

For NB-IoT Band 17

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Standalone	23732 (704.20 MHz) 23790 (710.00 MHz) 23848 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	23755 (706.50 MHz) 23790 (710.00 MHz) 23825 (713.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		23780 (709.00 MHz) 23790 (710.00 MHz) 23800 (711.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	23755 (706.50 MHz) 23790 (710.00 MHz) 23825 (713.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		23780 (709.00 MHz) 23790 (710.00 MHz) 23800 (711.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	23790 (710.00 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	23732 (704.20 MHz) 23790 (710.00 MHz) 23848 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
			-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	23732 (704.20 MHz) 23790 (710.00 MHz) 23848 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
			-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	23732 (704.20 MHz) 23790 (710.00 MHz) 23848 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	23790 (710.00 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	23732 (704.20 MHz) 23790 (710.00 MHz) 23848 (715.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	23732 (704.20 MHz) 23848 (715.80 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 25

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
EIRP	Standalone	26042 (1850.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26365 (1882.50 MHz) 26688 (1914.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	26055 (1851.50 MHz) 26365 (1882.50 MHz) 26675 (1913.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26065 (1852.50 MHz) 26365 (1882.50 MHz) 26665 (1912.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26090 (1855.00 MHz) 26365 (1882.50 MHz) 26640 (1910.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26115 (1857.50 MHz) 26365 (1882.50 MHz) 26615 (1907.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26140 (1860.00 MHz) 26365 (1882.50 MHz) 26590 (1905.00 MHz)	20 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode		
EIRP	Guard-Band	26055 (1851.50 MHz) 26365 (1882.50 MHz) 26675 (1913.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB		
		15 kHz		BPSK, QPSK	1 RB Half RB Full RB			
		26065 (1852.50 MHz) 26365 (1882.50 MHz) 26665 (1912.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB		
		15 kHz		BPSK, QPSK	1 RB Half RB Full RB			
		26090 (1855.00 MHz) 26365 (1882.50 MHz) 26640 (1910.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB		
		15 kHz		BPSK, QPSK	1 RB Half RB Full RB			
		26115 (1857.50 MHz) 26365 (1882.50 MHz) 26615 (1907.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB		
		15 kHz		BPSK, QPSK	1 RB Half RB Full RB			
		26140 (1860.00 MHz) 26365 (1882.50 MHz) 26590 (1905.00 MHz)	20 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB		
		15 kHz		BPSK, QPSK	1 RB Half RB Full RB			
		Modulation Characteristics	Standalone	26365 (1882.50 MHz)	-	-	BPSK, QPSK	Full RB
		Peak to Average Ratio	Standalone	26042 (1850.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
26365 (1882.50 MHz) 26688 (1914.80 MHz)	-			15 kHz	BPSK, QPSK	1 RB		
Occupied Bandwidth	Standalone	26042 (1850.20 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB		
		26365 (1882.50 MHz) 26688 (1914.80 MHz)	-	15 kHz	BPSK, QPSK	Full RB		
Conducted Spurious Emissions	Standalone	26042 (1850.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB		
		26365 (1882.50 MHz) 26688 (1914.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB Full RB		
Radiated Spurious Emissions below 1GHz	Standalone	26365 (1882.50 MHz)	-	15 kHz	BPSK	1 RB		
Radiated Spurious Emissions above 1GHz	Standalone	26042 (1850.20 MHz)	-	15 kHz	BPSK	1 RB		
		26365 (1882.50 MHz) 26688 (1914.80 MHz)						
Frequency Stability	Standalone	26042 (1850.20 MHz) 26688 (1914.80 MHz)	-	15 kHz	BPSK	Full RB		

For NB-IoT Band 26 (Part 22)

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Standalone	26792 (824.20 MHz) 26915 (836.50 MHz) 27038 (848.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	26805 (825.50 MHz) 26915 (836.50 MHz) 27025 (847.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26815 (826.50 MHz) 26915 (836.50 MHz) 27015 (846.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26840 (829.00 MHz) 26915 (836.50 MHz) 26990 (844.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26865 (831.50 MHz) 26915 (836.50 MHz) 26965 (841.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	26805 (825.50 MHz) 26915 (836.50 MHz) 27025 (847.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26815 (826.50 MHz) 26915 (836.50 MHz) 27015 (846.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Guard-Band	26840 (829.00 MHz) 26915 (836.50 MHz) 26990 (844.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26865 (831.50 MHz) 26915 (836.50 MHz) 26965 (841.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	26915 (836.50 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	26792 (824.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
		26915 (836.50 MHz) 27038 (848.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	26792 (824.20 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
		26915 (836.50 MHz) 27038 (848.80 MHz)	-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	26792 (824.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
		26915 (836.50 MHz) 27038 (848.80 MHz)	-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	26915 (836.50 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	26792 (824.20 MHz) 26915 (836.50 MHz) 27038 (848.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	26792 (824.20 MHz) 27038 (848.80 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 26 (Part 90)

