19.17	19.23	18.82	20	0	
20	64QAM	1	99	19.30	19.27	18.86			
20	64QAM	50	0	19.03	19.14	18.74			
20	64QAM	50	24	19.13	19.15	18.81	20	0	
20	64QAM	50	50	19.14	19.19	18.77			
20	64QAM	100	0	19.13	19.11	18.69			
Channel				20825	21100	21375	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2507.5	2535	2562.5			
15	QPSK	1	0	19.44	19.44	19.10			
15	QPSK	1	37	19.46	19.46	19.07	20	0	
15	QPSK	1	74	19.54	19.62	19.08			
15	QPSK	36	0	19.48	19.55	19.15			
15	QPSK	36	20	19.57	19.56	19.16	20	0	
15	QPSK	36	39	19.56	19.63	19.19			
15	QPSK	75	0	19.58	19.56	19.15			
15	16QAM	1	0	19.25	19.29	18.92			
15	16QAM	1	37	19.29	19.32	18.90	20	0	
15	16QAM	1	74	19.36	19.35	18.90			
15	16QAM	36	0	19.37	19.07	18.66			
15	16QAM	36	20	19.07	19.06	18.65	20	0	
15	16QAM	36	39	19.09	19.13	18.72			
15	16QAM	75	0	19.06	19.05	18.65			
15	64QAM	1	0	19.10	19.20	18.79			
15	64QAM	1	37	19.19	19.31	18.87	20	0	
15	64QAM	1	74	19.32	19.25	18.81			
15	64QAM	36	0	19.01	19.11	18.71			
15	64QAM	36	20	19.10	19.11	18.70	20	0	
15	64QAM	36	39	19.11	19.17	18.74			
15	64QAM	75	0	19.08	19.08	18.65			
Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2505	2535	2565			
10	QPSK	1	0	19.41	19.47	19.09			
10	QPSK	1	25	19.42	19.47	19.06	20	0	
10	QPSK	1	49	19.53	19.49	19.06			
10	QPSK	25	0	19.48	19.56	19.16			
10	QPSK	25	12	19.55	19.57	19.15	20	0	
10	QPSK	25	25	19.58	19.63	19.17			
10	QPSK	50	0	19.56	19.56	19.14			
10	16QAM	1	0	19.29	19.27	18.92			
10	16QAM	1	25	19.28	19.39	19.01	20	0	
10	16QAM	1	49	19.33	19.33	18.92			
10	16QAM	25	0	18.96	19.07	18.67			
10	16QAM	25	12	19.09	19.07	18.65	20	0	
10	16QAM	25	25	19.08	19.13	18.72			
10	16QAM	50	0	19.03	19.04	18.63			
10	64QAM	1	0	19.10	19.19	18.79			
10	64QAM	1	25	19.13	19.28	18.86	20	0	
10	64QAM	1	49	19.30	19.28	18.80			
10	64QAM	25	0	19.03	19.11	18.72			
10	64QAM	25	12	19.10	19.15	18.71	20	0	
10	64QAM	25	25	19.11	19.16	18.74			
10	64QAM	50	0	19.07	19.09	18.65			
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2502.5	2535	2567.5			
5	QPSK	1	0	19.14	19.18	18.69			
5	QPSK	1	12	18.16	19.30	18.66	20	0	
5	QPSK	1	24	19.17	19.28	18.66			
5	QPSK	12	0	19.29	19.34	18.81			
5	QPSK	12	7	19.30	19.35	18.79	20	0	
5	QPSK	12	13	19.28	19.41	18.82			
5	QPSK	25	0	19.28	19.29	18.82			
5	16QAM	1	0	18.98	18.99	18.55			
5	16QAM	1	12	19.00	18.99	18.49	20	0	
5	16QAM	1	24	18.99	19.05	18.55			
5	16QAM	12	0	18.92	18.97	18.33			
5	16QAM	12	7	18.81	18.87	18.34	20	0	
5	16QAM	12	13	18.81	18.90	18.34			
5	16QAM	25	0	18.79	18.83	18.34			
5	64QAM	1	0	18.93	18.94	18.49			
5	64QAM	1	12	18.91	18.99	18.44	20	0	
5	64QAM	1	24	18.91	19.02	18.42			
5	64QAM	12	0	18.87	18.91	18.38			
5	64QAM	12	7	18.87	18.95	18.41	20	0	
5	64QAM	12	13	18.84	18.98	18.39			
5	64QAM	25	0	18.83	18.86	18.35			

