

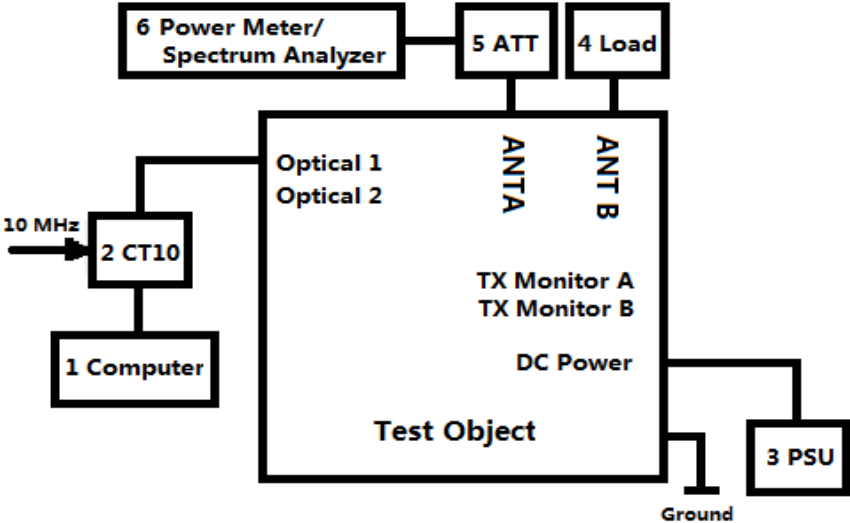
Product Information

MANUFACTURING DESCRIPTION	Remote Radio Unit
MANUFACTURER	Ericsson AB
PRODUCT NAME	Radio 2217 B5
PRODUCT NUMBER	KRC 161 566/1 KRC 161 566/2
HVIN	AS1615661 AS1615662
TRANSMITTER OPERATING RANGE	TX: 869 MHz - 894 MHz RX: 824 MHz - 849 MHz
MODULATIONS	WCDMA: QPSK, 16QAM, 64QAM LTE: QPSK, 16QAM, 64QAM, 256QAM
ITU DESIGNATION OF EMISSION	WCDMA: 5M00G7W and 5M00D7W LTE: 1M40G7W, 3M00G7W, 5M00G7W, 10M0G7W, 1M40D7W, 3M00D7W, 5M00D7W, 10M0D7W
NUMBER OF CARRIERS	WCDMA: Maximum 5 carriers LTE: Maximum 3 carriers WCDMA<E MSR: Maximum 7 carriers
SUPPORTED CHANNEL BANDWIDTH CONFIGURATION	WCDMA: 4.2MHz to 5MHz (configurable in steps of 100/200kHz) LTE: 1.4MHz, 3MHz, 5MHz, 10MHz
OUTPUT POWER (RMS) (W or dBm)	Maximum 46.0dBm (40W) per port for all modes, but only maximum 43.0dBm (20W) per port for LTE 1.4MHz and 3MHz
OUTPUT POWER TOLERANCE	± 2.0dB
INSTANTANEOUS BANDWIDTH	25MHz for all modes, but only 20MHz for LTE single RAT with 1.4MHz and 3MHz channel bandwidth, 20MHz for LTE carriers with 1.4MHz and 3MHz channel bandwidth within WCDMA<E MSR modes
NUMBER OF ANTENNA PORTS	2 TX/RX ports
FCC ID	TA8AKRC161566
Power source	-48V DC
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	The equipment is the Remote Radio Part of WCDMA / LTE / WCDMA & LTE MSR Base Station.
Test Specification	FCC CFR 47 Part 22: 2015 FCC CFR 47 Part 2: 2015 ANSI C63.4: 2014 ANSI/TIA-603-C-2004 KDB 971168 D01 v02r02 KDB 662911 D01 v02r01 RSS-GEN Issue 4: 2014 RSS-132 Issue 3: 2013

In this test plan, the abbreviations are defined as below:

