



REPORT No. : SZ18010062W02

TEST REPORT

MANUFACTURER : Shenzhen Chainway Information Technology Co.,Ltd.
PRODUCT NAME : Mobile Data Terminal
MODEL NAME : C72
BRAND NAME : CHAINWAY
STANDARD(S) : ETSI EN 301 908-1 V11.1.1
ETSI EN 301 908-2 V11.1.2
ETSI TS 134.121-1 V14.2.0
ETSI TS 134.121-2 V14.1.0
TEST DATE : 2018-01-09 to 2018-02-01
ISSUE DATE : 2018-02-02

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Change History		
Issue	Date	Reason for change
1.0	2018-02-02	First edition

1. Technical Information

Note: Provide by manufacturer.

1.1. Manufacturer and Factory Information

Manufacturer:	Shenzhen Chainway Information Technology Co.,Ltd.
Manufacturer Address:	9/F, Building 2, Daqian Industrial Park, Longchang Rd., District 67, Bao'an, Shenzhen
Factory:	Shenzhen Chainway Information Technology Co.,Ltd.
Factory Address:	9/F, Building 2, Daqian Industrial Park, Longchang Rd., District 67, Bao'an, Shenzhen

1.2. Equipment Under Test (EUT) Description

Frequency Bands	WCDMA Band I/VIII
Modulation Mode	QPSK,16QAM
Power Class	WCDMA Band I/VIII:3
WCDMA Release Version:	R99
HSDPA Release Version:	Rel.5
HSUPA Release Version:	Rel.6
HSPA+ Release Version:	Rel.7
SIM cards description	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.

1.2.1 Photographs of the EUT

Please reference ANNEX D.



1.2.2 Identification of all used EUTs

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
A01	C70SE_MB_V11	C72E_MT6735_V1.1_EU_GITfcd74c4 _20180115

2. Test Results

2.1. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	ETSI EN 301 908-1 V11.1.1 (2016-07)	IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 1: Introduction and common requirements
2	ETSI EN 301 908-2 V11.1.2 (2017-08)	IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: CDMA Direct Spread (UTRA FDD) User Equipment (UE)

Specific reference documents for testing:

No.	Identity	Document Title
3	ETSI TS 134.121-1 V14.2.0 (2017-08)	User Equipment (UE) conformance specification; Radio transmission and reception (FDD); Part 1: Conformance specification
4	ETSI TS 134.121-2 V14.1.0 (2017-07)	User Equipment (UE) conformance specification; Radio transmission and reception (FDD); Part 2: Implementation Conformance Statement (ICS)

2.2. Test Conditions

Test Environment Conditions:

Relative Humidity:	30 ... 75 %
Air Pressure:	98 ... 102 kPa
Temperature:	Normal Temperature (NT)= +20 °C to +25 °C Low Temperature (LT) = -10°C High Temperature (HT) = +55°C
Voltage of the EUT:	Normal Voltage (NV) = 3.8V Low Voltage (LV) = 3.6V High Voltage (HV) = 4.35V

2.3. Test Results lists

2.3.1 Terms in the column “Verdict” for the test results list of this section:

Verdict	Description
PASS	EUT passed this test case
FAIL	EUT failed this test case
Decl.	“Declaration”: Morlab has received documents from the applicant and/or manufacturer which show conformity to the applied standards for this test case.
N/A	Test case not applicable for the EUT, please see the column “Note” for detailed

Table A.1: The EN Requirements Table (EN-RT) (Ref. ETSI EN 301 908-1 Annex A)

ETSI EN301 908-1	EN-R (note): Test Descriptions & Test Conditions	FDD Band I		FDD Band VIII		Note
		EUT	Verdict	EUT	Verdict	
4.2.2	Radiated emissions (UE)	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.4	Control and monitoring functions (UE)	A01	<u>PASS</u>	A01	<u>PASS</u>	

Table A.2: The EN Requirements Table (EN-RT) (Ref. ETSI EN 301 908-2 Annex A)

ETSI EN301 908-2	3GPP TS 34.121-1	EN-R(note): Test Descriptions & Test Conditions	FDD Band I		FDD Band VIII		Note
			EUT	Verdict	EUT	Verdict	
4.2.2	5.2	Transmitter Characteristics / Maximum Output Power NT / NV LT / LV LT / HV HT / LV HT / HV	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.2	5.2A	UE Max Output Power with HS-PDCCH NT / NV LT / LV LT / HV HT / LV	A01	<u>PASS</u>	A01	<u>PASS</u>	



ETSI EN301 908-2	3GPP TS 34.121-1	EN-R(note): Test Descriptions & Test Conditions	FDD Band I		FDD Band VIII		Note
			EUT	Verdict	EUT	Verdict	
		HT / HV	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.2	5.2B	Transmitter Characteristics/ Maximum Output Power with HS-DPCCH and E-DCH NT / NV LT / LV LT / HV HT / LV HT / HV	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.2	5.2E	UE Relative Code Domain Power Accuracy for HS-DPCCH and E-DCH with 16QAM	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.5	5.4.3	Transmitter Characteristics/ Output Power Dynamics in the Uplink/Minimum Output Power NT / NV LT / LV LT / HV HT / LV HT / HV	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.11	5.4.4	Transmitter Characteristics / Output Power Dynamics in the Uplink/Out-of-synchronisation Handling of Output Power	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.3	5.9	Transmitter Characteristics /Spectrum Emission Mask	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.3	5.9A	Spectrum Emission Mask with HS-DPCCH	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.3	5.9B	Spectrum Emission Mask with E-DCH	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.12	5.10	Transmitter Characteristics/ Adjacent Channel Leakage Power Ratio (ACLR) NT / NV LT / LV LT / HV	A01	<u>PASS</u>	A01	<u>PASS</u>	