Band 7									
BW (MHz)	Modulation	RB Size	RB Offset	Power Low Ch. / Freq. 20850 2510	Power Middle Ch. / Freq. 21100 2535	Power High Ch. / Freq. 21550 2560	Tune-up limit (dBm)	MPR (dB)	
Channel									
Frequency (MHz)									
20	QPSK	1	0	19.44	19.45	19.11			
20	QPSK	1	49	19.48	19.50	19.12	20	0	
20	QPSK	1	99	19.54	19.51	19.07			
20	QPSK	50	0	19.51	19.59	19.18			
20	QPSK	50	24	19.63	19.59	19.27	20	0	
20	QPSK	50	50	19.64	19.85	19.28			
20	QPSK	100	0	19.57	19.60	19.19			
20	16QAM	1	0	19.30	19.31	18.98			
20	16QAM	1	49	19.26	19.37	18.95	20	0	
20	16QAM	1	99	19.38	19.35	18.92			
20	16QAM	50	0	19.00	19.11	18.66			
20	16QAM	50	24	19.12	19.12	18.77	20	0	
20	16QAM	50	50	19.11	19.16	18.74			
20	16QAM	100	0	19.11	19.08	18.68			
20	64QAM	1	0	19.12	19.15	18.78			
20	64QAM	1	49	19.17	19.23	18.82	20	0	
20	64QAM	1	99	19.30	19.27	18.86			
20	64QAM	50	0	19.03	19.14	18.74			
20	64QAM	50	24	19.13	19.15	18.81	20	0	
20	64QAM	50	50	19.14	19.19	18.77			
20	64QAM	100	0	19.13	19.11	18.69			
Channel									
Frequency (MHz)									
				20825	21100	21375			
				2507.5	2535	2562.5			
15	QPSK	1	0	19.44	19.44	19.10			
15	QPSK	1	37	19.48	19.46	19.07	20	0	
15	QPSK	1	74	19.54	19.52	19.08			
15	QPSK	36	0	19.48	19.55	19.15			
15	QPSK	36	20	19.57	19.56	19.16	20	0	
15	QPSK	36	39	19.56	19.83	19.19			
15	QPSK	75	0	19.58	19.56	19.15			
15	16QAM	1	0	19.25	19.29	18.92			
15	16QAM	1	37	19.29	19.32	18.90	20	0	
15	16QAM	1	74	19.38	19.35	18.90			
15	16QAM	36	0	18.97	19.07	18.68			
15	16QAM	36	20	19.07	19.06	18.66	20	0	
15	16QAM	36	39	19.09	19.13	18.72			
15	16QAM	75	0	19.06	19.05	18.65			
15	64QAM	1	0	19.10	19.20	18.79			
15	64QAM	1	37	19.19	19.31	18.87	20	0	
15	64QAM	1	74	19.32	19.25	18.81			
15	64QAM	36	0	19.01	19.11	18.71			
15	64QAM	36	20	19.10	19.11	18.70	20	0	
15	64QAM	36	39	19.11	19.17	18.74			
15	64QAM	75	0	19.08	19.08	18.65			
Channel									
Frequency (MHz)									
				20900	21100	21400			
				2505	2535	2565			
10	QPSK	1	0	19.41	19.47	19.09			
10	QPSK	1	25	19.42	19.47	19.08	20	0	
10	QPSK	1	49	19.53	19.49	19.06			
10	QPSK	25	0	19.48	19.56	19.16			
10	QPSK	25	12	19.55	19.57	19.15	20	0	
10	QPSK	25	25	19.58	19.63	19.17			
10	QPSK	50	0	19.56	19.56	19.14			
10	16QAM	1	0	19.29	19.27	18.92			
10	16QAM	1	25	19.28	19.39	18.91	20	0	
10	16QAM	1	49	19.33	19.33	18.92			
10	16QAM	25	0	19.96	19.07	18.67			
10	16QAM	25	12	19.08	19.07	18.65	20	0	
10	16QAM	25	25	19.08	19.13	18.72			
10	16QAM	50	0	19.03	19.04	18.63			
10	64QAM	1	0	19.10	19.19	18.79			
10	64QAM	1	25	19.13	19.28	18.86	20	0	
10	64QAM	1	49	19.38	19.28	18.80			
10	64QAM	25	0	19.03	19.11	18.72			
10	64QAM	25	12	19.10	19.15	18.71	20	0	
10	64QAM	25	25	19.11	19.18	18.74			
10	64QAM	50	0	19.07	19.09	18.68			
Channel									
Frequency (MHz)									
				20775	21100	21425			
				25025	2535	2567.5			
5	QPSK	1	0	19.14	19.18	18.69			
5	QPSK	1	12	19.16	19.30	18.66	20	0	
5	QPSK	1	24	19.17	19.28	18.66			
5	QPSK	12	0	19.29	19.34	18.81			
5	QPSK	12	7	19.30	19.35	18.79	20	0	
5	QPSK	12	13	19.28	19.41	18.82			
5	QPSK	25	0	19.28	19.29	18.62			
5	16QAM	1	0	18.98	18.99	18.55			
5	16QAM	1	12	19.00	18.98	18.49	20	0	
5	16QAM	1	24	18.99	19.05	18.55			
5	16QAM	12	0	18.82	18.87	18.33			
5	16QAM	12	7	18.81	18.87	18.34	20	0	
5	16QAM	12	13	18.81	18.90	18.34			
5	16QAM	25	0	18.79	18.83	18.34			
5	64QAM	1	0	18.93	18.94	18.49			
5	64QAM	1	12	18.91	18.99	18.44	20	0	
5	64QAM	1	24	18.91	19.02	18.42			
5	64QAM	12	0	18.87	18.91	18.38			
5	64QAM	12	7	18.87	18.95	18.41	20	0	
5	64QAM	12	13	18.84	18.98	18.39			
5	64QAM	25	0	18.83	18.86	18.35			

<TDD LTE SAR Measurement>

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP

- a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
- b. “special subframe S” contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
- c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

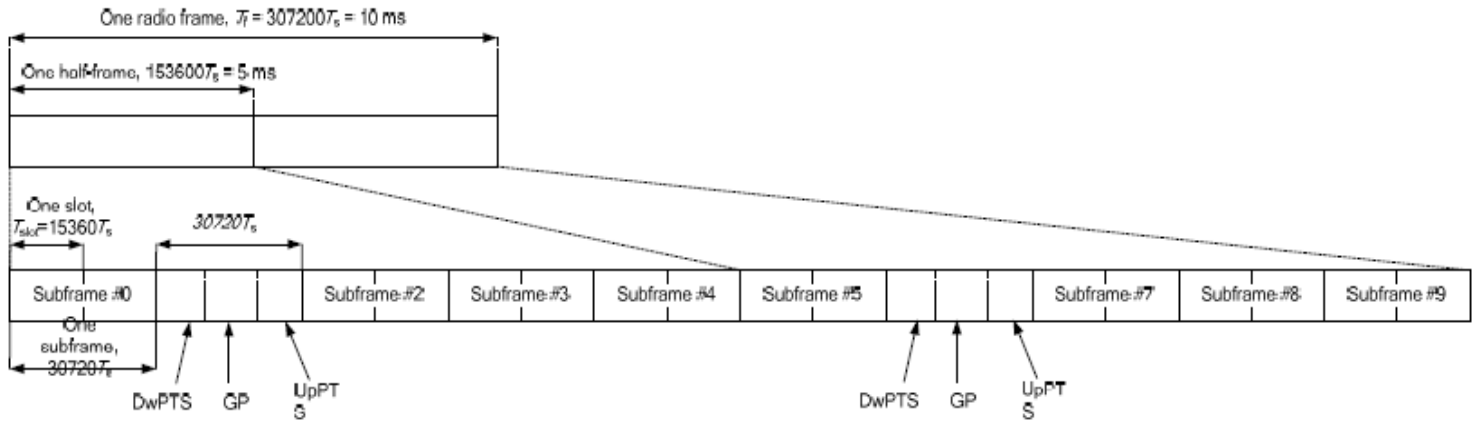


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink				
	DwPTS	UpPTS		DwPTS	UpPTS			
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$		
1	$19760 \cdot T_s$			$20480 \cdot T_s$				
2	$21952 \cdot T_s$			$23040 \cdot T_s$				
3	$24144 \cdot T_s$			$25600 \cdot T_s$				
4	$26336 \cdot T_s$			$7680 \cdot T_s$				
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$				
7	$21952 \cdot T_s$			$12800 \cdot T_s$				
8	$24144 \cdot T_s$			-			-	-
9	$13168 \cdot T_s$			-			-	-

Special subframe (30720·T _s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~4	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T _s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~3	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

- i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subframes, uplink operation is in 3 uplink subframes and 1 special
- ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
- iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: $(3+0.167)/5 = 63.3\%$
- iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: $(3+0.143)/5 = 62.9\%$
- v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.



