

Test Data Referencing

Justification of Test Data Referencing, for EMC/RF and SAR

- Parent model: FCC ID: 2ACCJH205
- Variant model: FCC ID: 2ACCJH207

- 1. Product Overview**
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- 3. Test Strategy**

1. Product Overview

Radio	FCC Rule Part	FCC ID: 2ACCJH205	FCC ID: 2ACCJH207
GSM Band: 850,1900	Part 22, 24	Supported	Supported
WCDMA Band: 2,4,5	Part 22, 24, 27	Supported	Supported
LTE Band: 2,4,5,7,12,13,17,25, 26,30,38,41, 42,66,71	Part 22, 24, 27,90	Supported	Supported and add B14
NR Band: 2,5,7,25,38,41,66, 71,77,78	22, 24, 27,90	Supported	Supported and add B14, 30
LTE/NR Band: 48	Part 96	Not Support	Supported
Wi-Fi, 2.4G, 5G	Part 15	Supported	Supported
BT/BLE	Part 15	Supported	Supported
NFC	Part 15	Supported	Supported

2. Comparison – Summary

2.1 Identical

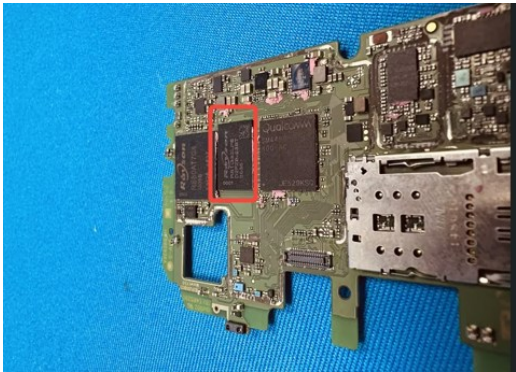
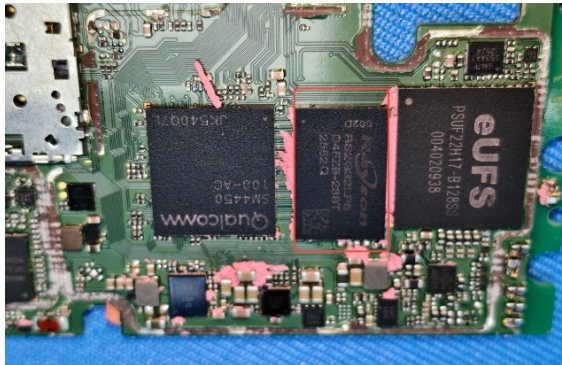
FCC ID : 2ACCJH205, FCC ID : 2ACCJH207 are identical in the followings:

- The device form factor, the size of display area and the housing material is identical
- Enclosure and material
- PCB Layout
- the RF components and layout are completely unchanged

2.2 Difference:

FCC ID : 2ACCJH207 (Variant model) is different from FCC ID : 2ACCJH205 (Parent model), in the followings:

- Model changed from T624J to T624Z.
- Memory changed from 4GB to 8GB
- LTE B14, B48 and NR B14/30/48 are added via software, with ENDC combinations updated accordingly.

FCC ID: 2ACCJH205 (Parent Model)	FCC ID: 2ACCJH207 (Variant Model)
vBZS8	CBS5
RS1G32LP5 	RS2G32LP5 

3. Test Strategy

- FCC ID 2ACCJH205: parent model, full test for EMC/RF/SAR.
 - FCC ID 2ACCJH207: variant model, data referencing from the reference model for EMC/RF and SAR.
 - Full test for different parts: LTE B14/B48, NR B14/30/48
 - Identical design parts: Spot check the worst cases in FCC ID 2ACCJH207
 - EMC/RF/SAR spot check justification:
Reference KDB484596 D01 Referencing Test Data v03
- a) EMC Test Data Spot-Checks
- These exhibits for the variant certification shall meet the following criteria:
- Spot-check measurements must correspond to the worst-case scenario reported in the parent device filing, i.e., for conditions closest to non-compliance.
 - Spot-check measurements must always show compliance with the rule part(s) applicable to the test under consideration.
 - Spot-check measurements may show deviations from the reference data, as specified in sub-sections 3.2.1 and 3.2.2. These specifications differ between EMC data and RF exposure test data.

