DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1μV , full range = -100...+300 mV

Low Range: 1LSB = 61nV , full range = -1.......+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	405.912 ± 0.02% (k=2)	405.954 ± 0.02% (k=2)	405.400 ± 0.02% (k=2)
Low Range	3.99166 ± 1.50% (k=2)	4.00980 ± 1.50% (k=2)	3.99550 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	53.5 ° ± 1 °

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	200030.95	-2.42	-0.00
Channel X	+ Input	20004.11	-0.05	-0.00
Channel X	- Input	-20003.75	2.02	-0.01
Channel Y	+ Input	200031.20	-2.23	-0.00
Channel Y	+ Input	20001.46	-2.74	-0.01
Channel Y	- Input	-20005.92	-0.05	0.00
Channel Z	+ Input	200032.03	-1.05	-0.00
Channel Z	+ Input	20001.94	-2.11	-0.01
Channel Z	- Input	-20006.15	-0.20	0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.66	0.19	0.01
Channel X	+ Input	200.40	-0.18	-0.09
Channel X	- Input	-198.67	0.81	-0.40
Channel Y	+ Input	2000.90	0.48	0.02
Channel Y	+ Input	199.98	-0.58	-0.29
Channel Y	- Input	-200.18	-0.62	0.31
Channel Z	+ Input	2000.68	0.32	0.02
Channel Z	+ Input	199.07	-1.45	-0.72
Channel Z	- Input	-201.14	-1.52	0.76

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	18.32	16.76
	- 200	-15.73	-17.08
Channel Y	200	-20.47	-20.86
	- 200	20.66	20.31
Channel Z	200	13.43	13.46
	- 200	-15.65	-15.97

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	0.08	-3.66
Channel Y	200	7.12	-	1.80
Channel Z	200	10.44	4.52	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15817	15005
Channel Y	16329	14457
Channel Z	15576	15478

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.63	-0.54	2.27	0.51
Channel Y	-2.07	-3.42	-1.02	0.49
Channel Z	-0.89	-2.38	0.83	0.54

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

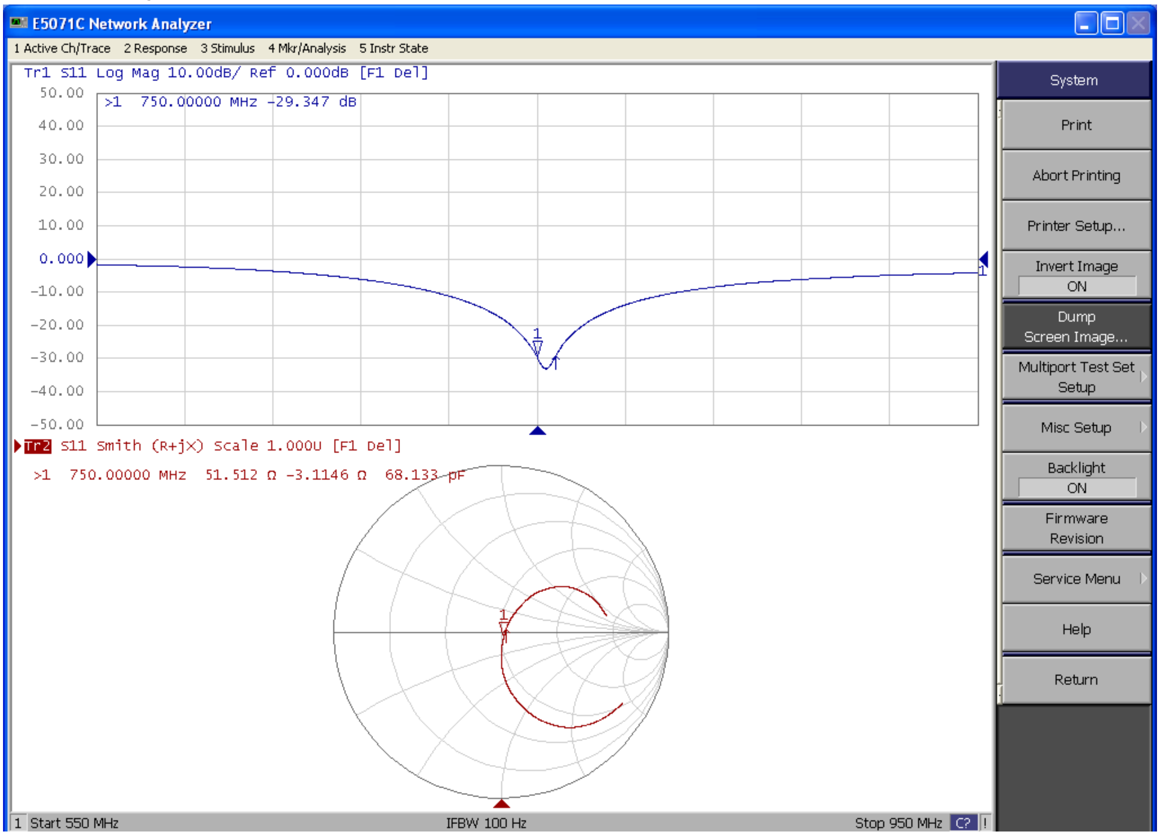
Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