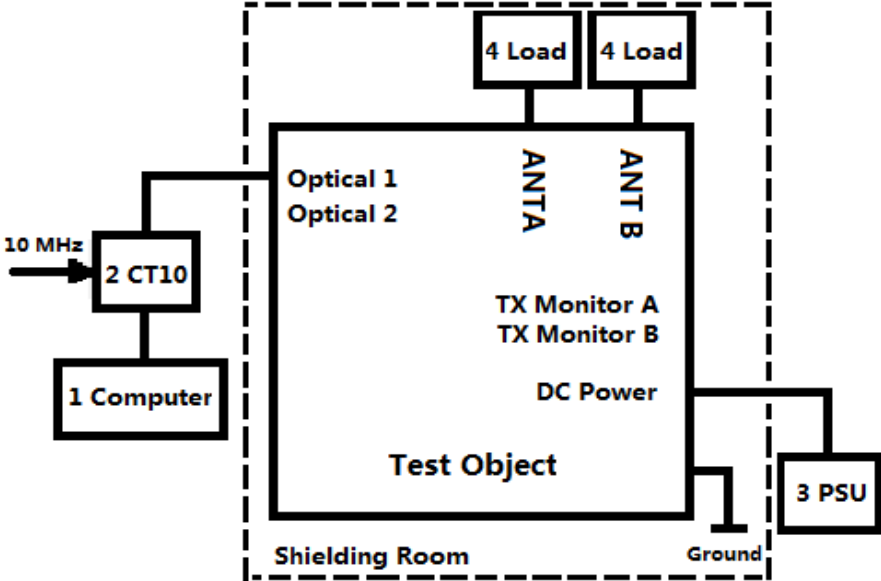
16Q	16QAM
64Q	64QAM
B	Bottom
BE	Band Edge
BW	Bandwidth
C	Carrier(s)
C1	Carrier 1
C2	Carrier 2
C3	Carrier 3
C4	Carrier 4
C5	Carrier 5
CBW	Carrier Bandwidth
CN	Carrier Number
CSE	Conducted Spurious Emissions
IBW	Instantaneous Bandwidth
L	LTE
L1	LTE Carrier 1
L1.4	LTE with 1.4MHz Channel Bandwidth
L2	LTE Carrier 2
L3	LTE Carrier 3
M	Middle
Max	Maximum
MC	Multi-Carriers
MIMO	Multiple Input Multiple Output
Mod	Modulation
MSR	Multi-Standard Radio
OBW	Occupied Bandwidth
PAR	Peak to Average Power Ratio
Port A1	Antenna Port 1
Port A2	Antenna Port 2
QP	QPSK
RAT	Radio Access Technology
RSE	Radiated Spurious Emissions
SC	Single Carrier
T	Top
W	WCDMA
W+L	WCDMA and LTE
W1	WCDMA Carrier 1
W2	WCDMA Carrier 2
W3	WCDMA Carrier 3
W4	WCDMA Carrier 4

Test Setup for Conducted Measurements:



Note:
 ATT: Attenuator
 PSU: Power Supply

Test Setup for Radiated Measurements:



Note:
 ATT: Attenuator
 PSU: Power Supply

A brief summary shows the limits and test requirements for Radio 2217 B5 RF testing as below:

Spec Clause			Test Description	Limits	Note
Part 2	Part 22	RSS 132			
2.1046	22.913(a)	5.4	Maximum Output Power and Peak to Average Power Ratio - Conducted	Maximum Output Power: $\leq 500W$ or $\leq +57.0dBm$ PAR: $\leq 13dB$	-
2.1046	22.913(a)	5.4	Equivalent Isotropically Radiated Power (EIRP)	EIRP: $\leq 500W$ or $\leq +57.0dBm$	N/A ¹
2.1049(h)	22.917(b)	RSS-Gen 6.6	Occupied Bandwidth	FCC: $-26dB$ Bandwidth IC: 99% Bandwidth	-
2.1051	22.917(b)	5.5	Spurious Emissions at Band Edge	The power of any emission outside the frequency band shall be attenuated below the transmitter power(P) by at least $43+10\log P$ dB.	-
2.1053	22.917(a)	5.5	Radiated Spurious Emissions	The power of any emission outside the frequency band shall be attenuated below the transmitter power(P) by at least $43+10\log P$ dB.	-
2.1051	22.917(a)	5.5	Conducted Spurious Emissions	The power of any emission outside the frequency band shall be attenuated below the transmitter power(P) by at least $43+10\log P$ dB.	-
2.1055	22.355	5.3	Frequency Stability	$\leq 1.5ppm$	-
-	-	5.6	Receiver Spurious Emission	-	N/A