For EMC compliance test data (e.g., spurious emissions limits), the deviation between the variant and the parent model, for both field and power quantities, is expressed as:

$$d_{dB} = |V_{dB} - R_{dB}| \quad (1),$$

where V_{dB} is the variant spot-check level in dB, and R_{dB} is the corresponding reference measurement level in dB for the parent model.

The spot-check will be deemed acceptable when:

$$d_{dB} \leq d_{dBmax} \quad (2),$$

where d_{dBmax} is the maximum deviation d_{dB} allowed for the EMC data for the spot-check to be considered acceptable. The definition of d_{dBmax} is based on “how far” the reference data R_{dB} is from the compliance threshold C_{dB} (also expressed in dB), for the test under consideration. More specifically, if M_{dB} is the margin in dB from the compliance limit, expressed as

$$M_{dB} = |C_{dB} - R_{dB}| \quad (3),$$

then d_{dBmax} is defined as a function of M_{dB} , which increases linearly from 3 dB to 6 dB (Fig. 2), according to:

$$d_{dBmax}(M_{dB}) = \begin{cases} (3 + M_{dB}/20) \text{ dB} & , \text{ for } 0 \leq M_{dB} \leq 60 \text{ dB} \\ 6 \text{ dB} & , \text{ for } M_{dB} > 60 \text{ dB} \end{cases} \quad (4).$$

b) The Spot-Check Plan for RF Exposure Test Data

By expressing all the quantities in linear units, an RF exposure spot-check must be accepted based on the maximum relative difference between the variant and the parent model test results.

The spot-check acceptance criterion is formulated in terms of the total exposure ratio (TER) to easily include RF exposure evaluations based on MPE and evaluations for simultaneous transmissions, (that may include a mix of MPE and SAR evaluations but not for incident power density related to frequencies above 6 GHz).

Accordingly, proceeding in a similar way to the previous section but operating in linear units, the relative difference (expressed as a percentage) between the TER of the variant (TER_V) and that of the parent model used as a reference (TER_R) is defined as

$$d_{TER} = | TER_V - TER_R | / TER_R \quad (5) ,$$

and the acceptance criterion for the spot-check on the variant will be:

$$d_{TER} \leq d_{TERmax} \quad (6) ,$$

where d_{TERmax} , to be defined further below, is the maximum acceptable d_{TER} , and all the quantities are expressed in linear units.

It is also important to note that if the MPE is considered to refer to a field quantity and not power, the corresponding TER is to be computed as the square of the field ratio, consistent with the other terms that refer to power levels.

The value of d_{TERmax} , the maximum d_{TER} allowed for the spot-check to be deemed acceptable, is established based on the compliance margin M corresponding to the worst-case test scenario (i.e., the most challenging from the compliance perspective) for the parent model.

The margin M is defined as

$$M = TER_T - TER_R = 1 - TER_R \quad (7) ,$$

where TER_T is the TER corresponding to the compliance threshold, which is always $TER_T = 1$.

For instance, for a general population evaluation, $SAR \leq 1.6$ W/kg, as required for any compliant measurement. Thus, since $TER = SAR/1.6$, and $0 \leq TER \leq 1$, then M in eq. (7) will always be a positive number because TER_R cannot be larger than 1 for the parent model to be complaint.

The threshold d_{TERmax} is defined as function of the margin M to provide values between 25% and 50%, linearly increasing between $M = 0.5$ (50% of the compliance limit) and $M = 0.75$ (75% of the compliance limit), in accordance with the following expression:

$$d_{TERmax}(M) = \begin{cases} 0.25 & , \text{ for } 0 \leq M < 0.5 \\ M - 0.25 & , \text{ for } 0.5 \leq M < 0.75 \\ 0.5 & , \text{ for } 0.75 \leq M \end{cases} \quad (8) .$$

- Compliance is determined by both the spot check data and the referenced test data.
- Test strategy is tabulated in next page