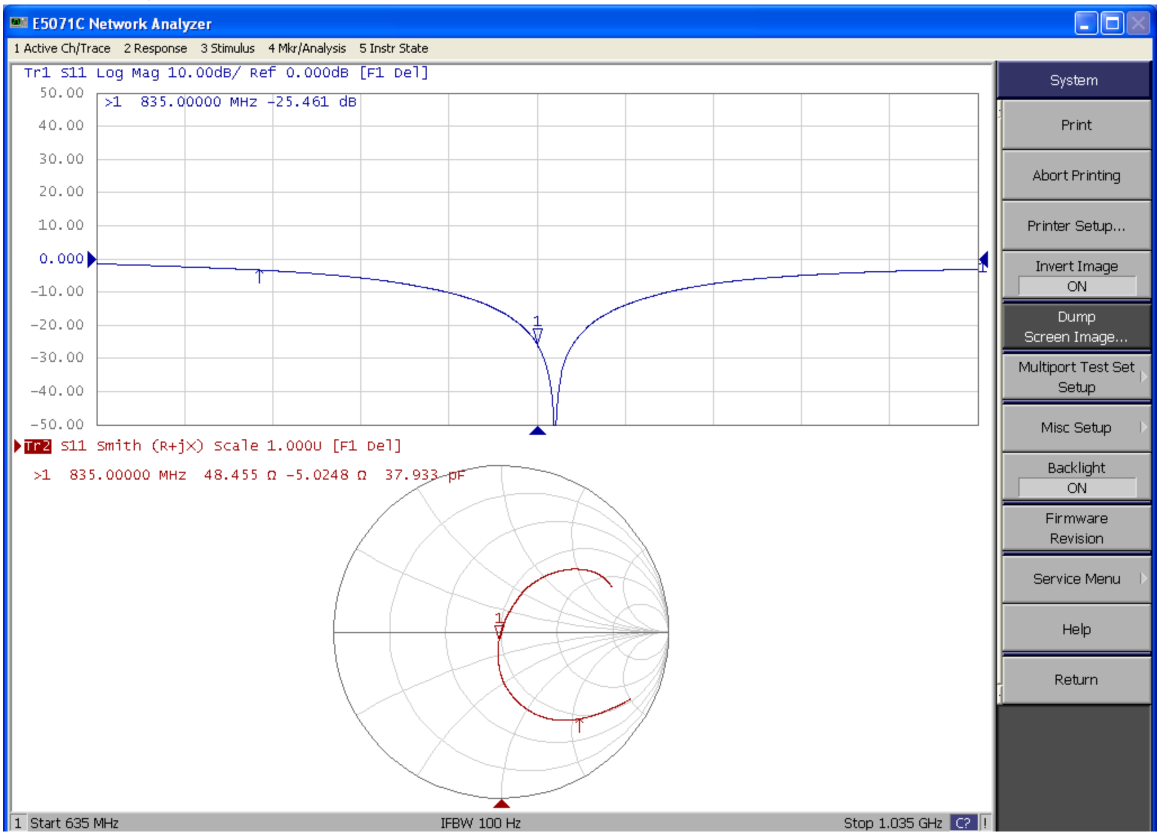
Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	–0.01	-8	-9