Band 41										
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				39750	40185	40620	41055	41490		
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	24.12	24.43	24.50	24.35	24.65		
20	QPSK	1	49	24.14	24.51	24.43	24.22	24.61	25	0
20	QPSK	1	99	24.07	24.51	24.43	24.37	24.74		
20	QPSK	50	0	23.26	23.99	23.91	23.41	23.68		
20	QPSK	50	24	23.32	23.80	23.49	23.39	23.71		
20	QPSK	50	50	23.26	23.66	23.52	23.38	23.80	24	1
20	QPSK	100	0	23.33	23.60	23.46	23.39	23.69		
20	16QAM	1	0	22.78	23.02	23.15	22.98	23.21		
20	16QAM	1	49	22.75	23.07	23.02	22.80	23.17	24	1
20	16QAM	1	99	22.82	23.08	23.06	22.96	23.31		
20	16QAM	50	0	21.78	22.12	22.05	21.90	22.20		
20	16QAM	50	24	21.86	22.15	22.02	21.90	22.23	23	2
20	16QAM	50	50	21.85	22.18	22.06	21.92	22.32		
20	16QAM	100	0	21.86	22.11	22.01	21.90	22.21		
20	64QAM	1	0	21.49	21.76	21.75	21.69	21.93		
20	64QAM	1	49	21.35	21.78	21.77	21.53	21.92	23	2
20	64QAM	1	99	21.33	21.79	21.79	21.63	22.03		
20	64QAM	50	0	20.78	21.13	21.06	20.92	21.20		
20	64QAM	50	24	20.74	21.15	21.05	20.92	21.22	22	3
20	64QAM	50	50	20.71	21.19	21.05	20.93	21.30		
20	64QAM	100	0	20.72	21.14	21.03	20.92	21.21		
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2603.5	2546.3	2593	2637.8	2682.5		
15	QPSK	1	0	24.09	24.51	24.44	24.24	24.62		
15	QPSK	1	37	24.11	24.47	24.37	24.23	24.59	25	0
15	QPSK	1	74	24.12	24.60	24.45	24.40	24.73		
15	QPSK	36	0	23.19	23.57	23.48	23.29	23.72		
15	QPSK	36	20	23.28	23.65	23.46	23.39	23.79	24	1
15	QPSK	36	39	23.27	23.62	23.50	23.39	23.78		
15	QPSK	75	0	23.31	23.64	23.47	23.40	23.72		
15	16QAM	1	0	22.77	23.11	23.09	22.86	23.22		
15	16QAM	1	37	22.70	23.01	23.00	22.77	23.17	24	1
15	16QAM	1	74	22.77	23.22	23.11	23.02	23.38		
15	16QAM	36	0	21.65	22.03	21.97	21.78	22.17		
15	16QAM	36	20	21.75	22.11	21.91	21.84	22.22	23	2
15	16QAM	36	39	21.75	22.11	21.96	21.85	22.23		
15	16QAM	75	0	21.84	22.16	21.99	21.89	22.20		
15	64QAM	1	0	21.44	21.80	21.73	21.54	21.87		
15	64QAM	1	37	21.49	21.82	21.75	21.54	21.94	23	2
15	64QAM	1	74	21.42	21.90	21.82	21.70	22.09		
15	64QAM	36	0	20.73	21.09	21.03	20.85	21.22		
15	64QAM	36	20	20.84	21.16	20.99	20.89	21.28	22	3
15	64QAM	36	39	20.79	21.17	21.06	20.90	21.31		
15	64QAM	75	0	20.83	21.18	20.99	20.91	21.23		
Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2600	2547	2593	2639	2693		
10	QPSK	1	0	23.80	24.17	24.12	24.03	24.53		
10	QPSK	1	25	23.81	24.23	24.15	24.00	24.42	25	0
10	QPSK	1	49	23.94	24.29	24.20	24.07	24.46		
10	QPSK	25	0	23.07	23.36	23.28	23.11	23.54		
10	QPSK	25	12	23.12	23.46	23.28	23.24	23.57	24	1
10	QPSK	25	25	23.07	23.45	23.33	23.22	23.63		
10	QPSK	50	0	23.09	23.45	23.26	23.22	23.53		
10	16QAM	1	0	22.78	23.14	23.04	22.84	23.25		
10	16QAM	1	25	22.75	23.16	23.03	22.85	23.29	24	1
10	16QAM	1	49	22.75	23.11	23.02	22.88	23.29		
10	16QAM	25	0	21.61	21.89	21.81	21.63	22.02		
10	16QAM	25	12	21.63	22.01	21.80	21.74	22.07	23	2
10	16QAM	25	25	21.61	21.94	21.87	21.71	22.10		
10	16QAM	50	0	21.62	21.99	21.82	21.75	22.06		
10	64QAM	1	0	21.68	21.93	21.85	21.73	22.09		
10	64QAM	1	25	21.73	22.01	21.94	21.85	22.18	23	2
10	64QAM	1	49	21.63	22.04	21.93	21.80	22.16		
10	64QAM	25	0	20.69	20.97	20.89	20.70	21.11		
10	64QAM	25	12	20.71	21.07	20.90	20.81	21.12	22	3
10	64QAM	25	25	20.68	21.05	20.93	20.79	21.20		
10	64QAM	50	0	20.63	20.97	20.81	20.75	21.07		
Channel				39675	40148	40620	41093	41569	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	23.97	24.26	24.16	24.04	24.50		
5	QPSK	1	12	23.92	24.29	24.22	24.09	24.50	25	0
5	QPSK	1	24	23.93	24.29	24.16	24.09	24.45		
5	QPSK	12	0	23.11	23.37	23.31	23.15	23.62		
5	QPSK	12	7	23.12	23.45	23.33	23.25	23.65	24	1
5	QPSK	12	13	23.09	23.45	23.35	23.24	23.63		
5	QPSK	25	0	23.08	23.43	23.26	23.21	23.62		
5	16QAM	1	0	22.63	22.88	22.84	22.62	23.11		
5	16QAM	1	12	22.62	23.05	22.94	22.77	23.20	24	1
5	16QAM	1	24	22.65	23.02	22.91	22.79	23.16		
5	16QAM	12	0	21.58	21.96	21.79	21.63	22.09		
5	16QAM	12	7	21.64	21.96	21.81	21.74	22.11	23	2
5	16QAM	12	13	21.55	21.93	21.83	21.69	22.07		
5	16QAM	25	0	21.61	21.97	21.86	21.74	22.13		
5	64QAM	1	0	21.40	21.65	21.59	21.42	21.85		
5	64QAM	1	12	21.39	21.79	21.66	21.50	21.87	23	2
5	64QAM	1	24	21.42	21.78	21.63	21.49	21.87		
5	64QAM	12	0	20.64	20.94	20.84	20.69	21.12		
5	64QAM	12	7	20.65	21.01	20.87	20.77	21.17	22	3
5	64QAM	12	13	20.63	20.99	20.89	20.75	21.13		
5	64QAM	25	0	20.66	21.01	20.86	20.78	21.16		