Band	Rule Part	Test item	Parent model		Variant model	
			FCC ID 2ACCJH205		FCC ID 2ACCJH207	
			Data	Reference Report No.	Data Referencing	Remark
BT	15.207	Conducted Emissions at AC Power Line	Full Test	SZCR251200564603	Y	reuse parent data
	15.207	Conducted Peak Output Power	Full Test		Y	Check Worse
	15.247 (b)(1)	20dB Bandwidth	Full Test		Y	Check Worse
	15.247 (a)(1)	Carrier Frequencies Separation	Full Test		Y	Check Worse
	15.247 (a)(1)	Hopping Channel Number	Full Test		Y	Check Worse
	15.247 (a)(1)	Dwell Time	Full Test		Y	Check Worse
	15.247(d)	Conducted Band Edges Measurement	Full Test		Y	Check Worse
	15.247(d)	Conducted Spurious Emissions	Full Test		Y	Check Worse
	15.247(d); 15.205/15.209	Radiated Spurious emissions	Full Test		Y	Check Worse
	15.247(d); 15.205/15.209	Radiated Emissions which fall in the restricted bands (Radiated Emission)	Full Test		Y	Check Worse
BLE	15.207	Conducted Emissions at AC Power Line	Full Test	SZCR251200564604	Y	reuse parent data
	15.247 (b)(3)	Conducted Output Power	Full Test		Y	Check Worse
	15.247 (a)(2)	Minimum 6dB Bandwidth	Full Test		Y	Check Worse
	15.247 (e)	Power Spectral Density	Full Test		Y	Check Worse
	15.247(d)	Conducted Band Edges Measurement	Full Test		Y	Check Worse
	15.247(d)	Conducted Spurious Emissions	Full Test		Y	Check Worse
	15.205/15.209	Radiated Spurious Emissions	Full Test		Y	Check Worse
	15.205/15.209	Radiated Emissions which fall in the restricted bands (Radiated Emission)	Full Test		Y	Check Worse
2.4G WIFI	15.207	Conducted Emissions at AC Power Line	Full Test	SZCR251200564605	Y	reuse parent data
	15.247 (b)(3)	Conducted Output Power	Full Test		Y	Check Worse
	15.247 (a)(2)	Minimum 6dB Bandwidth	Full Test		Y	Check Worse
	15.247 (e)	Power Spectral Density	Full Test		Y	Check Worse
	15.247(d)	Conducted Band Edges Measurement	Full Test		Y	Check Worse
	15.247(d)	Conducted Spurious Emissions	Full Test		Y	Check Worse

	15.205/15.209	Radiated Spurious Emissions	Full Test		Y	Check Worse
	15.205/15.209	Radiated Emissions which fall in the restricted bands (Radiated Emission)	Full Test		Y	Check Worse
5G WIFI	Band I: 15.407(a)(1)	26dB Emission Bandwidth	Full Test	SZCR251200564606	Y	Check Worse
	Band II-A: 15.407(a)(2)	26dB Emission Bandwidth				
	Band II-C: 15.407(a)(2)	26dB Emission Bandwidth				
	Band III: 15.407(e)	6dB Emission Bandwidth				
	Band I&Band II-A&Band II-C &Band III: KDB 789033 D02§ D	99% Occupied Bandwidth	Full Test		Y	Check Worse
	Band I: 15.407(a)(iv)	Maximum Conducted Output Power	Full Test		Y	Check Worse
	Band II-A: 15.407(a)(2)					
	Band II-C: 15.407(a)(2)					
	Band III: 15.407(a)(3)					
	Band I: 15.407(a)(iv)	Maximum Power Spectral Density	Full Test		Y	Check Worse
	Band II-A: 15.407(a)(2)					
	Band II-C: 15.407(a)(2)					
	Band III: 15.407(a)(3)					
	Band I&Band II-A&Band II-C &Band III: 15.407(b) 15.205/15.209	Radiated Spurious Emissions	Full Test		Y	Check Worse
	Band I&Band II-A&Band II-C &Band III: 15.407(b) 15.205/15.209	Radiated Emissions which fall in the restricted bands	Full Test		Y	Check Worse
	Band I&Band II-A&Band II-C &Band III: 15.207	Conducted Emissions at AC Power Line	Full Test		Y	reuse parent data
	Band II-A &Band II-C: 15.407	Dynamic Frequency Selection	Full Test		Y	reuse parent data
	Band I&Band II-A&Band II-C &Band III: 15.407(g)	Frequency Stability	Full Test		Y	Check Worse
NFC	15.207	Conducted Emissions at Mains Terminals	Full Test	SZCR251200564608	Y	reuse parent data
	15.21(c)	20dB Bandwidth	Full Test		Y	Check Worse
	15.225(e)	Frequency tolerance	Full Test		Y	Check Worse
	15.225(a)(b)(c)	Emission Mask	Full Test		Y	Check Worse
	15.225(d)/15.209	Radiated Spurious Emissions	Full Test		Y	Check Worse