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Standalone	26697 (814.70 MHz) 26740 (819.00 MHz) 26783 (823.30 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	26705 (815.50 MHz) 26740 (819.00 MHz) 26775 (822.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26715 (816.50 MHz) 26740 (819.00 MHz) 26765 (821.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26740 (819.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	26705 (815.50 MHz) 26740 (819.00 MHz) 26775 (822.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26715 (816.50 MHz) 26740 (819.00 MHz) 26765 (821.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		26740 (819.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
Modulation Characteristics	Standalone	26740 (819.00 MHz)	-	-	BPSK, QPSK	Full RB
Occupied Bandwidth	Standalone	26697 (814.70 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
		26740 (819.00 MHz)	-	15 kHz	BPSK, QPSK	Full RB
		26783 (823.30 MHz)				
Conducted Spurious Emissions	Standalone	26697 (814.70 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
		26740 (819.00 MHz)	-	15 kHz	BPSK, QPSK	1 RB Full RB
		26783 (823.30 MHz)				
Radiated Spurious Emissions below 1GHz	Standalone	26740 (819.00 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	26697 (814.70 MHz) 26740 (819.00 MHz) 26783 (823.30 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	26697 (814.70 MHz) 26783 (823.30 MHz)	-	15 kHz	BPSK	Full RB

For NB-IoT Band 66

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
EIRP	Standalone	131974 (1710.20 MHz) 132322 (1745.00 MHz) 132670 (1779.50 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	131989 (1711.50 MHz) 132322 (1745.00 MHz) 132657 (1778.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		131997 (1712.50 MHz) 132322 (1745.00 MHz) 132647 (1777.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		132022 (1715.00 MHz) 132322 (1745.00 MHz) 132622 (1775.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		132047 (1717.50 MHz) 132322 (1745.00 MHz) 132597 (1772.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		132072 (1720.00 MHz) 132322 (1745.00 MHz) 132572 (1770.00 MHz)	20 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
EIRP	Guard-Band	131989 (1711.50 MHz) 132322 (1745.00 MHz) 132657 (1778.50 MHz)	3 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		131997 (1712.50 MHz) 132322 (1745.00 MHz) 132647 (1777.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		132022 (1715.00 MHz) 132322 (1745.00 MHz) 132622 (1775.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		132047 (1717.50 MHz) 132322 (1745.00 MHz) 132597 (1772.50 MHz)	15 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		132072 (1720.00 MHz) 132322 (1745.00 MHz) 132572 (1770.00 MHz)	20 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	132322 (1745.00 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	131974 (1710.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
		132322 (1745.00 MHz) 132670 (1779.50 MHz)	-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	131974 (1710.20 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
		132322 (1745.00 MHz) 132670 (1779.50 MHz)	-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	131974 (1710.20 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
		132322 (1745.00 MHz) 132670 (1779.50 MHz)	-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	132322 (1745.00 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	131974 (1710.20 MHz) 132322 (1745.00 MHz) 132670 (1779.50 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	131974 (1710.20 MHz) 132670 (1779.50 MHz)	-	15 kHz	BPSK	Full RB