Band 41											
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				39750	40185	40620	41055	41490			
Frequency (MHz)				2506	2549.5	2593	2636.5	2680			
20	QPSK	1	0	19.16	19.42	19.46	19.39	19.33	20.2	0	
20	QPSK	1	49	18.18	19.49	19.41	19.29	19.29			
20	QPSK	1	99	19.22	19.59	19.47	19.45	19.41			
20	QPSK	50	0	19.23	19.52	19.51	19.45	19.36			
20	QPSK	50	24	19.33	19.61	19.52	19.47	19.45			
20	QPSK	50	50	19.31	19.59	19.47	19.46	19.43			
20	QPSK	100	0	19.33	19.53	19.51	19.48	19.39			
20	16QAM	1	0	18.80	18.98	19.07	19.05	18.94	20.2	0	
20	16QAM	1	49	18.76	19.01	19.07	18.90	18.89			
20	16QAM	1	99	18.83	19.04	19.05	19.07	19.04			
20	16QAM	50	0	18.76	19.05	19.04	19.01	18.92			
20	16QAM	50	24	18.87	19.16	19.05	19.00	18.94			
20	16QAM	50	50	18.85	19.14	19.01	19.02	19.02			
20	16QAM	100	0	18.86	19.06	19.01	19.01	18.94			
20	64QAM	1	0	18.56	18.76	18.78	18.78	18.60	20.2	0	
20	64QAM	1	49	18.57	18.78	18.86	18.60	18.66			
20	64QAM	1	99	18.64	18.82	18.79	18.71	18.74			
20	64QAM	50	0	18.60	19.06	19.07	18.98	18.89			
20	64QAM	50	24	18.89	19.18	19.05	18.99	18.93			
20	64QAM	50	50	18.89	19.13	19.02	18.98	19.01			
20	64QAM	100	0	18.89	19.08	19.04	18.98	18.92			
Channel				39725	40173	40620	41068	41515	Tune-up limit (dBm)	MPR (dB)	
Frequency (MHz)				2503.5	2546.3	2593	2637.8	2682.5			
15	QPSK	1	0	19.09	19.40	19.36	19.26	19.28	20.2	0	
15	QPSK	1	37	19.09	19.41	19.37	19.25	19.32			
15	QPSK	1	74	19.13	19.52	19.42	19.46	19.45			
15	QPSK	36	0	19.18	19.51	19.51	19.38	19.40			
15	QPSK	36	20	19.29	19.58	19.48	19.45	19.41			
15	QPSK	36	39	19.26	19.57	19.48	19.45	19.48			
15	QPSK	75	0	19.27	19.51	19.48	19.45	19.40			
15	16QAM	1	0	18.80	19.08	19.08	18.98	18.94	20.2	0	
15	16QAM	1	37	18.63	18.97	18.99	18.85	18.84			
15	16QAM	1	74	18.78	19.18	19.14	19.11	19.10			
15	16QAM	36	0	18.67	18.97	18.98	18.88	18.89			
15	16QAM	36	20	18.76	19.05	18.95	18.93	18.87			
15	16QAM	36	39	18.74	19.05	18.95	18.92	18.97			
15	16QAM	75	0	18.83	19.05	19.01	19.01	18.95			
15	64QAM	1	0	18.51	18.76	18.75	18.63	18.60	20.2	0	
15	64QAM	1	37	18.55	18.79	18.80	18.62	18.67			
15	64QAM	1	74	18.59	18.87	18.82	18.77	18.80			
15	64QAM	36	0	18.74	19.07	19.05	18.90	18.83			
15	64QAM	36	20	18.83	19.10	19.05	18.95	18.94			
15	64QAM	36	39	18.82	19.13	19.01	18.97	19.02			
15	64QAM	75	0	18.84	19.06	19.06	18.99	18.92	Tune-up limit (dBm)	MPR (dB)	
Channel				39700	40160	40620	41080	41540			
Frequency (MHz)				2501	2547	2593	2639	2685			
10	QPSK	1	0	18.94	19.15	19.18	19.09	18.99	20.2	0	
10	QPSK	1	25	18.86	19.19	19.17	19.11	19.06			
10	QPSK	1	49	18.98	19.28	19.14	19.22	19.12			
10	QPSK	25	0	19.09	19.31	19.31	19.22	19.16			
10	QPSK	25	12	19.12	19.46	19.36	19.33	19.21			
10	QPSK	25	25	19.10	19.40	19.30	19.31	19.28			
10	QPSK	50	0	19.12	19.41	19.32	19.32	19.16			
10	16QAM	1	0	18.82	19.07	19.08	18.94	18.89	20.2	0	
10	16QAM	1	25	18.81	19.08	19.06	18.92	18.87			
10	16QAM	1	49	18.82	19.11	19.05	18.94	18.92			
10	16QAM	25	0	18.63	18.85	18.85	18.72	18.66			
10	16QAM	25	12	18.66	19.01	18.88	18.86	18.71			
10	16QAM	25	25	18.62	18.96	18.80	18.82	18.75			
10	16QAM	50	0	18.65	18.96	18.87	18.87	18.70			
10	64QAM	1	0	18.79	18.94	18.93	18.80	18.73	20.2	0	
10	64QAM	1	25	18.83	19.05	19.11	18.93	18.87			
10	64QAM	1	49	18.74	19.00	18.91	18.86	18.81			
10	64QAM	25	0	18.71	18.91	18.93	18.77	18.71			
10	64QAM	25	12	18.73	19.03	18.95	18.90	18.75			
10	64QAM	25	25	18.69	18.99	18.92	18.87	18.81			
10	64QAM	50	0	18.67	19.01	18.90	18.83	18.67	Tune-up limit (dBm)	MPR (dB)	
Channel				39675	40148	40620	41078	41569			
Frequency (MHz)				2498.5	2545.8	2593	2640.3	2687.5			
5	QPSK	1	0	19.01	19.18	19.21	19.11	19.15	20.2	0	
5	QPSK	1	12	18.96	19.27	19.29	19.17	19.14			
5	QPSK	1	24	19.00	19.23	19.15	19.18	19.10			
5	QPSK	12	0	19.09	19.32	19.31	19.23	19.24			
5	QPSK	12	7	19.12	19.41	19.30	19.33	19.25			
5	QPSK	12	13	19.07	19.39	19.30	19.31	19.23			
5	QPSK	25	0	19.07	19.37	19.30	19.29	19.22			
5	16QAM	1	0	18.64	18.87	18.81	18.74	18.74	20.2	0	
5	16QAM	1	12	18.64	18.99	18.99	18.87	18.79			
5	16QAM	1	24	18.65	18.99	18.95	18.89	18.82			
5	16QAM	12	0	18.59	18.92	18.79	18.69	18.68			
5	16QAM	12	7	18.62	18.90	18.81	18.77	18.70			
5	16QAM	12	13	18.58	18.87	18.78	18.76	18.68			
5	16QAM	25	0	18.63	18.91	18.86	18.80	18.75			
5	64QAM	1	0	18.47	18.60	18.64	18.48	18.47	20.2	0	
5	64QAM	1	12	18.43	18.69	18.74	18.58	18.51			
5	64QAM	1	24	18.48	18.70	18.64	18.59	18.50			
5	64QAM	12	0	18.65	18.85	18.86	18.75	18.73			
5	64QAM	12	7	18.68	18.97	18.90	18.83	18.77			
5	64QAM	12	13	18.63	18.84	18.84	18.81	18.74			
5	64QAM	25	0	18.67	18.95	18.88	18.83	18.78			