ETSI EN301 908-2	3GPP TS 34.121-1	EN-R(note): Test Descriptions & Test Conditions	FDD Band I		FDD Band VIII		Note
			EUT	Verdict	EUT	Verdict	
		HT / LV HT / HV	A01 A01	<u>PASS</u> <u>PASS</u>	A01 A01	<u>PASS</u> <u>PASS</u>	
4.2.12	5.10A	Adjacent Channel Leakage Power Ratio (ACLR) with HS-DPCCH NT / NV LT / LV LT / HV HT / LV HT / HV	A01 A01 A01 A01 A01	<u>PASS</u> <u>PASS</u> <u>PASS</u> <u>PASS</u> <u>PASS</u>	A01 A01 A01 A01 A01	<u>PASS</u> <u>PASS</u> <u>PASS</u> <u>PASS</u> <u>PASS</u>	
4.2.12	5.10B	Adjacent Channel Leakage Power Ratio (ACLR) with E-DCH NT / NV LT / LV LT / HV HT / LV HT / HV	A01 A01 A01 A01 A01	<u>PASS</u> <u>PASS</u> <u>PASS</u> <u>PASS</u> <u>PASS</u>	A01 A01 A01 A01 A01	<u>PASS</u> <u>PASS</u> <u>PASS</u> <u>PASS</u> <u>PASS</u>	
4.2.4	5.11	Transmitter Characteristics /Spurious Emissions	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.13	6.2	Receiver Characteristics/ Reference Sensitivity Level NT / NV LT / LV LT / HV HT / LV HT / HV	A01 A01 A01 A01 A01	<u>PASS</u> <u>PASS</u> <u>PASS</u> <u>PASS</u> <u>PASS</u>	A01 A01 A01 A01 A01	<u>PASS</u> <u>PASS</u> <u>PASS</u> <u>PASS</u> <u>PASS</u>	
4.2.6	6.4	Receiver Characteristics / Adjacent Channel Selectivity (ACS) (Rel-99 and Rel-4)	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.6	6.4A	Receiver Characteristics Adjacent Channel Selectivity (ACS) (Rel-5 and later releases)	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.7	6.5	Receiver Characteristics / Blocking Characteristics	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.8	6.6	Receiver Characteristics / Spurious Response	A01	<u>PASS</u>	A01	<u>PASS</u>	

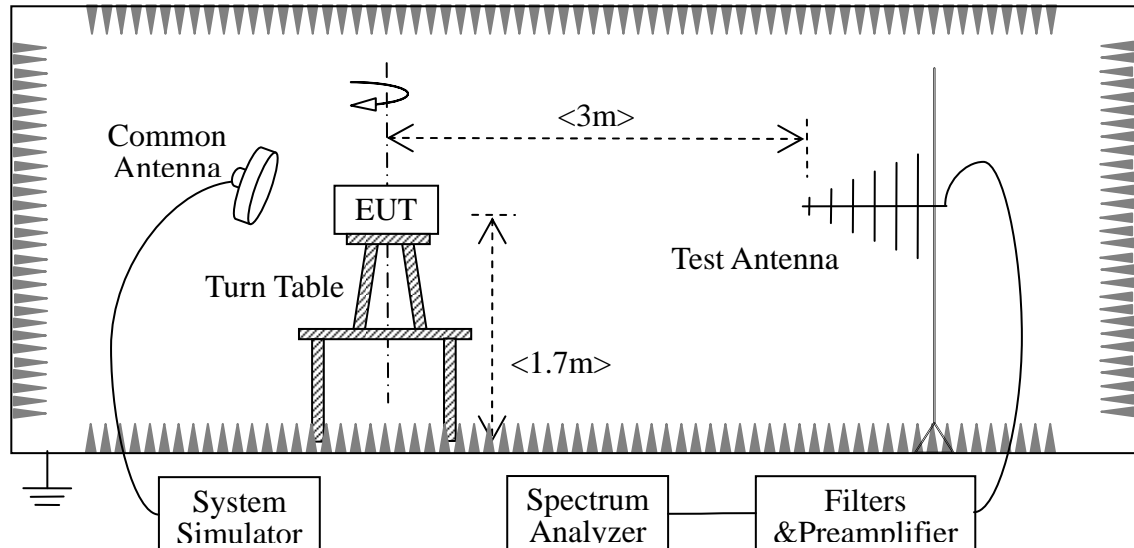


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ETSI EN301 908-2	3GPP TS 34.121-1	EN-R(note): Test Descriptions & Test Conditions	FDD Band I		FDD Band VIII		Note
			EUT	Verdict	EUT	Verdict	
4.2.9	6.7	Receiver Characteristics / Intermodulation Characteristics	A01	<u>PASS</u>	A01	<u>PASS</u>	
4.2.10	6.8	Receiver Characteristics / Spurious Emissions	A01	<u>PASS</u>	A01	<u>PASS</u>	

Annex A Test Setup

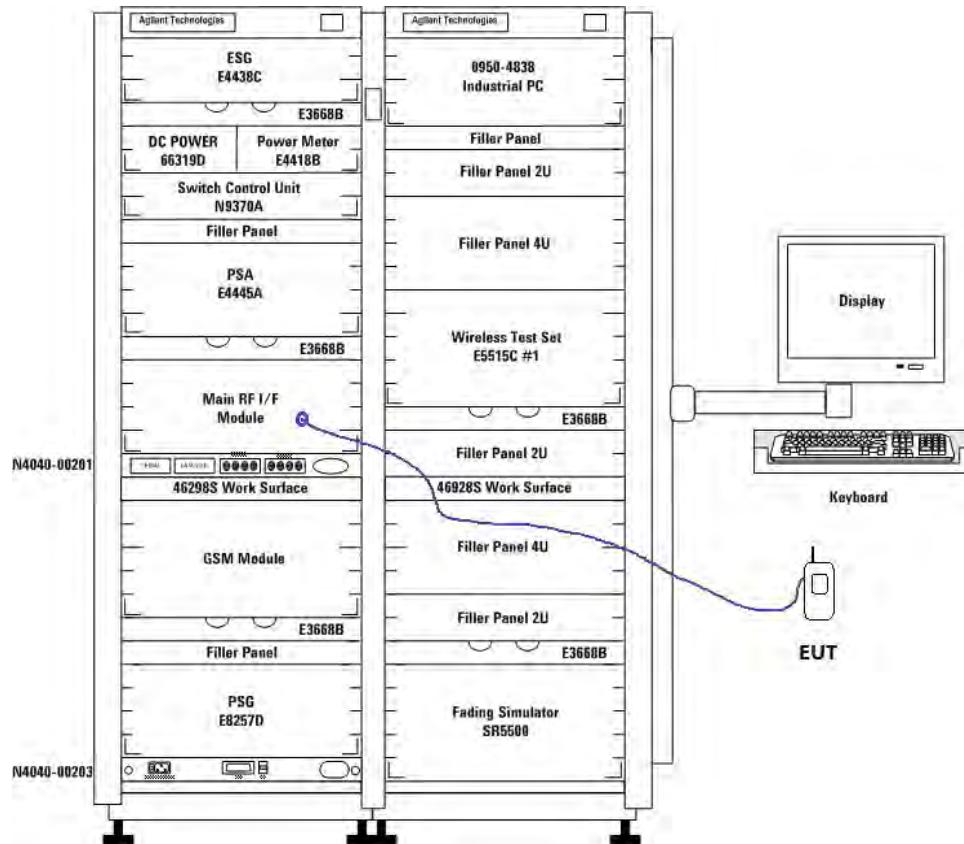
1. Radiated Spurious Emission Test Setup



The EUT, which is powered by the Battery charged with the AC Adapter, is located in a 3m Full-Anechoic Chamber; the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading. A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power (i.e. GSM1800MHz band Power Control Level (PCL) = 0/15 and Power Class = 1), and only the test result of the maximum output power was recorded.