N/A1 - Not Applicable due to EUT without intergral antenna

N/A - Not Applicable

Configuration Information

Configuration Code	Carrier(s)	Configuration Description	Frequencies Allocation	Note
W-SC	1C	WCDMA Single Antenna, Single Carrier	Frequencies Table for WCDMA Single RAT	SC
W-MC 1	2C	WCDMA Single Antenna, Multi Carrier x2	Frequencies Table for WCDMA Single RAT	TC1a & NTC1a
W-MC 2	5C	WCDMA Single Antenna, Multi Carrier x5	Frequencies Table for WCDMA Single RAT	TC1a
W-MIMO-SC	1C	WCDMA MIMO, Single Carrier	Frequencies Table for WCDMA Single RAT	SC
W-MIMO-MC 1	2C	WCDMA MIMO, Multi Carrier x2	Frequencies Table for WCDMA Single RAT	TC1a & NTC1a
W-MIMO-MC 2	5C	WCDMA MIMO, Multi Carrier x5	Frequencies Table for WCDMA Single RAT	TC1a
W-MIMO-MC 3	3C	WCDMA MIMO, Multi Carrier x3	Frequencies Table for WCDMA Single RAT	TC1a
L-MIMO-SC	1C	LTE MIMO, Single Carrier	Frequencies Table for LTE Single RAT	SC
L-MIMO-MC 1	2C	LTE MIMO, Multi Carrier x2	Frequencies Table for LTE Single RAT	TC2 & NTC2
L-MIMO-MC 2	3C	LTE MIMO, Multi Carrier x3	Frequencies Table for LTE Single RAT	TC2
W+L-MC 1	1W+1L	WCDMA+LTE Single Antenna, One Tx, 1WCDMA+1LTE	Frequencies Table for WCDMA<E MSR RAT	TC3a & NTC3a & Max. Adjacent
W+L-MC 2	4W+3L	WCDMA+LTE Single Antenna, One Tx, 4WCDMA+3LTE	Frequencies Table for WCDMA<E MSR RAT	TC3a
W+L-MC 3	3W+3L	WCDMA+LTE Single Antenna, One Tx, 3WCDMA+3LTE	Frequencies Table for WCDMA<E MSR RAT	TC3a
W+L-MC 4	3W+2L	WCDMA+LTE Single Antenna, One Tx, 3WCDMA+2LTE	Frequencies Table for WCDMA<E MSR RAT	TC3a
W+L-MC 5	3W+1L	WCDMA+LTE Single Antenna, One Tx, 3WCDMA+1LTE	Frequencies Table for WCDMA<E MSR RAT	TC3a
W+L-MC 6	2W+1L	WCDMA+LTE Single Antenna, One Tx, 2WCDMA+1LTE	Frequencies Table for WCDMA<E MSR RAT	TC3a & Max. Adjacent
W+L-MIMO-MC 1	1W+1L	WCDMA+LTE MIMO, 1WCDMA+1LTE	Frequencies Table for WCDMA<E MSR RAT	TC3a & NTC3a & Max adjacent
W+L-MIMO-MC 2	4W+3L	WCDMA+LTE MIMO, 4WCDMA+3LTE	Frequencies Table for WCDMA<E MSR RAT	TC3a
W+L-MIMO-MC 3	3W+3L	WCDMA+LTE MIMO, 3WCDMA+3LTE	Frequencies Table for WCDMA<E MSR RAT	TC3a
W+L-MIMO-MC 4	3W+2L	WCDMA+LTE MIMO, 3WCDMA+2LTE	Frequencies Table for WCDMA<E MSR RAT	TC3a
W+L-MIMO-MC 5	3W+1L	WCDMA+LTE MIMO,3WCDMA+1LTE	Frequencies Table for WCDMA<E MSR RAT	TC3a
W+L-MIMO-MC 6	2W+1L	WCDMA+LTE MIMO,2WCDMA+1LTE	Frequencies Table for WCDMA<E MSR RAT	TC3a & Max. Adjacent