1. For each antenna, transmit power in SISO operation is larger than (or equal to) the power in MIMO operation, RF exposure compliance of MIMO mode can be deduced from the compliance simultaneous transmission of antennas operating in SISO mode.
2. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is $< 1.6\text{W/kg}$ and SAR peak to location ratio ≤ 0.04 , no additional SAR measurements for MIMO.
3. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
4. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
5. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
6. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
 - a. When the reported SAR of the initial test position is $\leq 0.4\text{ W/kg}$, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
 - b. When the reported SAR of the test position is $> 0.4\text{ W/kg}$, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is $\leq 0.8\text{ W/kg}$ or all required test position are tested.
 - c. For all positions/configurations, when the reported SAR is $> 0.8\text{ W/kg}$, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is $\leq 1.2\text{ W/kg}$ or all required channels are tested.
7. Per 201904 TCBC workshops, General principles of FCC KDB Publication 248227 D01 can be applied to determine the SAR Initial Test Configurations and test reduction for 802.11ax SAR testing. For the table below the 802.11ax maximum power is SU (non-OFDMA)
8. In applying the test guidance, the IEEE 802.11 mode with the maximum output power (out of all modes) should be considered for testing
9. For modes with the same maximum output power, the guidance from section 5.3.2 a) of FCC KDB Publication 248227 D01 should be applied, with 802.11ax being considered as the highest 802.11 mode for the appropriate frequency bands
10. When SAR testing for 802.11ax is required
 - a. If the maximum output power is highest for OFDMA scenarios, choose the tone size with the maximum number of tones and the highest maximum output power
 - b. Otherwise, consider the fully allocated channel for SAR testing
 - c. When SAR testing is required on RU sizes less than the fully allocated channel, use the RU number closest to the middle of the channel, choosing the higher RU number when two RUs are equidistant to the middle of the channel



Chain 0						
2.4GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11b 1Mbps	1	2412	14.70	15.00	100.00
		6	2437	14.80	15.00	
		11	2462	14.80	15.00	
	802.11g 6Mbps	1	2412	12.70	13.00	98.99
		6	2437	14.60	15.00	
		11	2462	13.60	14.00	
	802.11n-HT20 MCS0	1	2412	12.70	13.00	99.01
		6	2437	14.80	15.00	
		11	2462	13.80	14.00	
802.11ax-HE20 MCS0	1	2412	13.00	13.00	98.66	
	6	2437	14.30	15.00		
	11	2462	13.50	14.00		

Chain 0						
5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	36	5180	11.20	11.50	99.10
		40	5200	11.40	11.50	
		44	5220	10.90	11.50	
		48	5240	11.30	11.50	
	802.11n-HT20 MCS0	36	5180	11.30	11.50	99.11
		40	5200	11.40	11.50	
		44	5220	10.90	11.50	
		48	5240	11.30	11.50	
	802.11n-HT40 MCS0	38	5190	11.20	11.50	98.86
		46	5230	11.30	11.50	
	802.11ac-VHT20 MCS0	36	5180	11.20	11.50	99.38
		40	5200	11.30	11.50	
		44	5220	10.80	11.50	
		48	5240	11.20	11.50	
	802.11ac-VHT40 MCS0	38	5190	11.10	11.50	98.96
		46	5230	11.20	11.50	
	802.11ac-VHT80 MCS0	42	5210	11.20	11.50	98.58
	802.11ax-HE20 MCS0	36	5180	11.50	11.50	99.10
		40	5200	11.50	11.50	
44		5220	11.10	11.50		
48		5240	11.10	11.50		
802.11ax-HE40 MCS0	38	5190	11.40	11.50	98.67	
	46	5230	11.10	11.50		
802.11ax-HE80 MCS0	42	5210	11.20	11.50	98.80	



Chain 0						
5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps		52	5260	11.30	11.50
56			5280	11.00	11.50	
60			5300	11.30	11.50	
64			5320	11.40	11.50	
802.11n-HT20 MCS0		52	5260	11.40	11.50	99.11
		56	5280	11.00	11.50	
		60	5300	11.30	11.50	
		64	5320	11.50	11.50	
802.11n-HT40 MCS0		54	5270	11.20	11.50	98.86
		62	5310	11.00	11.50	
802.11ac-VHT20 MCS0		52	5260	11.30	11.50	99.38
		56	5280	10.90	11.50	
		60	5300	11.20	11.50	
		64	5320	11.40	11.50	
802.11ac-VHT40 MCS0		54	5270	11.10	11.50	98.96
		62	5310	10.90	11.50	
802.11ac-VHT80 MCS0		58	5290	10.80	11.50	98.58
802.11ax-HE20 MCS0		52	5260	11.00	11.50	99.10
		56	5280	11.20	11.50	
		60	5300	11.40	11.50	
		64	5320	11.30	11.50	
802.11ax-HE40 MCS0		54	5270	11.50	11.50	98.67
		62	5310	11.10	11.50	
802.11ax-HE80 MCS0		58	5290	11.10	11.50	98.80



Chain 0						
5.5GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	100	5500	11.10	11.50	99.10
		116	5580	11.40	11.50	
		124	5620	11.20	11.50	
		132	5660	11.30	11.50	
		144	5720	11.20	11.50	
	802.11n-HT20 MCS0	100	5500	11.20	11.50	99.11
		116	5580	11.50	11.50	
		124	5620	11.20	11.50	
		132	5660	11.30	11.50	
144		5720	11.20	11.50		
802.11n-HT40 MCS0	102	5510	11.30	11.50	98.86	
	110	5550	11.00	11.50		
	126	5630	11.10	11.50		
	134	5670	11.50	11.50		
	142	5710	11.00	11.50		
802.11ac-VHT20 MCS0	100	5500	11.10	11.50	99.38	
	116	5580	11.40	11.50		
	124	5620	11.10	11.50		
	132	5660	11.20	11.50		
	144	5720	11.10	11.50		
802.11ac-VHT40 MCS0	102	5510	11.20	11.50	98.96	
	110	5550	10.90	11.50		
	126	5630	11.00	11.50		
	134	5670	11.40	11.50		
	142	5710	10.90	11.50		
802.11ac-VHT80 MCS0	106	5530	11.00	11.50	98.58	
	122	5610	10.70	11.50		
	138	5690	11.20	11.50		
802.11ax-HE20 MCS0	100	5500	11.00	11.50	99.10	
	116	5580	11.40	11.50		
	124	5620	11.10	11.50		
	132	5660	11.30	11.50		
	144	5720	11.20	11.50		
802.11ax-HE40 MCS0	102	5510	11.40	11.50	98.67	
	110	5550	11.00	11.50		
	126	5630	11.00	11.50		
	134	5670	11.10	11.50		
	142	5710	11.00	11.50		
802.11ax-HE80 MCS0	106	5530	11.10	11.50	98.80	
	122	5610	11.40	11.50		
	138	5690	11.00	11.50		