2. GS8800 Test Setup





Annex B Conducted Maximum Output Power

Mode	Band I (dBm)	Band VIII(dBm)
WCDMA	23.52	22.74
HSDPA	22.37	21.8
HSUPA	22.24	21.77
HSPA+	21.31	20.99



Annex C Conducted and Radiated Spurious Emissions

1. Conducted spurious emissions.

Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band I	0.009	0.15	-80.13	PASS
Band I	0.009	0.15	-83.6	PASS
Band I	0.009	0.15	-86.53	PASS
Band I	0.15	30	-85.49	PASS
Band I	0.15	30	-85.57	PASS
Band I	0.15	30	-85.9	PASS
Band I	30	860	-75	PASS
Band I	30	860	-75.26	PASS
Band I	30	860	-76.31	PASS
Band I	860	895	-89.29	PASS
Band I	860	895	-90.51	PASS
Band I	860	895	-90.75	PASS
Band I	895	921	-73.86	PASS
Band I	895	921	-75.95	PASS
Band I	895	921	-76.42	PASS
Band I	921	925	-91.2	PASS
Band I	921	925	-91.57	PASS
Band I	921	925	-91.78	PASS
Band I	925	935	-90.07	PASS
Band I	925	935	-90.08	PASS
Band I	925	935	-91.77	PASS
Band I	935	960	-89.7	PASS
Band I	935	960	-90.04	PASS
Band I	935	960	-91.03	PASS
Band I	960	1000	-75.81	PASS
Band I	960	1000	-75.84	PASS
Band I	960	1000	-76.24	PASS
Band I	1000	1510.9	-79.38	PASS
Band I	1000	1510.9	-79.67	PASS
Band I	1000	1510.9	-79.7	PASS
Band I	1510.9	1805	-76.83	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band I	1510.9	1805	-77.16	PASS
Band I	1510.9	1805	-77.31	PASS
Band I	1805	1844.9	-77.3	PASS
Band I	1805	1844.9	-77.44	PASS
Band I	1805	1844.9	-77.7	PASS
Band I	1844.9	1880	-76.18	PASS
Band I	1844.9	1880	-77.63	PASS
Band I	1844.9	1880	-77.71	PASS
Band I	1880	1884.5	-62.62	PASS
Band I	1880	1884.5	-62.73	PASS
Band I	1880	1884.5	-62.87	PASS
Band I	1884.5	1915.7	-38.93	PASS
Band I	1884.5	1915.7	-39.02	PASS
Band I	1884.5	1915.7	-39.44	PASS
Band I	1915.7	12750	-39.21	PASS
Band I	1915.7	12750	-39.72	PASS
Band I	1915.7	12750	-41.12	PASS
Band I	860	895	-72.98	PASS
Band I	860	895	-73.41	PASS
Band I	860	895	-73.77	PASS
Band I	921	925	-90.51	PASS
Band I	921	925	-92.15	PASS
Band I	921	925	-92.36	PASS
Band I	921	925	-92.41	PASS
Band I	921	925	-92.64	PASS
Band I	921	925	-92.67	PASS
Band I	925	935	-90.78	PASS
Band I	925	935	-91.52	PASS
Band I	925	935	-92.4	PASS
Band I	925	935	-92.41	PASS
Band I	925	935	-92.7	PASS
Band I	925	935	-93.02	PASS
Band I	925	935	-71.96	PASS
Band I	925	935	-72.31	PASS
Band I	925	935	-72.76	PASS
Band I	935	960	-89.8	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band I	935	960	-90.1	PASS
Band I	935	960	-90.56	PASS
Band I	935	960	-90.72	PASS
Band I	935	960	-90.81	PASS
Band I	935	960	-90.88	PASS
Band I	1475.9	1510.9	-69.89	PASS
Band I	1475.9	1510.9	-71.97	PASS
Band I	1475.9	1510.9	-72.09	PASS
Band I	1805	1880	-86.66	PASS
Band I	1805	1880	-86.88	PASS
Band I	1805	1880	-87.09	PASS
Band I	1805	1880	-87.09	PASS
Band I	1805	1880	-87.12	PASS
Band I	1805	1880	-87.15	PASS
Band I	1844.9	1879.9	-68.98	PASS
Band I	1844.9	1879.9	-69.35	PASS
Band I	1844.9	1879.9	-70.05	PASS
Band I	1884.5	1915.7	-47.19	PASS
Band I	1884.5	1915.7	-48.2	PASS
Band I	1884.5	1915.7	-51.96	PASS
Band I	2110	2170	-68.54	PASS
Band I	2110	2170	-68.65	PASS
Band I	2110	2170	-69.16	PASS
Band I	2620	2690	-68.43	PASS
Band I	2620	2690	-68.48	PASS
Band I	2620	2690	-68.71	PASS
Band I	0.009	0.15	-78.11	PASS
Band I	0.009	0.15	-83.42	PASS
Band I	0.009	0.15	-85.83	PASS
Band I	0.15	30	-84.49	PASS
Band I	0.15	30	-85.63	PASS
Band I	0.15	30	-85.94	PASS
Band I	30	860	-74.4	PASS
Band I	30	860	-75.91	PASS
Band I	30	860	-76.36	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band I	860	895	-88.81	PASS
Band I	860	895	-90.36	PASS
Band I	860	895	-90.7	PASS
Band I	895	921	-75.76	PASS
Band I	895	921	-75.88	PASS
Band I	895	921	-75.93	PASS
Band I	921	925	-91.68	PASS
Band I	921	925	-91.85	PASS
Band I	921	925	-92.1	PASS
Band I	925	935	-91.38	PASS
Band I	925	935	-91.62	PASS
Band I	925	935	-91.82	PASS
Band I	935	960	-88.47	PASS
Band I	935	960	-88.66	PASS
Band I	935	960	-90.11	PASS
Band I	960	1000	-74.95	PASS
Band I	960	1000	-75	PASS
Band I	960	1000	-75.01	PASS
Band I	1000	1510.9	-79.16	PASS
Band I	1000	1510.9	-79.29	PASS
Band I	1000	1510.9	-79.41	PASS
Band I	1510.9	1805	-76.31	PASS
Band I	1510.9	1805	-77.45	PASS
Band I	1510.9	1805	-77.68	PASS
Band I	1805	1844.9	-77.42	PASS
Band I	1805	1844.9	-77.46	PASS
Band I	1805	1844.9	-77.55	PASS
Band I	1844.9	1880	-75.65	PASS
Band I	1844.9	1880	-76.04	PASS
Band I	1844.9	1880	-76.57	PASS
Band I	1880	1884.5	-62.23	PASS
Band I	1880	1884.5	-63.18	PASS
Band I	1880	1884.5	-63.19	PASS
Band I	1884.5	1915.7	-43.99	PASS
Band I	1884.5	1915.7	-44.27	PASS
Band I	1884.5	1915.7	-44.42	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band I	1915.7	12750	-36.49	PASS
Band I	1915.7	12750	-37.03	PASS
Band I	1915.7	12750	-46.53	PASS
Band I	860	895	-72.28	PASS
Band I	860	895	-73.42	PASS
Band I	860	895	-73.55	PASS
Band I	921	925	-90.39	PASS
Band I	921	925	-91.04	PASS
Band I	921	925	-92.14	PASS
Band I	921	925	-93.15	PASS
Band I	921	925	-93.17	PASS
Band I	921	925	-93.19	PASS
Band I	925	935	-89.4	PASS
Band I	925	935	-90.37	PASS
Band I	925	935	-90.89	PASS