ANNEX J Return Loss of Dipoles

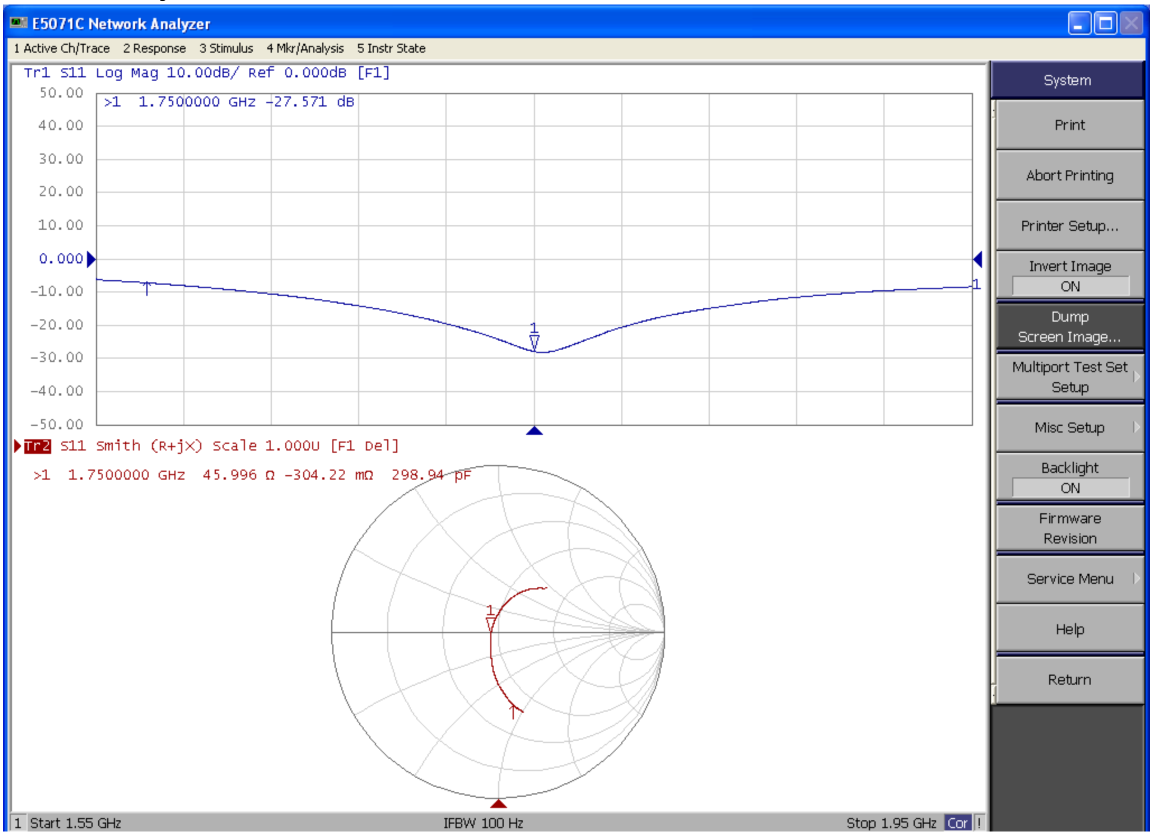
750MHz Body 2018.7.24



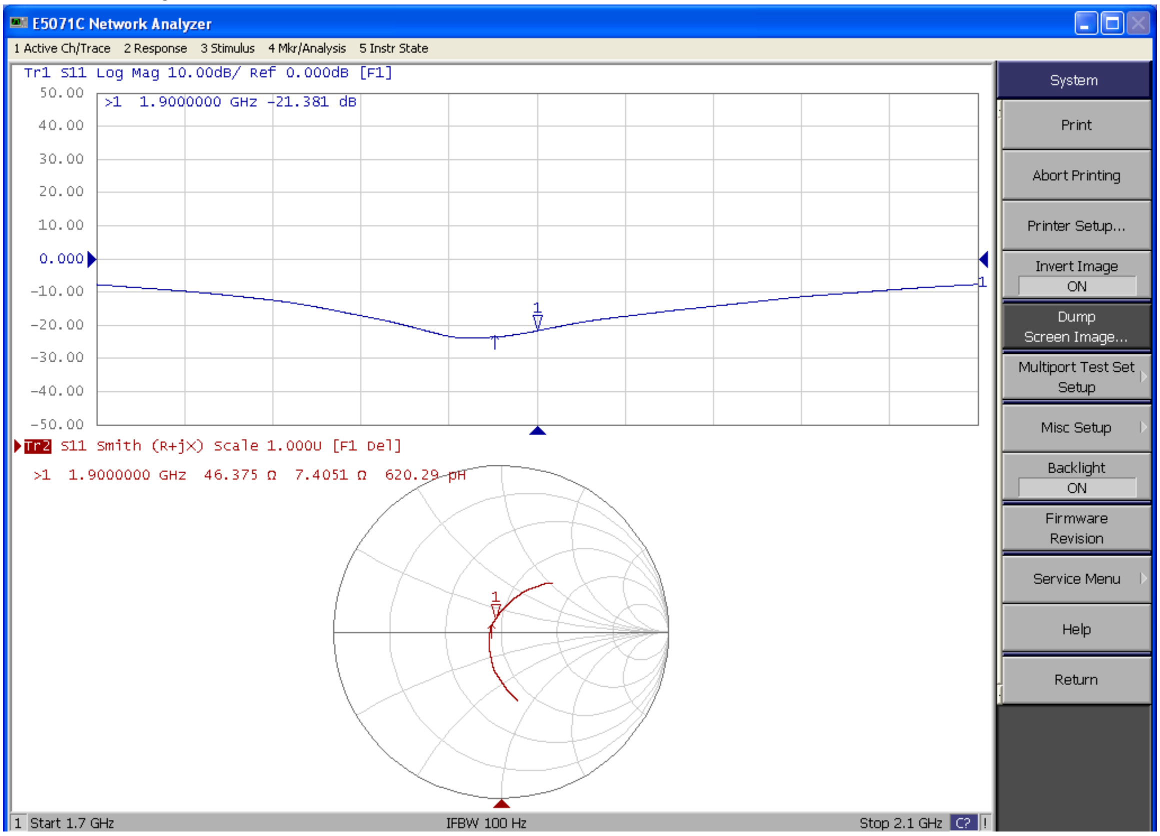
835MHz Body 2018.7.25



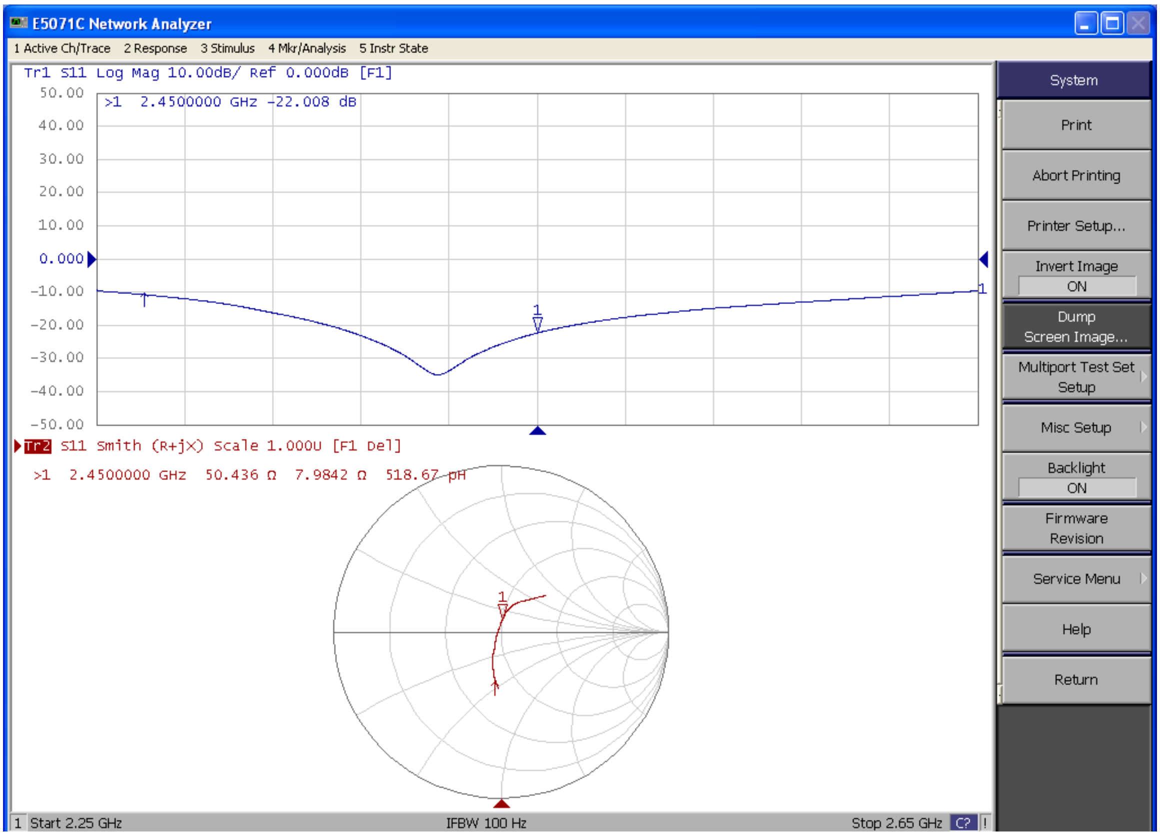
1750MHz Body 2018.7.26



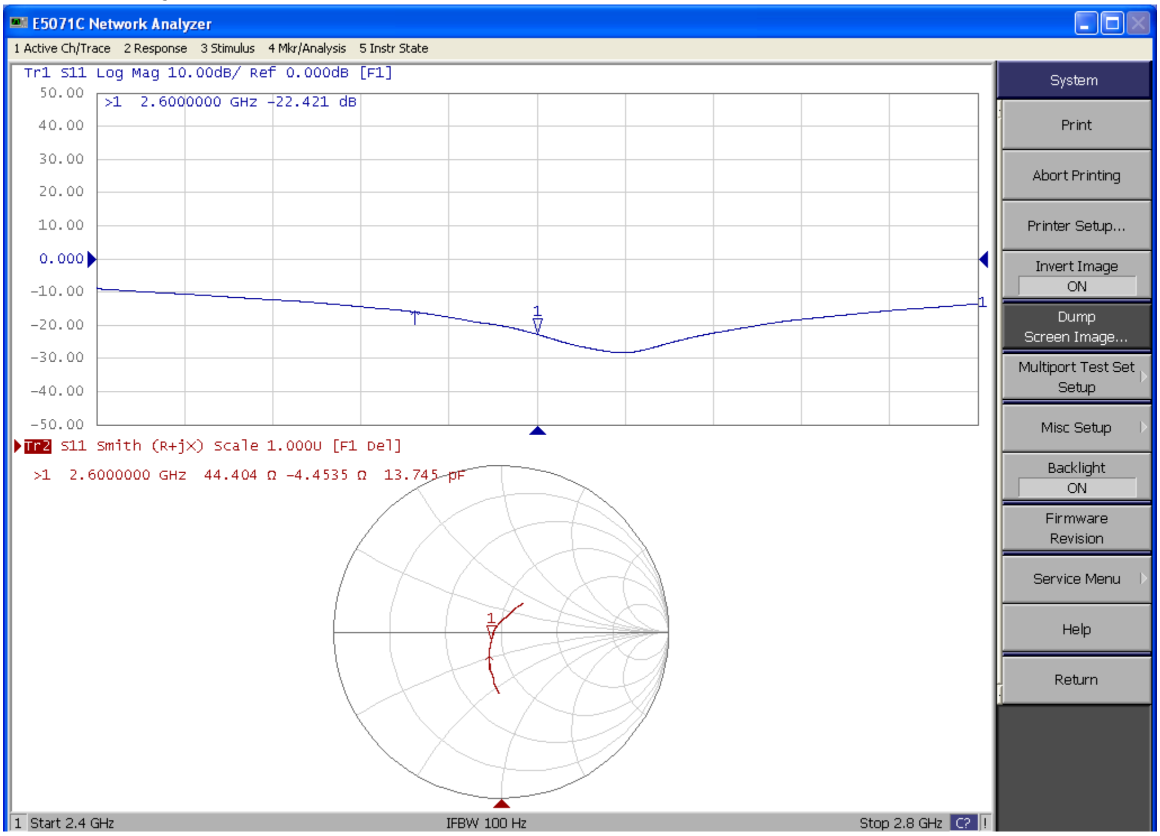
1900MHz Body 2018.7.27



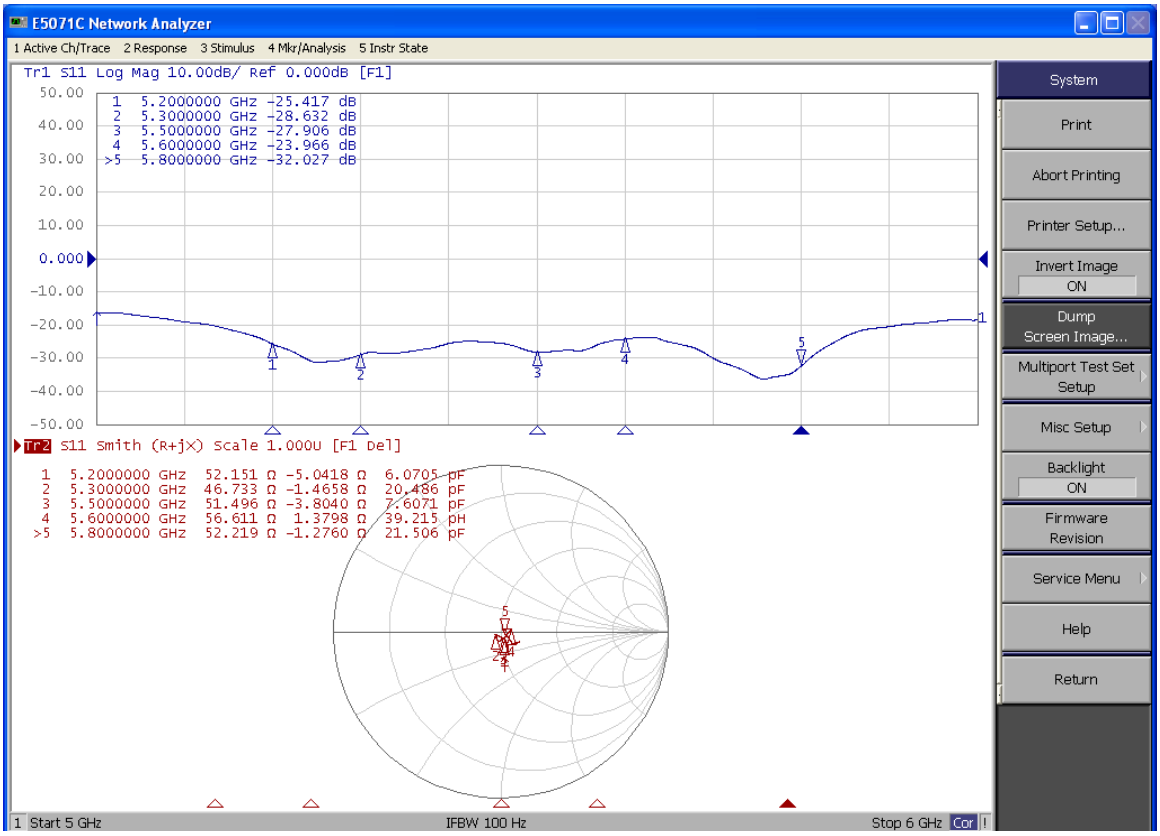
2450MHz Body 2018.7.28



2600MHz Body 2018.7.29



5GHz Body 2018.7.30



ANNEX K Sensor Triggering Data Summary

Per FCC KDB Publication 616217 D04v01r02, this device was tested by the manufacturer to determine the proximity sensor triggering distances for the rear and bottom edge of the device. The measured output power within ±5mm of the triggering points (or until touching the phantom) is included for rear and each applicable edge.

To ensure all production units are compliant it is necessary to test SAR at a distance 1mm less than the smallest distance from the device and SAR phantom (determined from these triggering tests according to the KDB 616217 D04v01r02) with the device at maximum output power without power reduction. These SAR tests are included in addition to the SAR tests for the device touching the SAR phantom, with reduced power.

We tested the power and got the different proximity sensor triggering distances for rear, left, right and top edge. The manufacturer has declared 15mm is the most conservative triggering distance for main antenna with rear. The 13mm distance for right edge and top edge. So base on the most conservative triggering distance of 15mm, additional SAR measurements were required at 14mm from the highest SAR position between rear of main antenna, and at 12mm between top edge. Sincerely, the most conservative triggering distance for WIFI antenna is 10mm with rear and 8mm with top edge and left edge. So we also test SAR measurements with 9mm at rear, and 7mm at top edge.

Main antenna

Rear

Moving device toward the phantom:

The power return value (KDB 616217 6.2.6)											
Distance [mm]	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**
Main antenna	23.02	23.05	23.21	23.12	23.11	23.09	13.33	13.24	13.31	13.32	13.19

Moving device away from the phantom:

The power return value (KDB 616217 6.2.6)											
Distance [mm]	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Main antenna	13.31	13.24	13.33	13.32	13.15	23.03	23.05	23.21	23.14	23.12	23.08

Top Edge

Moving device toward the phantom:

The power return value (KDB 616217 6.2.6)											
Distance [mm]	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**09**	**08**	**07**
Main antenna	23.07	23.09	23.22	23.12	23.11	13.28	13.25	13.31	13.32	13.35	13.27

Moving device away from the phantom:

The power return value (KDB 616217 6.2.6)											
Distance [mm]	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Main antenna	13.28	13.25	13.31	13.32	13.35	13.27	23.07	23.09	23.22	23.12	23.11

WIFI antenna

Rear

Moving device toward the phantom:

The power return value (KDB 616217 6.2.6)											
Distance [mm]	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**
Main antenna	19.98	20.01	19.97	20.02	20.03	20.07	10.59	10.61	10.60	10.58	10.57

Moving device away from the phantom:

The power return value (KDB 616217 6.2.6)											
Distance [mm]	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Main antenna	10.59	10.61	10.60	10.58	19.98	20.01	19.97	20.02	20.03	20.07	19.98