Note for configurations and frequency allocations:

The configurations (such as TC1a and NTC1a, TC2 and NTC2, TC3a and NTC3a) in chapter 5 of 3GPP TS 37.141 V11.12.0(2015-07) were used to perform the power, spurious emission and occupied bandwidth measurements for this product. Meanwhile, the frequency allocations for configurations of WCDMA, LTE and W+L modes, were compliance with the definition in chapter 4.8 of 3GPP TS 37.141 V11.12.0(2015-07).

In the below tables, the units of frequencies, CBW(channel bandwidth), IBW(intantaneous bandwidth) are megahertz(MHz) unless otherwise stated.

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Frequencies Table for WCDMA Single RAT

WCDMA Single RAT				Max. Power(QP)			PAR(QP)			OBW(QP)			BE(QP)			CSE(QP)			RSE(Worst Case)					
IBW (MHz)	CBW (MHz)		CN	5MHz			5MHz			5MHz and 4.2MHz			CN	5MHz			CN	5MHz			5MHz			
				B	M	T	B	M	T	B	M	T		B	M	T		B	M	T	B	M	T	
Single Carrier	N/A	5.0	C1	871.40	881.40	891.60	871.40	881.40	891.60	871.40	881.40	891.60	C1	871.40	891.60		C1	871.40	881.40	891.60	871.40	881.40	891.60	
Multi-Carrier (1x2) TC1a & NTC1a	25.0	5.0	C1	871.40	871.40	871.60							C1	871.40	886.60		C1	871.40	871.40	871.60	871.40	871.40	871.60	
			C2	891.40	891.60	891.60							C2	876.40	891.60		C2	891.40	891.60	891.60	891.40	891.60	891.60	
				(TC1a) (NTC1a) (TC1a)												(TC1a) (NTC1a) (TC1a)			(TC1a) (NTC1a) (TC1a)					
Multi-Carrier (1x5) TC1a	25.0	5.0	C1	871.40		871.60											C1	871.40		871.60	871.40		871.60	
			C2	876.40		876.60												C2	876.40		876.60	876.40		876.60
			C3	881.40		881.60												C3	881.40		881.60	881.40		881.60
			C4	886.40		886.60												C4	886.40		886.60	886.40		886.60
			C5	891.40		891.60												C5	891.40		891.60	891.40		891.60
WCDMA MIMO				Max. Power(16Q&64Q)			PAR(16Q&64Q)			OBW(16Q&64Q)			BE(16Q)			CSE(16Q&64Q)			RSE(Worst Case)					
IBW (MHz)	CBW (MHz)		CN	5MHz			5MHz			5MHz and 4.2MHz			CN	5MHz			CN	5MHz			5MHz			
				B	M	T	B	M	T	B	M	T		B	M	T		B	M	T	B	M	T	
Single Carrier	N/A	5.0	C1	871.40	881.40	891.60	871.40	881.40	891.60	871.40	881.40	891.60	C1	871.40	891.60		C1	871.40	881.40	891.60	871.40	881.40	891.60	
Multi-Carrier (1x2) TC1a & NTC1a	25.0	5.0	C1	871.40	871.40	871.60							C1	871.40	886.60		C1	871.40	871.40	871.60	871.40	871.40	871.60	
			C2	891.40	891.60	891.60							C2	876.40	891.60		C2	891.40	891.60	891.60	891.40	891.60	891.60	
				(TC1a) (NTC1a) (TC1a)												(TC1a) (NTC1a) (TC1a)			(TC1a) (NTC1a) (TC1a)					
Multi-Carrier (1x5) TC1a	25.0	5.0	C1	871.40		871.60											C1	871.40		871.60	871.40		871.60	
			C2	876.40		876.60												C2	876.40		876.60	876.40		876.60
			C3	881.40		881.60												C3	881.40		881.60	881.40		881.60
			C4	886.40		886.60												C4	886.40		886.60	886.40		886.60
			C5	891.40		891.60												C5	891.40		891.60	891.40		891.60
Multi-Carrier (1x3) TC1a	25.0	5.0	C1														C1	871.40		871.60	871.40		871.60	
			C2															C2	876.40		876.60	876.40		876.60
			C3															C3	891.40		891.60	891.40		891.60
																						pre-test for 2 or 3 carriers, chose the worst for final test.		