Band I	925	935	-91	PASS
Band I	925	935	-91.76	PASS
Band I	925	935	-91.79	PASS
Band I	925	935	-72.89	PASS
Band I	925	935	-72.97	PASS
Band I	925	935	-73.17	PASS
Band I	935	960	-90.38	PASS
Band I	935	960	-90.64	PASS
Band I	935	960	-90.95	PASS
Band I	935	960	-91	PASS
Band I	935	960	-91.04	PASS
Band I	935	960	-91.22	PASS
Band I	1475.9	1510.9	-72.16	PASS
Band I	1475.9	1510.9	-72.23	PASS
Band I	1475.9	1510.9	-72.41	PASS
Band I	1805	1880	-86.05	PASS
Band I	1805	1880	-86.46	PASS
Band I	1805	1880	-86.54	PASS
Band I	1805	1880	-86.77	PASS
Band I	1805	1880	-86.93	PASS
Band I	1805	1880	-87.04	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band I	1844.9	1879.9	-69.02	PASS
Band I	1844.9	1879.9	-69.63	PASS
Band I	1844.9	1879.9	-70.24	PASS
Band I	1884.5	1915.7	-49.98	PASS
Band I	1884.5	1915.7	-50.1	PASS
Band I	1884.5	1915.7	-50.24	PASS
Band I	2110	2170	-68.68	PASS
Band I	2110	2170	-69.12	PASS
Band I	2110	2170	-69.43	PASS
Band I	2620	2690	-68.89	PASS
Band I	2620	2690	-69.26	PASS
Band I	2620	2690	-69.33	PASS
Band I	0.009	0.15	-79.16	PASS
Band I	0.009	0.15	-83.84	PASS
Band I	0.009	0.15	-85.67	PASS
Band I	0.15	30	-84.68	PASS
Band I	0.15	30	-86.64	PASS
Band I	0.15	30	-87.48	PASS
Band I	30	860	-76.03	PASS
Band I	30	860	-76.08	PASS
Band I	30	860	-76.5	PASS
Band I	860	895	-90.64	PASS
Band I	860	895	-90.68	PASS
Band I	860	895	-90.75	PASS
Band I	895	921	-75.94	PASS
Band I	895	921	-76.41	PASS
Band I	895	921	-76.46	PASS
Band I	921	925	-90.99	PASS
Band I	921	925	-91.18	PASS
Band I	921	925	-91.55	PASS
Band I	925	935	-91.06	PASS
Band I	925	935	-91.56	PASS
Band I	925	935	-91.87	PASS
Band I	935	960	-89.45	PASS
Band I	935	960	-89.7	PASS
Band I	935	960	-90.07	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band I	960	1000	-75.03	PASS
Band I	960	1000	-75.93	PASS
Band I	960	1000	-76.05	PASS
Band I	1000	1510.9	-78.94	PASS
Band I	1000	1510.9	-78.99	PASS
Band I	1000	1510.9	-79.01	PASS
Band I	1510.9	1805	-75.83	PASS
Band I	1510.9	1805	-77.53	PASS
Band I	1510.9	1805	-77.65	PASS
Band I	1805	1844.9	-76.95	PASS
Band I	1805	1844.9	-76.97	PASS
Band I	1805	1844.9	-77.49	PASS
Band I	1844.9	1880	-76.97	PASS
Band I	1844.9	1880	-77.08	PASS
Band I	1844.9	1880	-77.44	PASS
Band I	1880	1884.5	-62.62	PASS
Band I	1880	1884.5	-63.26	PASS
Band I	1880	1884.5	-63.27	PASS
Band I	1884.5	1915.7	-44.74	PASS
Band I	1884.5	1915.7	-44.99	PASS
Band I	1884.5	1915.7	-45.17	PASS
Band I	1915.7	12750	-37.69	PASS
Band I	1915.7	12750	-37.9	PASS
Band I	1915.7	12750	-41.52	PASS
Band I	860	895	-73.12	PASS
Band I	860	895	-73.43	PASS
Band I	860	895	-73.77	PASS
Band I	921	925	-89.22	PASS
Band I	921	925	-91.47	PASS
Band I	921	925	-91.73	PASS
Band I	921	925	-91.77	PASS
Band I	921	925	-92.08	PASS
Band I	921	925	-92.25	PASS
Band I	925	935	-91.29	PASS
Band I	925	935	-92.04	PASS
Band I	925	935	-92.22	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band I	925	935	-92.57	PASS
Band I	925	935	-92.64	PASS
Band I	925	935	-92.66	PASS
Band I	925	935	-71.99	PASS
Band I	925	935	-72.63	PASS
Band I	925	935	-73.07	PASS
Band I	935	960	-90.31	PASS
Band I	935	960	-90.33	PASS
Band I	935	960	-91.28	PASS
Band I	935	960	-91.3	PASS
Band I	935	960	-91.51	PASS
Band I	935	960	-91.79	PASS
Band I	1475.9	1510.9	-71.1	PASS
Band I	1475.9	1510.9	-71.66	PASS
Band I	1475.9	1510.9	-71.93	PASS
Band I	1805	1880	-85.58	PASS
Band I	1805	1880	-86.07	PASS
Band I	1805	1880	-86.22	PASS
Band I	1805	1880	-86.67	PASS
Band I	1805	1880	-86.75	PASS
Band I	1805	1880	-86.76	PASS
Band I	1844.9	1879.9	-68.61	PASS
Band I	1844.9	1879.9	-69.88	PASS
Band I	1844.9	1879.9	-70.28	PASS
Band I	1884.5	1915.7	-50.56	PASS
Band I	1884.5	1915.7	-51.5	PASS
Band I	1884.5	1915.7	-51.51	PASS
Band I	2110	2170	-69.32	PASS
Band I	2110	2170	-69.52	PASS
Band I	2110	2170	-69.86	PASS
Band I	2620	2690	-68.54	PASS
Band I	2620	2690	-68.65	PASS
Band I	2620	2690	-68.73	PASS
Band VIII	0.009	0.15	-86.79	PASS
Band VIII	0.009	0.15	-90.06	PASS
Band VIII	0.009	0.15	-90.17	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band VIII	0.15	30	-85.9	PASS
Band VIII	0.15	30	-85.95	PASS
Band VIII	0.15	30	-86.55	PASS
Band VIII	30	925	-52.17	PASS
Band VIII	30	925	-53.27	PASS
Band VIII	30	925	-53.95	PASS
Band VIII	925	935	-87.78	PASS
Band VIII	925	935	-88.68	PASS
Band VIII	925	935	-89.7	PASS
Band VIII	935	960	-87.72	PASS
Band VIII	935	960	-88.4	PASS
Band VIII	935	960	-88.43	PASS
Band VIII	960	1000	-74.51	PASS
Band VIII	960	1000	-75	PASS
Band VIII	960	1000	-75.9	PASS
Band VIII	1000	1805	-61.12	PASS
Band VIII	1000	1805	-61.45	PASS
Band VIII	1000	1805	-62.67	PASS
Band VIII	1805	1830	-77.64	PASS
Band VIII	1805	1830	-78.18	PASS
Band VIII	1805	1830	-78.83	PASS
Band VIII	1830	1880	-88.17	PASS
Band VIII	1830	1880	-88.19	PASS
Band VIII	1830	1880	-88.56	PASS
Band VIII	1880	2110	-63.48	PASS
Band VIII	1880	2110	-64.02	PASS
Band VIII	1880	2110	-64.06	PASS
Band VIII	2110	2170	-63.57	PASS
Band VIII	2110	2170	-63.74	PASS
Band VIII	2110	2170	-64.16	PASS