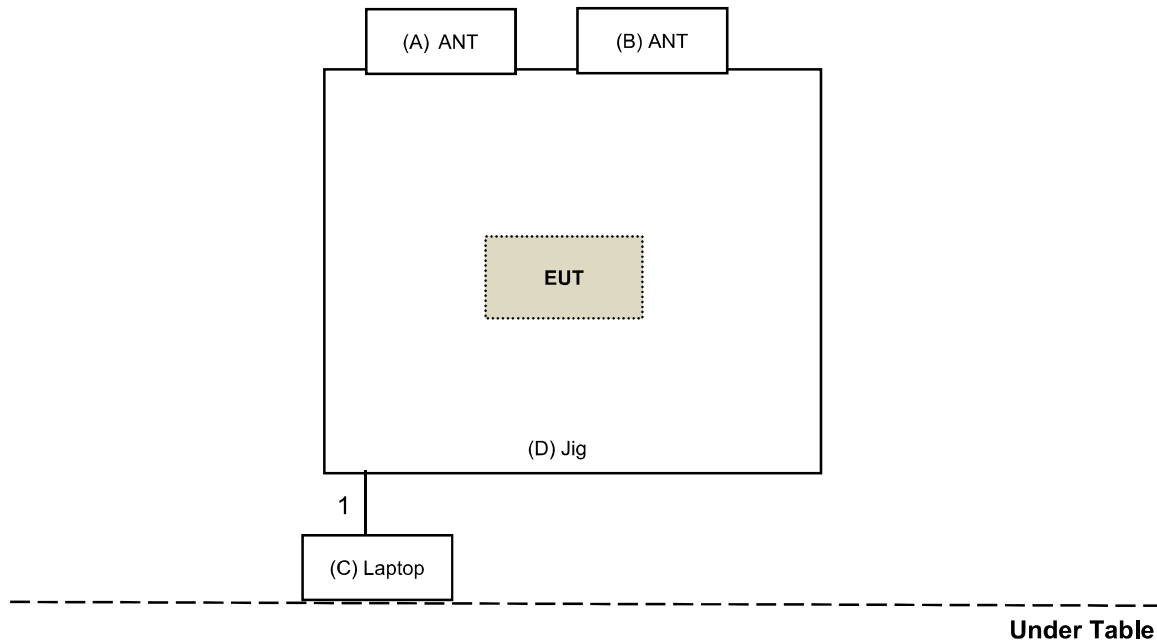
For NB-IoT Band 85

Test Item	Tested Channel		Channel Bandwidth	Sub-carrier	Modulation	Mode
ERP	Standalone	134004 (698.20 MHz) 134092 (707.00 MHz) 134180 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	In-Band	134027 (700.50 MHz) 134092 (707.00 MHz) 134157 (713.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		134052 (703.00 MHz) 134092 (707.00 MHz) 134132 (711.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
	Guard-Band	134027 (700.50 MHz) 134092 (707.00 MHz) 134157 (713.50 MHz)	5 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
		134052 (703.00 MHz) 134092 (707.00 MHz) 134132 (711.00 MHz)	10 MHz	3.75 kHz	BPSK, QPSK	1 RB Half RB Full RB
				15 kHz	BPSK, QPSK	1 RB Half RB Full RB
Modulation Characteristics	Standalone	134092 (707.00 MHz)	-	-	BPSK, QPSK	Full RB
Peak to Average Ratio	Standalone	134004 (698.20 MHz) 134092 (707.00 MHz) 134180 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB
			-	15 kHz	BPSK, QPSK	1 RB
Occupied Bandwidth	Standalone	134004 (698.20 MHz) 134092 (707.00 MHz) 134180 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	Full RB
			-	15 kHz	BPSK, QPSK	Full RB
Conducted Spurious Emissions	Standalone	134004 (698.20 MHz) 134092 (707.00 MHz) 134180 (715.80 MHz)	-	3.75 kHz	BPSK, QPSK	1 RB Full RB
			-	15 kHz	BPSK, QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	Standalone	134092 (707.00 MHz)	-	15 kHz	BPSK	1 RB
Radiated Spurious Emissions above 1GHz	Standalone	134004 (698.20 MHz) 134092 (707.00 MHz) 134180 (715.80 MHz)	-	15 kHz	BPSK	1 RB
Frequency Stability	Standalone	134004 (698.20 MHz) 134180 (715.80 MHz)	-	15 kHz	BPSK	Full RB

3.4 Test Program Used and Operation Descriptions

There is no need to controlling software during the test, and the EUT can be paired with the Radio Communication Analyzer to test the connection when it is powered on.