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Frequencies Table for LTE Single RAT

LTE MIMO			Max. Power(All Mod, All BW)			PAR(All Mod,All BW)			OBW(All Mod,All BW)			BE(worst case)			CSE(worst case)			RSE(Worst case)				
IBW (MHz)	CBW (MHz)	CN	B	M	T	B	M	T	B	M	T	CN	B	M	T	CN	B	M	T	B	M	T
			Single Carrier	20.0	1.4	C1	869.70	881.50	893.30	869.70	881.50		893.30	869.70	881.50		893.30	C1	869.70	893.30	C1	869.70
		3.0	C1	870.50	881.50	892.50	870.50	881.50	892.50	870.50	881.50	892.50	C1	870.50	892.50	C1	870.50	881.50	892.50	870.50	881.50	892.50
	25.0	5.0	C1	871.50	881.50	891.50	871.50	881.50	891.50	871.50	881.50	891.50	C1	871.50	891.50	C1	871.50	881.50	891.50	871.50	881.50	891.50
		10.0	C1	874.00	881.50	889.00	874.00	881.50	889.00	874.00	881.50	889.00	C1	874.00	889.00	C1	874.00	881.50	889.00	874.00	881.50	889.00
Multi-Carrier (1x2) TC2 & NTC2	20.0	1.4	C1	869.70	872.20	874.70							C1	869.70	891.90	C1	869.70	872.20	874.70	869.70	872.20	874.70
			C2	888.30	890.80	893.30							C2	871.10	893.30	C2	888.30	890.80	893.30	888.30	890.80	893.30
		3.0	C1	870.50	873.00	875.50							C1	870.50	889.50	C1	870.50	873.00	875.50	870.50	873.00	875.50
	C2		887.50	890.00	892.50							C2	873.50	892.50	C2	887.50	890.00	892.50	887.50	890.00	892.50	
		5.0	C1		871.50								C1	871.50	886.50	C1		871.50			871.50	
	C2			891.50								C2	876.50	891.50	C2		891.50			891.50		
		25.0	10.0	C1		874.00							C1	874.00	879.00	C1		874.00			874.00	
	C2				889.00								C2	884.00	889.00	C2		889.00			889.00	
Multi-Carrier (1x3) TC2	20.0	1.4	C1	869.70	872.20	874.70										C1	869.70	872.20	874.70	869.70	872.20	874.70
			C2	886.90	889.40	891.90										C2	886.90	889.40	891.90	886.90	889.40	891.90
			C3	888.30	890.80	893.30										C3	888.30	890.80	893.30	888.30	890.80	893.30
		3.0	C1	870.50	873.00	875.50										C1	870.50	873.00	875.50	870.50	873.00	875.50
	C2		884.50	887.00	889.50										C2	884.50	887.00	889.50	884.50	887.00	889.50	
	C3		887.50	890.00	892.50										C3	887.50	890.00	892.50	887.50	890.00	892.50	
		25.0	5.0	C1		871.50										C1		871.50			871.50	
	C2				886.50											C2		886.50			886.50	
	C3				891.50											C3		891.50			891.50	