Band VIII	2170	2585	-63.65	PASS
Band VIII	2170	2585	-63.88	PASS
Band VIII	2170	2585	-64.16	PASS
Band VIII	2585	2640	-63.39	PASS
Band VIII	2585	2640	-63.45	PASS
Band VIII	2585	2640	-63.51	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band VIII	2640	2690	-61.01	PASS
Band VIII	2640	2690	-61.35	PASS
Band VIII	2640	2690	-61.53	PASS
Band VIII	2690	12750	-56.68	PASS
Band VIII	2690	12750	-57.47	PASS
Band VIII	2690	12750	-58.51	PASS
Band VIII	925	935	-87.91	PASS
Band VIII	925	935	-88.5	PASS
Band VIII	925	935	-88.7	PASS
Band VIII	925	935	-88.91	PASS
Band VIII	925	935	-89.78	PASS
Band VIII	925	935	-89.93	PASS
Band VIII	925	935	-71.64	PASS
Band VIII	925	935	-71.65	PASS
Band VIII	925	935	-71.72	PASS
Band VIII	935	960	-82.19	PASS
Band VIII	935	960	-82.27	PASS
Band VIII	935	960	-82.28	PASS
Band VIII	935	960	-82.28	PASS
Band VIII	935	960	-82.29	PASS
Band VIII	935	960	-82.29	PASS
Band VIII	935	960	-70.91	PASS
Band VIII	935	960	-71.12	PASS
Band VIII	935	960	-71.3	PASS
Band VIII	1805	1830	-87.97	PASS
Band VIII	1805	1830	-89.05	PASS
Band VIII	1805	1830	-89.27	PASS
Band VIII	1805	1830	-89.7	PASS
Band VIII	1805	1830	-89.74	PASS
Band VIII	1805	1830	-89.76	PASS
Band VIII	1805	1830	-69.89	PASS
Band VIII	1805	1830	-70.58	PASS
Band VIII	1805	1830	-71.41	PASS
Band VIII	1830	1880	-77.56	PASS
Band VIII	1830	1880	-77.69	PASS
Band VIII	1830	1880	-78.1	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band VIII	1830	1880	-78.36	PASS
Band VIII	1830	1880	-78.49	PASS
Band VIII	1830	1880	-78.53	PASS
Band VIII	1830	1880	-70.05	PASS
Band VIII	1830	1880	-70.52	PASS
Band VIII	1830	1880	-71.14	PASS
Band VIII	2110	2170	-70.46	PASS
Band VIII	2110	2170	-70.71	PASS
Band VIII	2110	2170	-70.71	PASS
Band VIII	2620	2640	-67.88	PASS
Band VIII	2620	2640	-68.68	PASS
Band VIII	2620	2640	-68.74	PASS
Band VIII	2640	2690	-67.19	PASS
Band VIII	2640	2690	-67.24	PASS
Band VIII	2640	2690	-67.28	PASS
Band VIII	0.009	0.15	-80.75	PASS
Band VIII	0.009	0.15	-83.56	PASS
Band VIII	0.009	0.15	-88.41	PASS
Band VIII	0.15	30	-85.86	PASS
Band VIII	0.15	30	-86.01	PASS
Band VIII	0.15	30	-86.12	PASS
Band VIII	30	925	-51.19	PASS
Band VIII	30	925	-51.33	PASS
Band VIII	30	925	-51.88	PASS
Band VIII	925	935	-89.29	PASS
Band VIII	925	935	-89.92	PASS
Band VIII	925	935	-90.61	PASS
Band VIII	935	960	-87.97	PASS
Band VIII	935	960	-88.46	PASS
Band VIII	935	960	-89.26	PASS
Band VIII	960	1000	-75.39	PASS
Band VIII	960	1000	-75.64	PASS
Band VIII	960	1000	-75.94	PASS
Band VIII	1000	1805	-62.13	PASS
Band VIII	1000	1805	-62.25	PASS
Band VIII	1000	1805	-62.83	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band VIII	1805	1830	-77.15	PASS
Band VIII	1805	1830	-77.54	PASS
Band VIII	1805	1830	-77.66	PASS
Band VIII	1830	1880	-87.55	PASS
Band VIII	1830	1880	-88.02	PASS
Band VIII	1830	1880	-88.35	PASS
Band VIII	1880	2110	-63.92	PASS
Band VIII	1880	2110	-64.04	PASS
Band VIII	1880	2110	-64.67	PASS
Band VIII	2110	2170	-62.74	PASS
Band VIII	2110	2170	-63.47	PASS
Band VIII	2110	2170	-63.66	PASS
Band VIII	2170	2585	-62.74	PASS
Band VIII	2170	2585	-63.79	PASS
Band VIII	2170	2585	-64.06	PASS
Band VIII	2585	2640	-60.61	PASS
Band VIII	2585	2640	-62.65	PASS
Band VIII	2585	2640	-62.81	PASS
Band VIII	2640	2690	-58.33	PASS
Band VIII	2640	2690	-60.54	PASS
Band VIII	2640	2690	-61.58	PASS
Band VIII	2690	12750	-56.23	PASS
Band VIII	2690	12750	-58.18	PASS
Band VIII	2690	12750	-58.49	PASS
Band VIII	925	935	-88.76	PASS
Band VIII	925	935	-89.65	PASS
Band VIII	925	935	-89.78	PASS
Band VIII	925	935	-89.94	PASS
Band VIII	925	935	-90.19	PASS
Band VIII	925	935	-90.71	PASS
Band VIII	925	935	-69.91	PASS
Band VIII	925	935	-70.33	PASS
Band VIII	925	935	-70.62	PASS
Band VIII	935	960	-82.17	PASS
Band VIII	935	960	-82.17	PASS
Band VIII	935	960	-82.23	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band VIII	935	960	-82.24	PASS
Band VIII	935	960	-82.26	PASS
Band VIII	935	960	-82.26	PASS
Band VIII	935	960	-70.71	PASS
Band VIII	935	960	-71.43	PASS
Band VIII	935	960	-71.46	PASS
Band VIII	1805	1830	-87.14	PASS
Band VIII	1805	1830	-87.2	PASS
Band VIII	1805	1830	-88.1	PASS
Band VIII	1805	1830	-88.22	PASS
Band VIII	1805	1830	-88.87	PASS
Band VIII	1805	1830	-89.27	PASS
Band VIII	1805	1830	-71.11	PASS
Band VIII	1805	1830	-71.14	PASS
Band VIII	1805	1830	-71.18	PASS
Band VIII	1830	1880	-77.32	PASS
Band VIII	1830	1880	-77.76	PASS
Band VIII	1830	1880	-77.82	PASS
Band VIII	1830	1880	-77.83	PASS
Band VIII	1830	1880	-77.96	PASS
Band VIII	1830	1880	-78.37	PASS
Band VIII	1830	1880	-70.68	PASS
Band VIII	1830	1880	-70.93	PASS
Band VIII	1830	1880	-71.43	PASS
Band VIII	2110	2170	-70.21	PASS
Band VIII	2110	2170	-70.89	PASS
Band VIII	2110	2170	-71.22	PASS
Band VIII	2620	2640	-69.23	PASS
Band VIII	2620	2640	-69.61	PASS
Band VIII	2620	2640	-69.74	PASS
Band VIII	2640	2690	-63.85	PASS
Band VIII	2640	2690	-64.01	PASS
Band VIII	2640	2690	-64.1	PASS
Band VIII	0.009	0.15	-86.39	PASS
Band VIII	0.009	0.15	-86.39	PASS
Band VIII	0.009	0.15	-87.84	PASS



Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band VIII	0.15	30	-85.3	PASS
Band VIII	0.15	30	-86.85	PASS
Band VIII	0.15	30	-87.41	PASS
Band VIII	30	925	-50.39	PASS
Band VIII	30	925	-52.4	PASS
Band VIII	30	925	-53.51	PASS
Band VIII	925	935	-88.26	PASS
Band VIII	925	935	-89.51	PASS
Band VIII	925	935	-89.64	PASS
Band VIII	935	960	-87.05	PASS
Band VIII	935	960	-87.94	PASS
Band VIII	935	960	-89.2	PASS
Band VIII	960	1000	-73.73	PASS
Band VIII	960	1000	-74.29	PASS
Band VIII	960	1000	-75.35	PASS
Band VIII	1000	1805	-62.34	PASS
Band VIII	1000	1805	-62.67	PASS
Band VIII	1000	1805	-62.92	PASS
Band VIII	1805	1830	-61.62	PASS
Band VIII	1805	1830	-62.38	PASS
Band VIII	1805	1830	-62.63	PASS
Band VIII	1830	1880	-87.15	PASS
Band VIII	1830	1880	-87.32	PASS
Band VIII	1830	1880	-87.67	PASS
Band VIII	1880	2110	-63.35	PASS
Band VIII	1880	2110	-63.35	PASS
Band VIII	1880	2110	-63.35	PASS
Band VIII	2110	2170	-63.24	PASS
Band VIII	2110	2170	-63.73	PASS
Band VIII	2110	2170	-64.04	PASS
Band VIII	2170	2585	-63.15	PASS
Band VIII	2170	2585	-63.34	PASS
Band VIII	2170	2585	-63.91	PASS
Band VIII	2585	2640	-62.54	PASS
Band VIII	2585	2640	-63.31	PASS
Band VIII	2585	2640	-63.54	PASS