3.5 Connection Diagram of EUT and Peripheral Devices



3.6 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	ANT	RFLINK	RF21.S00940A	N/A	N/A	Supplied by applicant
B	ANT	RFLINK	RF21.S00940A	N/A	N/A	Supplied by applicant
C	Laptop	Lenovo	L440	R9-0GFJKK	N/A	Provided by Lab
D	Jig	N/A	N/A	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB typeC Cable	1	0.9	Yes	No	Supplied by applicant

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
PXA Signal Analyzer KEYSIGHT	N9030B	MY57140488	2025/3/11	2026/3/10
Radio Communication Analyzer Anritsu	MT8821C	6201462755	2024/3/13	2025/3/12
Wideband Radio Communication Tester R&S	CMW500	152443	2024/8/7	2025/8/6
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/3/8 ~ 2025/3/14

4.2 Modulation Characteristics

Refer to section 4.1 to get information of the instruments.

4.3 Peak to Average Ratio

Refer to section 4.1 to get information of the instruments.

4.4 Bandwidth

Refer to section 4.1 to get information of the instruments.

4.5 Conducted Spurious Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
PXA Signal Analyzer KEYSIGHT	N9030B	MY57140953	2024/8/1	2025/7/31
		MY57140488	2025/3/11	2026/3/10
Radio Communication Analyzer Anritsu	MT8821C	6261806803	2025/2/19	2026/2/18
Wideband Radio Communication Tester R&S	CMW500	152443	2024/8/7	2025/8/6
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/3/8 ~ 2025/4/7

4.6 Radiated Spurious Emissions below 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Max-Full	MF-7802BS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208674	NA	NA
EMI Test Receiver R&S	ESR3	102782	2024/12/10	2025/12/9
Signal & Spectrum Analyzer R&S	FSW43	101866	2024/3/26	2025/3/25
Loop Antenna TESEQ	HLA 6121	45745	2024/8/21	2025/8/20
Loop Antenna Electro-Metrics	EM-6879	264	2025/3/6	2026/3/5
Preamplifier EMCI	EMC001340	980201	2024/9/24	2025/9/23
RF Coaxial Cable EMCI	5D-NM-BM	140901	2024/9/24	2025/9/23
Preamplifier EMCI	EMC330N	980782	2025/1/14	2026/1/13
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-1213	2024/10/14	2025/10/13
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-500	201233	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-3000	201235	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-9000	201236(with PAD)	2025/1/14	2026/1/13

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2025/3/3

4.7 Radiated Spurious Emissions above 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Max-Full	MF-7802BS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208674	NA	NA
EMI Test Receiver R&S	ESR3	102782	2024/12/10	2025/12/9
Signal & Spectrum Analyzer R&S	FSW43	101866	2024/3/26	2025/3/25
Loop Antenna TESEQ	HLA 6121	45745	2024/8/21	2025/8/20
Loop Antenna Electro-Metrics	EM-6879	264	2025/3/6	2026/3/5
Preamplifier EMCI	EMC001340	980201	2024/9/24	2025/9/23
RF Coaxial Cable EMCI	5D-NM-BM	140901	2024/9/24	2025/9/23
Horn Antenna RFSPIN	DRH18-E	210103A18E	2024/12/26	2025/12/25
Preamplifier EMCI	EMC118A45SE	980808	2024/12/26	2025/12/25
RF Coaxial Cable EMCI	EMC104-SM-SM-1000	210102	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMC104-SM-SM-3000	201231	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMC104-SM-SM-9000	201243	2025/1/14	2026/1/13
Preamplifier EMCI	EMC184045SE	980788	2025/1/14	2026/1/13
Horn Antenna Schwarzbeck	BBHA 9170	9170-1049	2024/11/10	2025/11/9
RF Coaxial Cable EMCI	EMC101G-KM-KM-5000	201261	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMC101G-KM-KM-3000	201258	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMC101G-KM-KM-2000	201254	2025/1/14	2026/1/13

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2025/2/26 ~ 2025/3/11

4.8 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
3-channel DC power supply JIN YIH Technology	ODP3033	ODP30332128138	N/A	N/A
Digital Multimeter Fluke	87-III	70360742	2024/7/5	2025/7/4
Signal and spectrum analyzer R&S	FSV3044	101105	2025/2/25	2026/2/24
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Temperature & Humidity Chamber TERCHY	HRM-120RF	931022	2025/1/9	2026/1/8
Radio Communication Analyzer Anritsu	MT8821C	6201462755	2024/3/13	2025/3/12

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/3/12

5 Limits of Test Items

5.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

For NB-IoT Band 2, NB-IoT Band 25:

Mobile and portable stations are limited to 2 watts EIRP.