869.0			894.0			Frequencies Table for WCDMA<E MSR RAT											
W+L IBW(MHz) 25			Scheme	Max. Power(Single: L:QPSK,W:QPSK(MIMO:16QAM))						Bandedge(L:QPSK, W:16QAM)							
CBW(MHz) Config.				Single(MIMO) Port A1			MIMO Port A2			MIMO Port A1			MIMO Port A2				
B	M	T		B	M	T	B	M	T	B	M	T	B	M	T		
2 carriers (TC3a & NTC3a)	5.0		W		871.4			871.4									
	1.4	1W+1L	L		893.3			893.3									
	3.0	1W+1L	L		892.5			892.5									
	5.0	1W+1L	L		891.5			891.5									
	10.0	1W+1L	L		889.0			889.0									
3 carriers (TC3a)	5.0		W1														
	5.0		W2														
	1.4	2W+1L	L														
	3.0	2W+1L	L														
	5.0	2W+1L	L														
Max carriers (TC3a)	5.0	W4 is used for L1.4 only	W1		871.4			871.4									
			W2		876.4			876.4									
			W3		881.4			881.4									
			W4		886.4			886.4									
	1.4	4W+3L	L1		890.5			890.5									
			L2		891.9			891.9									
			L3		893.3			893.3									
	3.0	3W+3L	L1		886.5			886.5									
			L2		889.5			889.5									
			L3		892.5			892.5									
	5.0	3W+2L	L1		886.5			886.5									
L2				891.5			891.5										
10.0	3W+1L	L		889.0			889.0										
2 carriers (Max Adjacent)	1.4	1W+1L	L					869.7		893.3		869.7		893.3			
	5.0	1W+1L	W					872.9		890.1		872.9		890.1			
	3.0	1W+1L	L						870.5		892.5		870.5		892.5		
			W						874.5		888.5		874.5		888.5		
	5.0		W														
	5.0	1W+1L	L					871.4		891.6		871.4		891.6			
	5.0	1W+1L	L					876.4		886.6		876.4		886.6			
	10.0	1W+1L	L					878.9		884.1		878.9		884.1			

Follow the pretest to choose the worst case with 2C or 3C by results for different Mod. BW and carriers space.

W+L (If worst case BW for L < 5MHz, use L+W) on B
W+L on T (use L+W if worst case BW > 5MHz)

W with 16QAM, L with QPSK, BW = result from pre-testing.

869.0		894.0		Frequencies Table for WCDMA<E MSR RAT										
W+L IBW(MHz) 25		Scheme	Max. Power(Single: L:QPSK,W:QPSK(MIMO:16QAM))						Bandedge(L:QPSK, W:16QAM)					
CBW(MHz) Config.			Single(MIMO) Port A1			MIMO Port A2			MIMO Port A1			MIMO Port A2		
		B	M	T	B	M	T	B	M	T	B	M	T	
2 carriers (TC3a)	1.4	1W+1L	L					869.7		893.3	869.7		893.3	
	3.0	1W+1L	L					870.5		892.5	869.0		892.5	
	5.0		W					891.6		871.4	891.6		871.4	
	5.0		W					871.4		891.6	871.4		891.6	
	5.0	1W+1L	L					891.5		871.5	891.5		871.5	
	10.0	1W+1L	L					889.0		874.0	889.0		874.0	
3 carriers (Max Adjacent)	1.4	2W+1L	L					869.7		893.3	869.7		893.3	
	5.0	2W+1L	W1					873.0		890.0	873.0		890.0	
	5.0	2W+1L	W2					878.0		885.0	878.0		885.0	
	3.0	2W+1L	L					870.5		892.5	870.5		892.5	
	5.0	2W+1L	W1					874.6		888.4	874.6		888.4	
	5.0	2W+1L	W2					879.6		883.4	879.6		883.4	
	5.0		W1					871.4		891.6	871.4		891.6	
	5.0		W2					876.4		886.6	876.4		886.6	
	5.0	2W+1L	L					881.4		881.6	881.4		881.6	
10.0	2W+1L	L					883.9		879.1	883.9		879.1		
3 carriers (TC3a)	1.4	2W+1L	L					869.7		893.3	869.7		893.3	
	3.0	2W+1L	L					870.5		892.5	870.5		892.5	
	5.0		W1					886.6		876.4	886.6		876.4	
	5.0		W2					891.6		871.4	891.6		871.4	
	5.0		W1					871.4		891.6	871.4		891.5	
	5.0		W2					876.4		886.6	876.4		886.5	
	5.0	2W+1L	L					891.5		871.5	891.5		871.5	
	10.0	2W+1L	L					889.0		874.0	889.0		874.0	