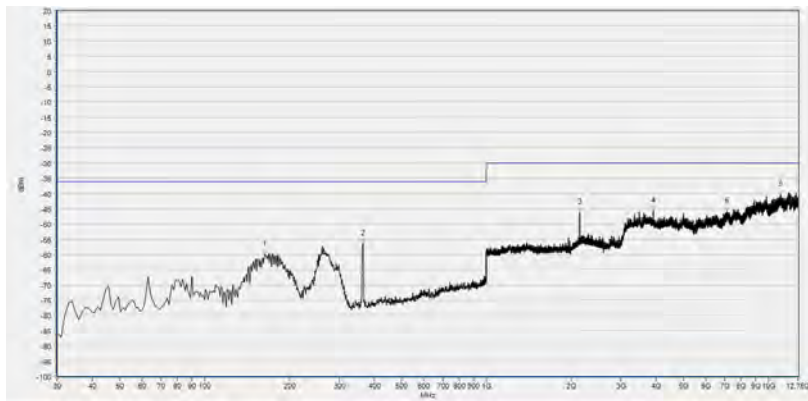


Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band VIII	2640	2690	-61.9	PASS
Band VIII	2640	2690	-62.32	PASS
Band VIII	2640	2690	-63.1	PASS
Band VIII	2690	12750	-56.02	PASS
Band VIII	2690	12750	-58.14	PASS
Band VIII	2690	12750	-58.39	PASS
Band VIII	925	935	-87.49	PASS
Band VIII	925	935	-88.2	PASS
Band VIII	925	935	-88.73	PASS
Band VIII	925	935	-89.59	PASS
Band VIII	925	935	-89.61	PASS
Band VIII	925	935	-89.97	PASS
Band VIII	925	935	-80.03	PASS
Band VIII	925	935	-80.18	PASS
Band VIII	925	935	-80.21	PASS
Band VIII	935	960	-82.2	PASS
Band VIII	935	960	-82.21	PASS
Band VIII	935	960	-82.25	PASS
Band VIII	935	960	-82.26	PASS
Band VIII	935	960	-82.27	PASS
Band VIII	935	960	-82.28	PASS
Band VIII	935	960	-71.33	PASS
Band VIII	935	960	-71.49	PASS
Band VIII	935	960	-71.67	PASS
Band VIII	1805	1830	-77	PASS
Band VIII	1805	1830	-77.12	PASS
Band VIII	1805	1830	-77.19	PASS
Band VIII	1805	1830	-77.3	PASS
Band VIII	1805	1830	-77.8	PASS
Band VIII	1805	1830	-77.82	PASS
Band VIII	1805	1830	-63.93	PASS
Band VIII	1805	1830	-64.06	PASS
Band VIII	1805	1830	-64.37	PASS
Band VIII	1830	1880	-83.95	PASS
Band VIII	1830	1880	-84.08	PASS
Band VIII	1830	1880	-84.08	PASS

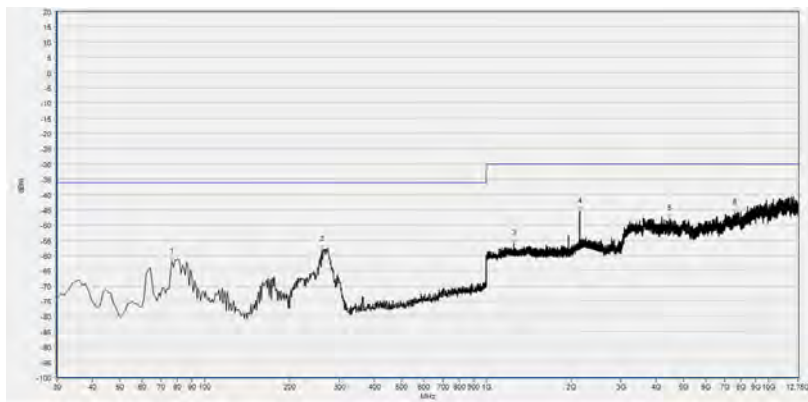


Frequency Band	Test Condition Range Start(MHz)	Test Condition Range Stop (MHz)	Measured Value(dBm)	Pass/Fail
Band VIII	1830	1880	-84.13	PASS
Band VIII	1830	1880	-84.19	PASS
Band VIII	1830	1880	-84.29	PASS
Band VIII	1830	1880	-75.06	PASS
Band VIII	1830	1880	-76.69	PASS
Band VIII	1830	1880	-78.24	PASS
Band VIII	2110	2170	-69.65	PASS
Band VIII	2110	2170	-70.41	PASS
Band VIII	2110	2170	-70.56	PASS
Band VIII	2620	2640	-68.87	PASS
Band VIII	2620	2640	-69.72	PASS
Band VIII	2620	2640	-69.83	PASS
Band VIII	2640	2690	-69.59	PASS
Band VIII	2640	2690	-69.72	PASS
Band VIII	2640	2690	-69.9	PASS

2. Radiated spurious emissions-Band I

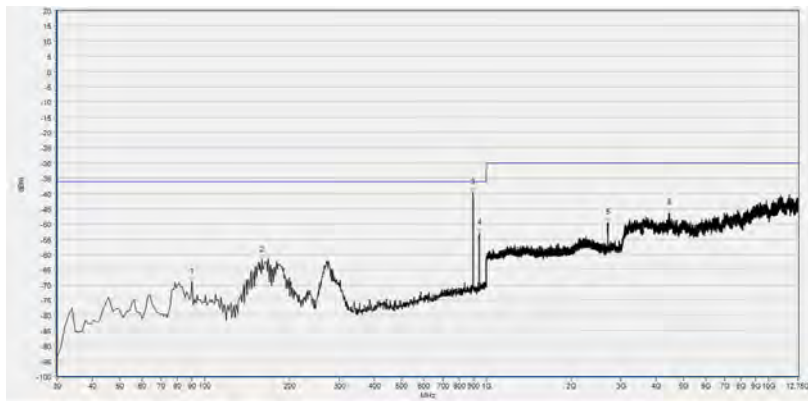


Fre. (MHz)	Peak	Limit(PK)	Antenna	Verdict
162.890	-60.08	-36.00	Horizontal	PASS
365.620	-56.37	-36.00	Horizontal	PASS
2140.936	-46.05	-30.00	Horizontal	PASS
3897.590	-45.78	-30.00	Horizontal	PASS
7135.106	-45.89	-30.00	Horizontal	PASS
11044.490	-40.39	-30.00	Horizontal	PASS

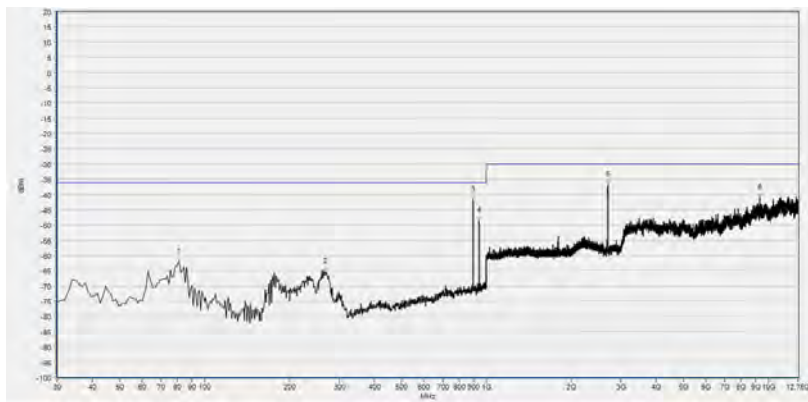


Fre. (MHz)	Peak	Limit(PK)	Antenna	Verdict
76.560	-62.00	-36.00	Vertical	PASS
260.860	-57.94	-36.00	Vertical	PASS
1250.980	-56.06	-30.00	Vertical	PASS
2140.936	-45.54	-30.00	Vertical	PASS
4447.636	-47.91	-30.00	Vertical	PASS
7613.166	-46.02	-30.00	Vertical	PASS

