

Data referencing for different Product

1. Test Data Referencing

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

Parent model: FCC ID: 2AACZ-M940A01 for M940A01

Variant model: FCC ID: 2AACZ-M945A01 for M945A01.

Revision:

Version	Description	Date
1.0	Initial release	2025/9/8

2. Product Overview

Radio	Frequency band	FCC Rule Part	FCC ID: 2AACZ-M940A01 (M940A01)	FCC ID: 2AACZ-M945A01 (M945A01)
LTE Band	2, 4, 5, 7, 12, 13,14, 17, 25, 26, 30, 38, 41, 42,43,48, 66,71	Part 22, 24, 27, 90, 96	Supported	Supported
5G NR	n2, n5, n7, n12, n14, n25, n30, n38, n41, n48, n66, n71, n77, n78	Part 22, 24, 27, 90, 96	Supported	Supported
Wi-Fi	2.4GHz: 2.400 – 2.4845GHz 5GHz: 5.15 – 5.35GHz, 5.47 – 5.725GHz, 5.725 – 5.85GHz	Part 15C&E	Supported	Supported
Bluetooth BR&EDR &BLE	2.4GHz: 2.400 – 2.4835GHz	Part 15C	Supported	Supported
NFC	13.56MHz	Part 15C	Supported	Supported

3. The differences between M945A01 (Variant model) and M940A01 (Parent model) :

All components, RF parameters, and hardware versions of M945A01 are the same as M940A01, except for the operating system and software version.

The detail differences from the original source are as listed below:

No.	Description	Original	New
1	software version	IS940_ROW_00.00_2_20240605	IS945_00.00_1_20250829
2	operating system	Linux	Windows
3	Model name	M940A01	M945A01
4	Marketing Name	IS940.1,IS940.M1,IS940.2,IS940.RG	IS945.1,IS945.M1,IS945.2,IS945.RG

Currently, M945A01 NFC is only supported by hardware, not by software

4. Test Strategy

- FCC ID: 2AACZ-M940A01 as Parent model to conduct full test for EMC, RF, SAR.
- FCC ID: 2AACZ-M945A01 as Variant model data referencing from the reference model for RF and SAR additional NFC/EMC testing.

➤ EMC/RF/SAR spot check justification:

Reference KDB484596 D01 Referencing Test Data v02r01

- Verify the Worst-Case Configuration of the Reference Model, do spot check conducted power and RSE.
- For every exposure condition (head, body, etc) and for every transmit antenna and frequency band, spot check SAR at the highest SAR configuration found in the referenced mode. The spot-check measurements that meet the following criteria:
 - Spot-check measurements, while being always compliant with the applicable rule part(s) for the test under consideration, may show a deviation d_{dB} from the reference data no larger than 3 dB (applicable for both field and power quantities):

$$d_{dB} = |V_{dB} - R_{dB}| \leq 3 \text{ dB} \quad , (1)$$

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

- An alternative to the limit of eq. (1) is available, and is based on considering how far the reference data R_{dB} is from the compliance threshold C_{dB} (also expressed in dB), for the particular test under consideration. In this case, if $M_{dB} = |C_{dB} - R_{dB}|$ is the margin in dB from the compliance limit, a spot check may be considered acceptable when the deviation d_{dB} from the reference data satisfies the following condition:

$$d_{dB} = |V_{dB} - R_{dB}| \leq (3 + M_{dB}/20) \text{ dB} \quad , \text{ for } 0 \leq M_{dB} \leq 60 \text{ dB} \quad . (2)$$

$$d_{dB} = |V_{dB} - R_{dB}| = 6 \text{ dB} \quad , \text{ for } 0 \leq M_{dB} \leq 60 \text{ dB}$$

When using the option in eq. (2), d_{dB} increases linearly from 3 dB to 6 dB (as shown in Fig. 2):

- for $M_{dB}=0$ dB, then $d_s=3$ dB, that is when R_{dB} is right at the compliance threshold C_{dB} , thus the margin $M_{dB}=0$ and the variant can only be allowed to go lower than R_{dB} ;
- for $M_{dB}=60$ dB, then $d_s=6$ dB, i.e., the reference model data is 60 dB below the compliance threshold M_{dB} .

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

Parent Device	Variant Device
FCC ID : 2AACZ-M940A01	FCC ID: 2AACZ-M945A01
Fully test	Spot-check

Rule Part	Test item	Data Reference(Y/N)	Spot-check test
Part 22, 24, 27, 90,96 LTE, 5G NR	Conducted Output Power	Verify power	
	Effective Radiated Power &Equivalent Isotropic Radiated Power	Y	Verify each one of 4G ,5G max ERP&EIRP channel
	Peak-to-Average Ratio	Y	Verify each one of 4G ,5G max ERP&EIRP channel
	Occupied Bandwidth	Y	Verify each one of 4G ,5G max ERP&EIRP channel
	Conducted Band Edge Measurement	Y	Verify each one of 4G ,5G max ERP&EIRP channel
	Conducted Spurious Emission	Y	Verify each one of 2G, 3G, 4G ,5G max ERP&EIRP channel
	Frequency Stability Temperature & Voltage	Y	Verify each one of 3G, 4G ,5G max ERP&EIRP channel
	Radiated Spurious Emission	Verify RSE worse case	
Part 15C For BT2.0	Number of Channels	Y	Verify one mode max power Number of Channels
	Hopping Channel Separation	Y	Verify one mode max power Number of Channels
	Dwell Time of Each Channel	Y	Verify one mode max power Number of Channels
	20dB Bandwidth	Y	Verify one mode max power Channel

	99% Bandwidth	Y	Verify one mode max power Channel
	Peak Output Power	Verify power	
	Conducted Band Edges	Y	Verify one mode max power Channel
	Conducted Spurious Emission	Y	Verify one mode max power Channel
	Radiated Band Edges and Radiated Spurious Emission	Verify RSE worse case	
	AC Conducted Emission	Verify worse case	
Part 15C For BLE & 2.4G WLAN	6dB Bandwidth	Y	Verify one mode max power Channel
	99% Bandwidth	Y	Verify one mode max power Channel
	Peak Output Power	Verify power	
	Power Spectral Density	Y	Verify one mode max power Channels
	Conducted Band Edges and Spurious Emission	Y	Verify one mode max power Channel
	Radiated Band Edges and Spurious Emission	Verify RSE worse case	
	AC Conducted Emission	Verify worse case	
Part 15E For 5G WLAN	26dB & 99% Bandwidth	Y	Verify one mode max power Channel
	Maximum Conducted Output Power	Verify power	
	Power Spectral Density	Y	Verify one mode max power Channel
	Unwanted Emissions	Verify RSE worse case	
	DFS	Y	Verify MAX bandwidth channel
	AC Conducted Emission	Verify worse case	
Part 15C For NFC	20dB Spectrum Bandwidth	N	
	99% OBW Spectrum Bandwidth	N	
	Frequency Stability	N	
	Field Strength of Fundamental Emissions	N	
	Radiated Spurious Emissions	N	

	AC Power Line Conducted Emissions	N	
Part 15B	AC Conducted Emission	Verify worse case	
	Radiated Emission	Verify worse case	
SAR	SAR Testing	Y	verify the each frequency band worst case per Head/Body/Hotspot/Extremity exposure conditions