Chain 0						
5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps		149	5745	11.20	11.50
157			5785	11.10	11.50	
165			5825	11.40	11.50	
802.11n-HT20 MCS0		149	5745	11.20	11.50	99.11
		157	5785	11.10	11.50	
		165	5825	11.40	11.50	
802.11n-HT40 MCS0		151	5755	11.20	11.50	98.86
		159	5795	11.10	11.50	
802.11ac-VHT20 MCS0		149	5745	11.10	11.50	99.38
		157	5785	11.00	11.50	
		165	5825	11.30	11.50	
802.11ac-VHT40 MCS0		151	5755	11.10	11.50	98.96
		159	5795	11.00	11.50	
802.11ac-VHT80 MCS0		155	5775	11.20	11.50	98.58
802.11ax-HE20 MCS0		149	5745	11.30	11.50	99.10
		157	5785	11.20	11.50	
		165	5825	11.00	11.50	
802.11ax-HE40 MCS0		151	5755	11.20	11.50	98.67
		159	5795	11.00	11.50	
802.11ax-HE80 MCS0		155	5775	11.00	11.50	98.80



Chain 1						
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	10.80	11.00	100.00
		6	2437	10.70	11.00	
		11	2462	10.70	11.00	
	802.11g 6Mbps	1	2412	12.80	13.00	99.25
		6	2437	13.60	14.00	
		11	2462	13.60	14.00	
	802.11n-HT20 MCS0	1	2412	12.80	13.00	99.01
		6	2437	13.80	14.00	
		11	2462	13.80	14.00	
	802.11ax-HE20 MCS0	1	2412	13.00	13.00	99.00
		6	2437	14.00	14.00	
		11	2462	13.80	14.00	

Chain 1						
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	11.50	11.50	99.00
		40	5200	11.40	11.50	
		44	5220	11.40	11.50	
		48	5240	11.50	11.50	
	802.11n-HT20 MCS0	36	5180	11.40	11.50	98.72
		40	5200	11.40	11.50	
		44	5220	11.40	11.50	
		48	5240	11.50	11.50	
	802.11n-HT40 MCS0	38	5190	11.30	11.50	99.11
		46	5230	11.10	11.50	
	802.11ac-VHT20 MCS0	36	5180	11.50	11.50	99.07
		40	5200	11.30	11.50	
		44	5220	11.30	11.50	
		48	5240	11.40	11.50	
	802.11ac-VHT40 MCS0	38	5190	11.20	11.50	98.71
		46	5230	11.00	11.50	
	802.11ac-VHT80 MCS0	42	5210	10.90	11.50	98.58
		42	5210	10.90	11.50	
	802.11ax-HE20 MCS0	36	5180	11.40	11.50	98.70
		40	5200	11.50	11.50	
44		5220	11.30	11.50		
48		5240	11.20	11.50		
802.11ax-HE40 MCS0	38	5190	11.30	11.50	98.66	
	46	5230	11.50	11.50		
802.11ax-HE80 MCS0	42	5210	11.00	11.50	98.26	



Chain 1						
5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps		52	5260	11.40	11.50
56			5280	11.50	11.50	
60			5300	11.40	11.50	
64			5320	11.50	11.50	
802.11n-HT20 MCS0		52	5260	11.00	11.50	98.72
		56	5280	11.50	11.50	
		60	5300	11.40	11.50	
802.11n-HT40 MCS0		54	5270	11.30	11.50	99.11
		62	5310	11.30	11.50	
802.11ac-VHT20 MCS0		52	5260	10.90	11.50	99.07
		56	5280	11.40	11.50	
		60	5300	11.50	11.50	
		64	5320	11.40	11.50	
802.11ac-VHT40 MCS0		54	5270	11.20	11.50	98.71
		62	5310	11.20	11.50	
802.11ac-VHT80 MCS0		58	5290	11.50	11.50	98.58
802.11ax-HE20 MCS0		52	5260	11.20	11.50	98.70
		56	5280	11.30	11.50	
		60	5300	11.40	11.50	
		64	5320	11.20	11.50	
802.11ax-HE40 MCS0		54	5270	11.40	11.50	98.66
		62	5310	11.10	11.50	
802.11ax-HE80 MCS0		58	5290	11.10	11.50	98.26



Chain 1						
5.5GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps		100	5500	11.20	11.50
116			5580	11.40	11.50	
124			5620	11.20	11.50	
132			5660	11.30	11.50	
144			5720	11.10	11.50	
802.11n-HT20 MCS0		100	5500	11.10	11.50	98.72
		116	5580	11.40	11.50	
		124	5620	11.20	11.50	
		132	5660	11.30	11.50	
		144	5720	11.00	11.50	
802.11n-HT40 MCS0		102	5510	11.50	11.50	99.11
		110	5550	11.00	11.50	
		126	5630	11.50	11.50	
		134	5670	11.30	11.50	
		142	5710	10.90	11.50	
802.11ac-VHT20 MCS0		100	5500	11.00	11.50	99.07
		116	5580	11.30	11.50	
		124	5620	11.10	11.50	
		132	5660	11.20	11.50	
		144	5720	10.90	11.50	
802.11ac-VHT40 MCS0		102	5510	11.40	11.50	98.71
		110	5550	10.90	11.50	
		126	5630	11.40	11.50	
		134	5670	11.20	11.50	
		142	5710	10.80	11.50	
802.11ac-VHT80 MCS0		106	5530	11.30	11.50	98.58
		122	5610	11.30	11.50	
		138	5690	11.10	11.50	
802.11ax-HE20 MCS0		100	5500	11.30	11.50	98.70
		116	5580	11.10	11.50	
		124	5620	11.20	11.50	
		132	5660	11.20	11.50	
		144	5720	11.20	11.50	
802.11ax-HE40 MCS0		102	5510	11.40	11.50	98.66
		110	5550	11.00	11.50	
		126	5630	11.10	11.50	
		134	5670	11.40	11.50	
		142	5710	11.10	11.50	
802.11ax-HE80 MCS0		106	5530	11.40	11.50	98.26
		122	5610	11.40	11.50	
		138	5690	11.10	11.50	