GSM850 UMTS Band 5 LTE Band 5/26(824~849 MHz) NR Band 5	§2.1046, §22.913(a)(5)	Effective (Isotropic) Radiated Power Output Data	Full Test	SZCR251200564601 SZCR251200564602	Y	Check Worse
	§22.913(d)	Peak-Average Ratio	Full Test		Y	reuse parent data
	§2.1049	Bandwidth	Full Test		Y	reuse parent data
	§2.1051, §22.917(a)	Band Edges Compliance	Full Test		Y	reuse parent data
	§2.1051, §22.917(a)	Spurious Emission at Antenna Terminals	Full Test		Y	reuse parent data
	§2.1053, §22.917(a)	Field Strength of Spurious Radiation	Full Test		Y	Check Worse
	§2.1055(a)(1)(b) §2.1055(d)(2) §22.355	Frequency Stability	Full Test		Y	reuse parent data
GSM 1900 UMTS Band 2 LTE Band 2/25 NR Band 2/25	§2.1046, §24.232(c)	Effective (Isotropic) Radiated Power Output Data	Full Test		Y	Check Worse
	§24.232(d)	Peak-Average Ratio	Full Test		Y	reuse parent data
	§2.1049	Bandwidth	Full Test		Y	reuse parent data
	§2.1051, §24.238(a)	Band Edges Compliance	Full Test		Y	reuse parent data
	§2.1051, §24.238(a)	Spurious Emission at Antenna Terminals	Full Test		Y	reuse parent data
	§2.1053, §24.238(a)	Field Strength of Spurious Radiation	Full Test		Y	Check Worse
	§2.1055(a)(1)(b) §2.1055(d) (2) §24.235	Frequency Stability	Full Test		Y	reuse parent data
UMTS Band 4 LTE Band 4/66 NR Band 66	§2.1046, §27.50(d)(4)	Effective (Isotropic) Radiated Power Output Data	Full Test		Y	Check Worse
	§27.50(d)(5)	Peak-Average Ratio	Full Test		Y	reuse parent data
	§2.1049	Bandwidth	Full Test		Y	reuse parent data
	§2.1051, §27.53(h)	Band Edges Compliance	Full Test		Y	reuse parent data
	§2.1051, §27.53(h)	Spurious Emission at Antenna Terminals	Full Test		Y	reuse parent data
	§2.1053, §27.53(h)	Field Strength of Spurious Radiation	Full Test		Y	Check Worse
	§2.1055(a)(1)(b) §2.1055(d) (2) §27.54	Frequency Stability	Full Test		Y	reuse parent data
LTE Band 7/38/41 NR Band 7/38/41	§2.1046, §27.50(h)(2)	Effective (Isotropic) Radiated Power Output Data	Full Test		Y	Check Worse
	---	Peak-Average Ratio	Full Test		Y	reuse parent data
	§2.1049	Bandwidth	Full Test		Y	reuse parent data
	§2.1051, §27.53(m)(4)	Band Edges Compliance	Full Test		Y	reuse parent data
	§2.1051, §27.53(m)	Spurious Emission at Antenna Terminals	Full Test		Y	reuse parent data