Radiated spurious emissions-Band VIII



Fre. (MHz)	Peak	Limit(PK)	Antenna	Verdict
90.140	-68.90	-36.00	Horizontal	PASS
159.980	-61.75	-36.00	Horizontal	PASS
896.210	-39.66	-36.00	Horizontal	N.A
942.770	-52.82	-36.00	Horizontal	PASS
2695.410	-49.56	-30.00	Horizontal	PASS
4457.450	-46.37	-30.00	Horizontal	PASS



Fre. (MHz)	Peak	Limit(PK)	Antenna	Verdict
81.410	-61.92	-36.00	Vertical	PASS
267.650	-65.29	-36.00	Vertical	PASS
896.210	-41.63	-36.00	Vertical	N.A
940.830	-48.49	-36.00	Vertical	N.A
2695.410	-36.67	-30.00	Vertical	PASS
9305.090	-40.93	-30.00	Vertical	PASS

Note: N.A means the frequency is the basic frequency or the base station frequency, they are no need to verdict.

Annex D Photographs of the EUT

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4



Annex E Test Uncertainty

EN301 908-1		Uncertainty
Effective radiated RF power between 30 MHz and 180 MHz		±3.74dB
Effective radiated RF power between 180 MHz and 12,75 GHz		±2.90dB
Conducted RF power		±0.5dB
3GPP 34.121-1	Test Description	Uncertainty
5.2 5.2A / 5.2AA 5.2B 5.2E	Maximum Output Power Maximum Output Power with HS-DPCCH Output Power with HS-DPCCH and E-DCH UE Relative Code Domain Power Accuracy for HS-DPCCH and E-DCH with 16QAM	±0.5dB
5.4.3	Minimum Output Power	±0.97dB
5.4.4	Out-of-synchronisation Handling of Output Power	±0.3dB
5.9 5.9A 5.9B	Spectrum Emission Mask Spectrum Emission Mask with HS-DPCCH Spectrum Emission Mask with E-DCH	±1.5dB
5.10 5.10A 5.10B	Adjacent Channel Leakage Power Ratio (ACLR) Adjacent channel leakage power ratio with HS-DPCCH Adjacent channel leakage power ratio with E-DCH	5MHz offset:±0.8dB 10MHz offset: ±0.8dB
5.11	Transmitter Characteristics / Spurious Emissions: coexistence bands for results ≥ -60dBm coexistence bands for results < -60dBm Outside above: f < 2.2GHz Outside above: 2.2GHz < f ≤ 4GHz Outside above: f > 4 GHz	±2.0dB ±3.0dB ±1.05dB ±1.53dB ±2.51dB
6.2	Reference Sensitivity Level	±0.30dB
6.4 / 6.4A	Adjacent channel selectivity	±0.79dB
6.5	Blocking characteristics System error with f <15MHz offset f ≥ 15MHz offset and fb ≤ 2.2GHz 2.2GHz < f ≤ 4GHz f > 4GHz	±1.09dB ±0.69dB ±1.55dB ±2.52dB
6.6	Spurious Response f < 2.2GHz 2.2GHz < f ≤4GHz	±0.69dB ±1.55dB



	f > 4GHz	±2.52dB
6.7	Intermodulation Characteristics	±0.91dB
6.8	Receiver Characteristics / Spurious Emissions:	
	for UE receive band and UE transmit band (-60dBm)	±3.0dB
	Outside above: f ≤4GHz	±2.0dB
	Outside above: f > 4 GHz (-47 dBm)	±4.0dB
	Downlink signal for	±2.0dB



Annex F General Information

1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Department:	Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Responsible Test Lab Manager:	Mr. Su Feng
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. Test Equipments Utilized

3.1 Agilent GS8800 System

Agilent GS8800 RF test system						
No.	Equipment Name	Serial No.	Type	Manufacturer	Cal.Date	Cal.Due Date
1	8960 Wireless Communications Test Set	GB45071068	E5515C	Agilent	2016.06.08	2018.06.08
2	PSA Series Spectrum Analyzer	MY44200685	E4445A	Agilent	2016.11.02	2018.11.02
3	Mobile Communications DC Source	MY43000858	66319D	Agilent	2017.05.24	2018.05.23
4	EPM Series Power Meter	GB43318055	E4418B	Agilent	2017.05.17	2018.05.16
5	ESG Vector Signal Generator	MY49070387	E4438C	Agilent	2017.05.24	2018.05.23
6	PSG Analog Signal Generator	MY46521361	E8257D	Agilent	2017.05.24	2018.05.23
7	Electrical Safety Check	MY46130112	N9370A-001	Agilent	2017.05.24	2018.05.23
8	RF Interface	MY45490180	N1960-	Agilent	N/A	N/A



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			80103			
9	GSM Module	MY45490176	N1960-80104	Agilent	2017.05.24	2018.05.23
10	Wireless Channel Emulator	WCE301M5	SR5500	Spirent	2017.05.24	2018.05.23
11	Industrial PC	0950-4838	TBN-8060256	Advanctech	N/A	N/A
Software Version: RCT.2.8.1.0.0						

3.2 RSE Test System

RSE Test System						
No.	Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal.Due Date
1	System Simulator	117801	CMU200	R&S	2017.05.17	2018.05.16
2	MXE EMI Receiver	MY54130016	N9038A	Agilent	2017.05.17	2018.05.16
3	Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2017.05.14	2018.05.13
4	Test Antenna - Horn	01774	BBHA 9120D	Schwarzbeck	2017.09.13	2018.09.12
5	Anechoic Chamber	CRT	9m*6m*6m	(N/A)	2017.11.19	2020.11.18

3.3 Climate Chamber

Climate Chamber						
No.	Equipment Name	Serial No.	Type	Manufacturer	Cal.Date	Cal.Due Date
1	Climate Chamber	12108015	DTL-003S/01	YOMA	2017.05.24	2018.05.23

3.4 Vibration Table

Vibration Table						
No.	Equipment Name	Serial No.	Type	Manufacturer	Cal.Date	Cal.Due Date
1	Vibration Table	N/A	ACT2000-S015L	CMI-COM	2017.05.24	2018.05.23

3.5 Anechoic Chamber

Anechoic Chamber						
No.	Equipment Name	Serial No.	Type	Manufacturer	Cal.Date	Cal.Due Date
1	Anechoic Chamber	N/A	9m*6m*6m	Changning	2017.05.24	2018.05.23

_____ END OF REPORT _____