Chain 1						
5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps		149	5745	11.30	11.50
157			5785	11.40	11.50	
165			5825	11.40	11.50	
802.11n-HT20 MCS0		149	5745	11.30	11.50	98.72
		157	5785	11.40	11.50	
		165	5825	11.40	11.50	
802.11n-HT40 MCS0		151	5755	11.30	11.50	99.11
		159	5795	11.40	11.50	
802.11ac-VHT20 MCS0		149	5745	11.20	11.50	99.07
		157	5785	11.30	11.50	
		165	5825	11.30	11.50	
802.11ac-VHT40 MCS0		151	5755	11.50	11.50	98.71
		159	5795	11.30	11.50	
802.11ac-VHT80 MCS0		155	5775	11.20	11.50	98.58
802.11ax-HE20 MCS0		149	5745	11.30	11.50	99.10
		157	5785	11.20	11.50	
		165	5825	11.00	11.50	
802.11ax-HE40 MCS0		151	5755	11.20	11.50	98.67
		159	5795	11.00	11.50	
802.11ax-HE80 MCS0		155	5775	11.00	11.50	98.80

Chain 0						
2.4GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11b 1Mbps	1	2412	12.70	13.00	100.00
		6	2437	12.70	13.00	
		11	2462	12.70	13.00	
	802.11g 6Mbps	1	2412	12.70	13.00	98.99
		6	2437	12.60	13.00	
		11	2462	12.70	13.00	
	802.11n-HT20 MCS0	1	2412	12.70	13.00	99.01
		6	2437	12.60	13.00	
		11	2462	12.60	13.00	
802.11ax-HE20 MCS0	1	2412	12.70	13.00	98.66	
	6	2437	12.60	13.00		
	11	2462	12.80	13.00		

Chain 0						
5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	36	5180	9.30	9.50	99.10
		40	5200	9.30	9.50	
		44	5220	9.20	9.50	
		48	5240	9.10	9.50	
	802.11n-HT20 MCS0	36	5180	9.20	9.50	99.11
		40	5200	9.30	9.50	
		44	5220	9.20	9.50	
		48	5240	9.10	9.50	
	802.11n-HT40 MCS0	38	5190	9.20	9.50	98.86
		46	5230	9.20	9.50	
	802.11ac-VHT20 MCS0	36	5180	9.10	9.50	99.38
		40	5200	9.20	9.50	
		44	5220	9.10	9.50	
		48	5240	9.00	9.50	
	802.11ac-VHT40 MCS0	38	5190	9.10	9.50	98.96
		46	5230	9.10	9.50	
	802.11ac-VHT80 MCS0	42	5210	9.30	9.50	98.58
		36	5180	9.10	9.50	
	802.11ax-HE20 MCS0	40	5200	9.10	9.50	99.10
44		5220	9.10	9.50		
48		5240	9.20	9.50		
802.11ax-HE40 MCS0	38	5190	9.30	9.50	98.67	
	46	5230	9.20	9.50		
802.11ax-HE80 MCS0	42	5210	9.30	9.50	98.80	



Chain 0						
5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	9.30	9.50	99.10
		56	5280	9.30	9.50	
		60	5300	9.20	9.50	
		64	5320	9.10	9.50	
	802.11n-HT20 MCS0	52	5260	9.20	9.50	99.11
		56	5280	9.30	9.50	
		60	5300	9.30	9.50	
	802.11n-HT40 MCS0	54	5270	9.30	9.50	98.86
		62	5310	9.30	9.50	
	802.11ac-VHT20 MCS0	52	5260	9.10	9.50	99.38
		56	5280	9.20	9.50	
		60	5300	9.20	9.50	
		64	5320	9.20	9.50	
	802.11ac-VHT40 MCS0	54	5270	9.20	9.50	98.96
		62	5310	9.20	9.50	
	802.11ac-VHT80 MCS0	58	5290	9.30	9.50	98.58
	802.11ax-HE20 MCS0	52	5260	9.30	9.50	99.10
		56	5280	9.30	9.50	
60		5300	9.10	9.50		
64		5320	9.10	9.50		
802.11ax-HE40 MCS0	54	5270	9.30	9.50	98.67	
	62	5310	9.30	9.50		
802.11ax-HE80 MCS0	58	5290	9.20	9.50	98.80	



Chain 0						
Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %	
802.11a 6Mbps	100	5500	9.20	9.50	99.10	
	116	5580	9.20	9.50		
	124	5620	9.10	9.50		
	132	5660	9.30	9.50		
	144	5720	9.30	9.50		
802.11n-HT20 MCS0	100	5500	9.20	9.50	99.11	
	116	5580	9.20	9.50		
	124	5620	9.20	9.50		
	132	5660	9.30	9.50		
	144	5720	9.30	9.50		
802.11n-HT40 MCS0	102	5510	9.20	9.50	98.86	
	110	5550	9.30	9.50		
	126	5630	9.30	9.50		
	134	5670	9.30	9.50		
	142	5710	9.20	9.50		
802.11ac-VHT20 MCS0	100	5500	9.10	9.50	99.38	
	116	5580	9.10	9.50		
	124	5620	9.10	9.50		
	132	5660	9.20	9.50		
	144	5720	9.20	9.50		
802.11ac-VHT40 MCS0	102	5510	9.10	9.50	98.96	
	110	5550	9.20	9.50		
	126	5630	9.20	9.50		
	134	5670	9.20	9.50		
	142	5710	9.10	9.50		
802.11ac-VHT80 MCS0	106	5530	9.30	9.50	98.58	
	122	5610	9.20	9.50		
	138	5690	9.30	9.50		
802.11ax-HE20 MCS0	100	5500	9.10	9.50	99.10	
	116	5580	9.10	9.50		
	124	5620	9.20	9.50		
	132	5660	9.30	9.50		
	144	5720	9.30	9.50		
802.11ax-HE40 MCS0	102	5510	9.20	9.50	98.67	
	110	5550	9.20	9.50		
	126	5630	9.30	9.50		
	134	5670	9.30	9.50		
	142	5710	9.30	9.50		
802.11ax-HE80 MCS0	106	5530	9.20	9.50	98.80	
	122	5610	9.10	9.50		
	138	5690	9.00	9.50		

5.5GHz WLAN



Chain 0						
5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	149	5745	9.30	9.50	99.10
		157	5785	9.30	9.50	
		165	5825	9.20	9.50	
	802.11n-HT20 MCS0	149	5745	9.30	9.50	99.11
		157	5785	9.30	9.50	
		165	5825	9.20	9.50	
	802.11n-HT40 MCS0	151	5755	9.20	9.50	98.86
		159	5795	9.30	9.50	
	802.11ac-VHT20 MCS0	149	5745	9.20	9.50	99.38
157		5785	9.20	9.50		
165		5825	9.10	9.50		
802.11ac-VHT40 MCS0	151	5755	9.10	9.50	98.96	
	159	5795	9.20	9.50		
802.11ac-VHT80 MCS0	155	5775	9.20	9.50	98.58	
802.11ax-HE20 MCS0	149	5745	9.10	9.50	99.10	
	157	5785	9.10	9.50		
	165	5825	9.20	9.50		
802.11ax-HE40 MCS0	151	5755	9.30	9.50	98.67	
	159	5795	9.30	9.50		
802.11ax-HE80 MCS0	155	5775	9.10	9.50	98.80	