For NB-IoT Band 4, NB-IoT Band 66:

Fixed, mobile, and portable (hand-held) [stations](#) operating in the 1710-1755 MHz band and mobile and portable [stations](#) operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt [EIRP](#).

For NB-IoT Band 5, NB-IoT Band 26 (Part 22):

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

For NB-IoT Band 8:

Mobile, control and auxiliary test stations must not exceed 10 watts ERP.

For NB-IoT Band 12, NB-IoT Band 85:

Portable [stations](#) (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and [mobile stations](#) in the 600 MHz uplink band are limited to 3 watts ERP.

For NB-IoT Band 13:

Portable [stations](#) (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

For NB-IoT Band 14:

Control stations and mobile stations transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 30 watts ERP.

For NB-IoT Band 17:

Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.

For NB-IoT Band 26 (Part 90):

The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw) ERP.

5.2 Modulation Characteristics

A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

5.3 Peak to Average Ratio

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

5.4 Bandwidth

According to FCC 47 CFR part 2.1049, the occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5% of the total mean power radiated by a given emission.

5.5 Conducted Spurious Emissions

For NB-IoT Band 2, NB-IoT Band 5, NB-IoT Band 25, NB-IoT Band 26 (Part 22):

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

For NB-IoT Band 4:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

For NB-IoT Band 8:

According to FCC 47 CFR part 27.1509(a), the power of any emission outside a licensee's frequency band of operation shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm. Compliance with the provisions of paragraphs (a) and (b) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the licensee's band, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

For NB-IoT Band 12, NB-IoT Band 85:

According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

For NB-IoT Band 13:

According to FCC 47 CFR part 27.53(c)(2), for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

According to FCC 47 CFR part 27.53(c)(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.

For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz (EIRP). The limit of emissions is equal to -40 dBm.

For NB-IoT Band 14:

According to FCC 47 CFR part 90.543 (e), for operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.

(2) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log(P)$ dB.

According to FCC 47 CFR part 90.543 (f), for operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

For NB-IoT Band 17:

According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

For NB-IoT Band 26 (Part 90):

According to FCC 47 CFR part 90.691 shall be tested the emission masks. For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

For §90.691(a), RBW = 300 Hz for offset less than 37.5 kHz from channel edge and RBW = 100 kHz for offsets greater than 37.5 kHz is allowed.

For NB-IoT Band 66:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

5.6 Radiated Spurious Emissions below 1GHz

For NB-IoT Band 2, NB-IoT Band 5, NB-IoT Band 25, NB-IoT Band 26 (Part 22):

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

For NB-IoT Band 4:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

For NB-IoT Band 8:

According to FCC 47 CFR part 27.1509(a), the power of any emission outside a licensee's frequency band of operation shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

For NB-IoT Band 12, NB-IoT Band 85:

According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

For NB-IoT Band 13:

According to FCC 47 CFR part 27.53(c)(2), for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz (EIRP). The limit of emissions is equal to -40 dBm.

For NB-IoT Band 14:

According to FCC 47 CFR part 90.543 (e), for operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB.

For NB-IoT Band 17:

According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

For NB-IoT Band 26 (Part 90):

For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

For §90.691(a), RBW = 100 kHz for offset greater than 37.5 kHz from channel edge is allowed.

For NB-IoT Band 66:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

5.7 Radiated Spurious Emissions above 1GHz

For NB-IoT Band 2, NB-IoT Band 5, NB-IoT Band 25, NB-IoT Band 26 (Part 22):

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

For NB-IoT Band 4:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

For NB-IoT Band 8:

According to FCC 47 CFR part 27.1509(a), the power of any emission outside a licensee's frequency band of operation shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

For NB-IoT Band 12, NB-IoT Band 85:

According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

For NB-IoT Band 13:

According to FCC 47 CFR part 27.53(c)(2), for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz (EIRP). The limit of emissions is equal to -40 dBm.

For NB-IoT Band 14:

According to FCC 47 CFR part 90.543 (e), for operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB.

According to FCC 47 CFR part 90.543 (f), for operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

For NB-IoT Band 17:

According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

For NB-IoT Band 26 (Part 90):

For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

For §90.691(a), RBW = 100 kHz for offset greater than 37.5 kHz from channel edge is allowed.