	§2.1053, §27.53(m)	Field Strength of Spurious Radiation	Full Test
	§2.1055(a)(1)(b) §2.1055(d) (2) §27.54	Frequency Stability	Full Test
LTE Band 12/17	§2.1046 §27.50(c)(10)	Effective (Isotropic) Radiated Power Output Data	Full Test
	---	Peak-Average Ratio	Full Test
	§2.1049	Bandwidth	Full Test
	§2.1051, §27.53(g)	Band Edges Compliance	Full Test
	§2.1051, §27.53(g)	Spurious Emission at Antenna Terminals	Full Test
	§2.1053, §27.53(g)	Field Strength of Spurious Radiation	Full Test
	§2.1055(a)(1)(b) §2.1055(d) (2) §27.54	Frequency Stability	Full Test
LTE Band 13	§2.1046, §27.50(b)(10)	Effective (Isotropic) Radiated Power Output Data	Full Test
	---	Peak-Average Ratio	Full Test
	§2.1049	Bandwidth	Full Test
	§2.1051, §27.53(c)	Band Edges Compliance	Full Test
	§2.1051, §27.53(c) §27.53(f)	Spurious Emission at Antenna Terminals	Full Test
	§2.1053, §27.53(c) §27.53(f)	Field Strength of Spurious Radiation	Full Test
	§2.1055(a)(1)(b) §2.1055(d) (2) §27.54	Frequency Stability	Full Test
LTE Band 26(814~824 MHz)	§2.1046, §90.635(b)	Transmitter Conducted Power Output	Full Test
	---	Peak-Average Ratio	Full Test
	§2.1049	Bandwidth	Full Test
	§2.1051 § 90.691(a)	Emission Mask	Full Test
	§2.1051, §90.691	Spurious Emission at Antenna Terminals	Full Test
	§2.1053, §90.691	Field Strength of Spurious Radiation	Full Test
	§2.1055(a)(1)(b) §2.1055(d) (2) §90.213	Frequency Stability	Full Test
LTE Band 30	§2.1046, §27.50(a)(3)	Effective (Isotropic) Radiated Power Output Data	Full Test
	---	Peak-Average Ratio	Full Test
	§2.1049	Bandwidth	Full Test
	§2.1051, §27.53(a)(4)	Band Edges Compliance	Full Test

Y	Check Worse
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	reuse parent data
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	reuse parent data
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	reuse parent data
Y	reuse parent data

	§2.1051, §27.53(a)(4)	Spurious Emission at Antenna Terminals	Full Test
	§2.1053, §27.53(a)(4)	Field Strength of Spurious Radiation	Full Test
	§2.1055(a)(1)(b) §2.1055(d) (2) §27.54	Frequency Stability	Full Test
LTE Band 42	§2.1046, §27.50(k)(3)	Effective (Isotropic) Radiated Power Output Data	Full Test
	§27.50(k)(4)	Peak-Average Ratio	Full Test
	§2.1049	Bandwidth	Full Test
	§2.1051, §27.53(n)(2)	Band Edges Compliance	Full Test
	§2.1051, §27.53(n)(2)	Spurious Emission at Antenna Terminals	Full Test
	§2.1053, §27.53(n)(2)	Field Strength of Spurious Radiation	Full Test
	§2.1055(a)(1)(b) §2.1055(d) (2) §27.54	Frequency Stability	Full Test
LTE Band 71 NR Band 71	§2.1046 §27.50(c)(10)	Effective (Isotropic) Radiated Power Output Data	Full Test
	---	Peak-Average Ratio	Full Test
	§2.1049	Bandwidth	Full Test
	§2.1051, §27.53(g)	Band Edges Compliance	Full Test
	§2.1051, §27.53(g)	Spurious Emission at Antenna Terminals	Full Test
	§2.1053, §27.53(g)	Field Strength of Spurious Radiation	Full Test
	§2.1055(a)(1)(b) §2.1055(d) (2) §27.54	Frequency Stability	Full Test
NR Band 77/78 (3450- 3550MHz)	§2.1046, §27.50(k)(3)	Effective (Isotropic) Radiated Power Output Data	Full Test
	§27.50(k)(4)	Peak-Average Ratio	Full Test
	§2.1049	Bandwidth	Full Test
	§2.1051, §27.50(n)(2)	Band Edges Compliance	Full Test
	§2.1051, §27.50(n)(2)	Spurious Emission at Antenna Terminals	Full Test
	§2.1053, §27.50(n)(2)	Field Strength of Spurious Radiation	Full Test
	§2.1055(a)(1)(b) §2.1055(d)(2) §27.54	Frequency Stability	Full Test
NR Band 77/78 (3700- 3980MHz)	§2.1046, §27.50(j)(3)	Effective (Isotropic) Radiated Power Output Data	Full Test
	---	Peak-Average Ratio	Full Test

Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	reuse parent data
Y	Check Worse
Y	reuse parent data
Y	Check Worse
Y	reuse parent data

	§2.1049	Bandwidth	Full Test		Y	reuse parent data
	§2.1051, §27.53(l)(2)	Band Edges Compliance	Full Test		Y	reuse parent data
	§2.1051, §27.53(l)(2)	Spurious Emission at Antenna Terminals	Full Test		Y	reuse parent data
	§2.1053, §27.53(l)(2)	Field Strength of Spurious Radiation	Full Test		Y	Check Worse
	§2.1055(a)(1)(b) §2.1055(d)(2) §27.54	Frequency Stability	Full Test		Y	reuse parent data
LTE Band 14 NR Band 14	§2.1046 §90.542(a)	Effective (Isotropic) Radiated Power Output Data	NA	NA	N	Full Test
	---	Peak-Average Ratio	NA	NA	N	Full Test
	§2.1049	Bandwidth	NA	NA	N	Full Test
	§2.1051 §90.210(b)	Emission Mask	NA	NA	N	Full Test
	§2.1051 §90.543(e)(2)(3)	Band Edges Compliance	NA	NA	N	Full Test
	§2.1051, §90.543(c) §90.543(f)	Spurious Emission at Antenna Terminals	NA	NA	N	Full Test
	§2.1053, §90.543(c) §90.543(f)	Field Strength of Spurious Radiation	NA	NA	N	Full Test
	§2.1055(a)(1)(b) §2.1055(d)(2) §90.213	Frequency Stability	NA	NA	N	Full Test
LTE Band 48 NR Band 48	§2.1046, §96.41	Effective (Isotropic) Radiated Power Output Data	NA	NA	N	Full Test
	§96.41	Peak-Average Ratio	NA	NA	N	Full Test
	§2.1049	Bandwidth	NA	NA	N	Full Test
	§96.41	Adjacent Channel Leakage Ratio	NA	NA	N	Full Test
	§2.1051, §96.41	Band Edges Compliance	NA	NA	N	Full Test
	§2.1051, §96.41	Spurious Emission at Antenna Terminals	NA	NA	N	Full Test
	§2.1053, §96.41	Field Strength of Spurious Radiation	NA	NA	N	Full Test
	§2.1055, §96.41	Frequency Stability	NA	NA	N	Full Test
NR Band 30	§2.1046, §27.50(a)(3)	Effective (Isotropic) Radiated Power Output Data	NA	NA	N	Full Test
	---	Peak-Average Ratio	NA	NA	N	Full Test
	§2.1049	Bandwidth	NA	NA	N	Full Test
	§2.1051, §27.53(a)(4)	Band Edges Compliance	NA	NA	N	Full Test
	§2.1051, §27.53(a)(4)	Spurious Emission at Antenna Terminals	NA	NA	N	Full Test

	§2.1053, §27.53(a)(4)	Field Strength of Spurious Radiation	NA	NA	N	Full Test
	§2.1055(a)(1)(b) §2.1055(d)(1) §27.54	Frequency Stability	NA	NA	N	Full Test
EMI	Part 15B	AC Conducted Emission	Full Test	NA	N	Full Test
		Radiated Emission	Full Test		N	Full Test
SAR	2.1093	SAR Testing	Full Test	SZCR251200564609	Y	Check Worse

---End of Report---