Chain 1						
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	10.80	11.00	100.00
		6	2437	10.70	11.00	
		11	2462	10.70	11.00	
	802.11g 6Mbps	1	2412	11.60	12.00	99.25
		6	2437	11.60	12.00	
		11	2462	11.70	12.00	
	802.11n-HT20 MCS0	1	2412	11.80	12.00	99.01
		6	2437	11.80	12.00	
		11	2462	11.60	12.00	
	802.11ax-HE20 MCS0	1	2412	11.70	12.00	99.00
		6	2437	11.60	12.00	
		11	2462	11.70	12.00	

Chain 1						
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	9.30	9.50	99.00
		40	5200	9.30	9.50	
		44	5220	9.20	9.50	
		48	5240	9.30	9.50	
	802.11n-HT20 MCS0	36	5180	9.10	9.50	98.72
		40	5200	9.30	9.50	
		44	5220	9.10	9.50	
	802.11n-HT40 MCS0	38	5190	9.20	9.50	99.11
		46	5230	9.20	9.50	
	802.11ac-VHT20 MCS0	36	5180	9.00	9.50	99.07
		40	5200	9.20	9.50	
		44	5220	9.00	9.50	
		48	5240	9.20	9.50	
	802.11ac-VHT40 MCS0	38	5190	9.10	9.50	98.71
		46	5230	9.10	9.50	
	802.11ac-VHT80 MCS0	42	5210	9.30	9.50	98.58
	802.11ax-HE20 MCS0	36	5180	9.30	9.50	98.70
		40	5200	9.30	9.50	
		44	5220	9.10	9.50	
		48	5240	9.10	9.50	
802.11ax-HE40 MCS0	38	5190	9.20	9.50	98.66	
	46	5230	9.30	9.50		
802.11ax-HE80 MCS0	42	5210	9.10	9.50	98.26	

Chain 1						
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	9.30	9.50	99.00
		56	5280	9.30	9.50	
		60	5300	9.10	9.50	
		64	5320	9.30	9.50	
	802.11n-HT20 MCS0	52	5260	9.30	9.50	98.72
		56	5280	9.30	9.50	
		60	5300	9.30	9.50	
	802.11n-HT40 MCS0	54	5270	9.20	9.50	99.11
		62	5310	9.20	9.50	
	802.11ac-VHT20 MCS0	52	5260	9.20	9.50	99.07
		56	5280	9.20	9.50	
		60	5300	9.20	9.50	
		64	5320	9.20	9.50	
	802.11ac-VHT40 MCS0	54	5270	9.10	9.50	98.71
		62	5310	9.10	9.50	
	802.11ac-VHT80 MCS0	58	5290	9.50	9.50	98.58
	802.11ax-HE20 MCS0	52	5260	9.10	9.50	98.70
56		5280	9.10	9.50		
60		5300	9.30	9.50		
64		5320	9.10	9.50		
802.11ax-HE40 MCS0	54	5270	9.20	9.50	98.66	
	62	5310	9.30	9.50		
802.11ax-HE80 MCS0	58	5290	9.30	9.50	98.26	

Chain 1						
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	9.10	9.50	99.00
		116	5580	9.30	9.50	
		124	5620	9.10	9.50	
		132	5660	9.20	9.50	
		144	5720	9.30	9.50	
	802.11n-HT20 MCS0	100	5500	9.10	9.50	98.72
		116	5580	9.30	9.50	
		124	5620	9.10	9.50	
		132	5660	9.20	9.50	
		144	5720	9.30	9.50	
	802.11n-HT40 MCS0	102	5510	9.20	9.50	99.11
		110	5550	9.30	9.50	
		126	5630	9.30	9.50	
		134	5670	9.10	9.50	
		142	5710	9.20	9.50	
	802.11ac-VHT20 MCS0	100	5500	9.00	9.50	99.07
		116	5580	9.20	9.50	
		124	5620	9.00	9.50	
		132	5660	9.10	9.50	
		144	5720	9.20	9.50	
802.11ac-VHT40 MCS0	102	5510	9.10	9.50	98.71	
	110	5550	9.20	9.50		
	126	5630	9.20	9.50		
	134	5670	9.00	9.50		
	142	5710	9.10	9.50		
802.11ac-VHT80 MCS0	106	5530	9.30	9.50	98.58	
	122	5610	9.30	9.50		
	138	5690	9.20	9.50		
802.11ax-HE20 MCS0	100	5500	9.10	9.50	98.70	
	116	5580	9.10	9.50		
	124	5620	9.10	9.50		
	132	5660	9.30	9.50		
	144	5720	9.10	9.50		
802.11ax-HE40 MCS0	102	5510	9.10	9.50	98.66	
	110	5550	9.10	9.50		
	126	5630	9.30	9.50		
	134	5670	9.30	9.50		
	142	5710	9.10	9.50		
802.11ax-HE80 MCS0	106	5530	9.20	9.50	98.26	
	122	5610	9.30	9.50		
	138	5690	9.30	9.50		

Chain 1						
	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a 6Mbps	149	5745	9.20	9.50	99.00
		157	5785	9.20	9.50	
		165	5825	9.10	9.50	
	802.11n-HT20 MCS0	149	5745	9.30	9.50	98.72
		157	5785	9.10	9.50	
		165	5825	9.10	9.50	
	802.11n-HT40 MCS0	151	5755	9.20	9.50	99.11
		159	5795	9.30	9.50	
	802.11ac-VHT20 MCS0	149	5745	9.20	9.50	99.07
		157	5785	9.00	9.50	
		165	5825	9.00	9.50	
	802.11ac-VHT40 MCS0	151	5755	9.10	9.50	98.71
		159	5795	9.20	9.50	
	802.11ac-VHT80 MCS0	155	5775	9.30	9.50	98.58
	802.11ax-HE20 MCS0	149	5745	9.30	9.50	99.10
157		5785	9.10	9.50		
165		5825	9.10	9.50		
802.11ax-HE40 MCS0	151	5755	9.10	9.50	98.67	
	159	5795	9.30	9.50		
802.11ax-HE80 MCS0	155	5775	9.30	9.50	98.80	

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 76.83% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	13.57	12.36	12.29
	CH 39	2441	13.91	12.64	12.75
	CH 78	2480	13.33	12.16	12.08
Tune-up Limit			14.00	12.40	12.40

Mode	Channel	Frequency (MHz)	Average power (dBm)	
			1Mbps	2Mbps
LE	CH 00	2402	9.30	9.40
	CH 19	2440	9.60	9.70
	CH 39	2480	9.10	9.20
Tune-up Limit			9.80	9.80