For NB-IoT Band 66:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

5.8 Frequency Stability

For NB-IoT Band 5, NB-IoT Band 26 (Part 90):

1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

For NB-IoT Band 2, NB-IoT Band 4, NB-IoT Band 8, NB-IoT Band 12, NB-IoT Band 13, NB-IoT Band 17, NB-IoT Band 25, NB-IoT Band 26 (Part 22), NB-IoT Band 66, NB-IoT Band 85:

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation (authorized frequency block).

NB-IoT Band 14:

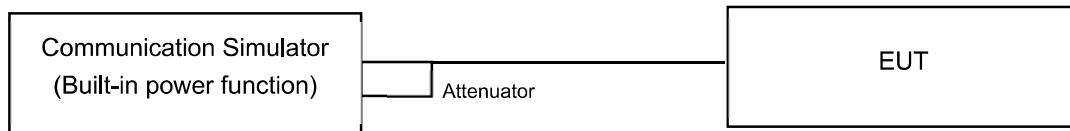
The frequency stability of mobile, portable and control transmitters operating in the wideband segment must be 1.25 parts per million or better when AFC is locked to a base station, and 5 parts per million or better when AFC is not locked.

6 Test Arrangements

6.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

6.1.1 Test Setup

Conducted Power Measurement:



6.1.2 Test Procedure

Conducted Power Measurement:

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology. The average (rms) power measurement was performed on emulator and power value was measured from power function on emulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Maximum EIRP / ERP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$$\text{EIRP} = P_{\text{Meas}} + G_T$$

$$\text{ERP} = P_{\text{Meas}} + G_T - 2.15$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively

(expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

6.2 Modulation Characteristics

6.2.1 Test Setup

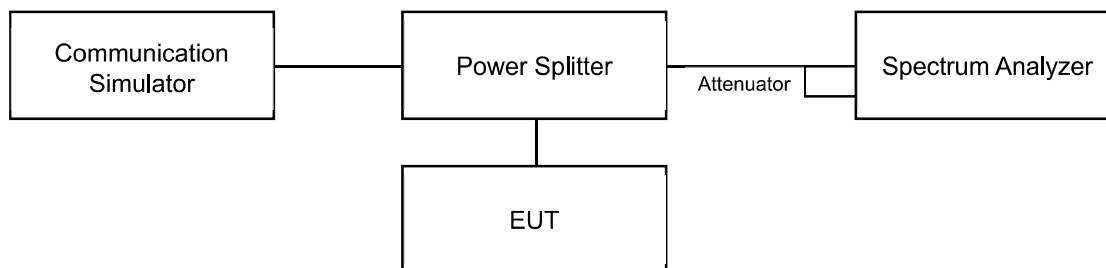


6.2.2 Test Procedure

Connect the EUT to Communication Simulator via the antenna connector, the frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

6.3 Peak to Average Ratio

6.3.1 Test Setup

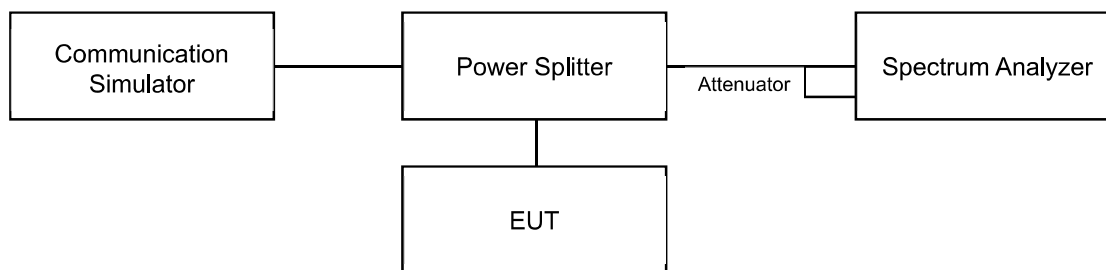


6.3.2 Test Procedure

- Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

6.4 Bandwidth

6.4.1 Test Setup



6.4.2 Test Procedure

For the 26 dBc bandwidth measurement method, please refer to section 5.4.3 of ANSI C63.26.

- The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
- The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
- The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
- Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
- Determine the following reference values: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
- Determine the “-X dB amplitude” as equal to (Reference Value - X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.
- Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB amplitude” determined in step f). If a marker is below this “-X dB amplitude” value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers.
- The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).