

Tune-up Process

Manufacturing tuning process for the device at the manufacturing step

1. Put the device in test mode for CW operation and connect it to the test bench
2. Automated testing script will jump through various channels and measure for frequency alignment, signal amplitude and occupied bandwidth and noise profile. Device Tune up range values are determined as per the Tune up table. A snapshot of the Tune up table for a few bands is provided in example Table-I listed below.
3. When the device is found to be exceeding the allowed limits in step #2, the script will configure the device with fresh settings to verify if the config is clean
4. If clean config is determined and deviation is due to tolerances, the script will adjust the power level to tune the output to accepted levels
5. If deviation is determined to be due to quality, the device serial number, manufacturing station details and setup details will be recorded, the device will be rejected on the manufacturing line and sent for manual inspection or rework.
6. If no improvement or compliance is verified through additional manual inspection, the device is quarantined and eliminated from the production line.

Table - I

Band	Frequency	Maximum Conducted Power	Tune-Up Tolerance	Tune-up Conducted Power	Antenna Gain	Antenna Gain	Power Density	Limit	Margin	Distance	Result
	(MHz)	(dBm)	-	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(mW/cm ²)	-	(cm)	-
GSM 850	831.5	26	±1dB	501.182	2.56	1.803	0.180	0.554	-0.0792	20	Pass
GSM 1900	1880.0	23	±1dB	251.188	6.10	4.074	0.204	1	-0.2486	20	Pass
WCDMA B2	1880.0	25	±1dB	398.107	6.10	4.074	0.323	1	-0.1296	20	Pass
WCDMA B5	836.5	25	±1dB	398.107	2.56	1.803	0.143	0.558	-0.1172	20	Pass
LTE B2	1880.00	25	±1dB	398.107	6.10	4.074	0.323	1	-0.1296	20	Pass
LTE B4	1732.5	25	±1dB	398.107	6.10	4.074	0.323	1	-0.105	20	Pass
LTE B5	836.5	25	±1dB	398.107	2.56	1.803	0.143	0.558	-0.1172	20	Pass
LTE B12	707.5	25	±1dB	398.107	-0.32	0.929	0.074	0.472	-0.1581	20	Pass
LTE B13	782.0	25	±1dB	398.107	-0.32	0.929	0.074	0.521	-0.1745	20	Pass
LTE B25	1882.5	25	±1dB	398.107	6.10	4.074	0.323	1	-0.13	20	Pass
LTE B26	831.5	25	±1dB	398.107	2.56	1.803	0.143	0.554	-0.1162	20	Pass
LTE B41	2506.0	25	±1dB	398.107	3.46	2.218	0.176	1	-0.3748	20	Pass
LoRa	915.0	12	±1dB	19.952	2.56	1.803	0.00716	0.61	-0.26954	20	Pass
BT/WLAN 2.4 GHz	2437.0	15	±1dB	39.817	3.46	2.218	0.0176	1	-0.5228	20	Pass
WLAN 5 GHz	5180.0	14	±1dB	31.622	2.40	1.738	0.0109	1	-0.8938	20	Pass