Top Edge

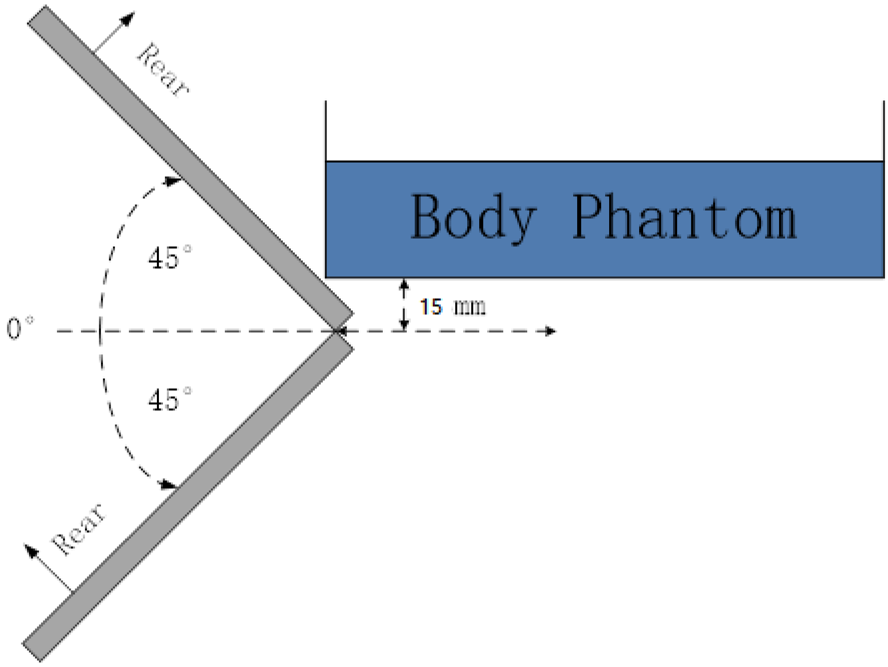
Moving device toward the phantom:

The power return value (KDB 616217 6.2.6)											
Distance [mm]	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**
Main antenna	20.01	19.97	20.02	20.03	20.07	10.55	10.61	10.61	10.63	10.55	10.52

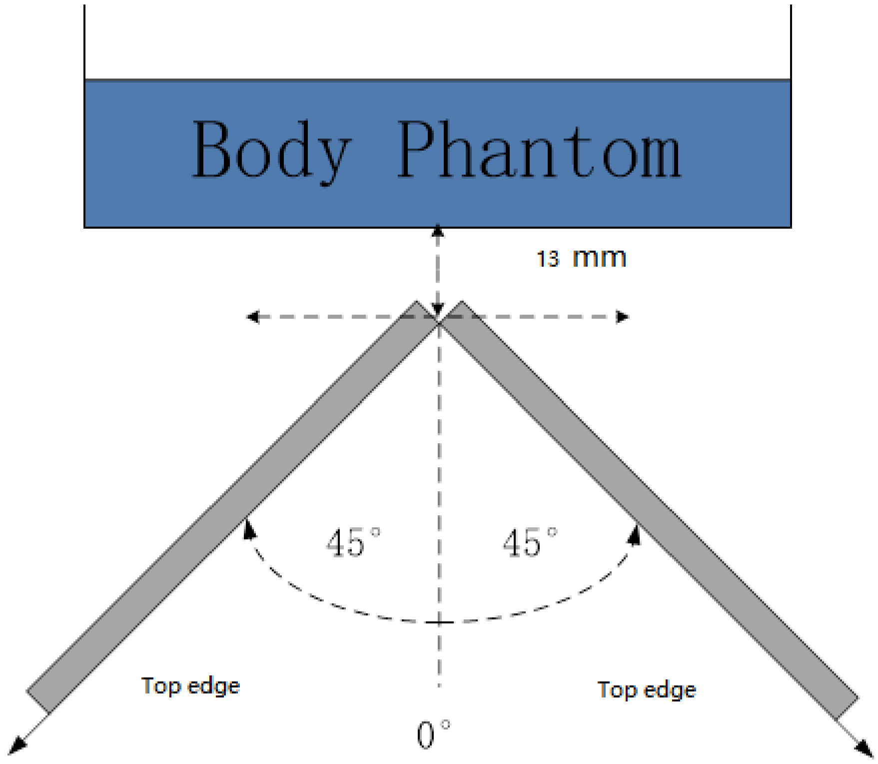
Moving device away from the phantom:

The power return value (KDB 616217 6.2.6)											
Distance [mm]	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Main antenna	10.63	10.61	10.67	10.51	10.64	10.60	20.01	19.99	20.03	20.01	20.08

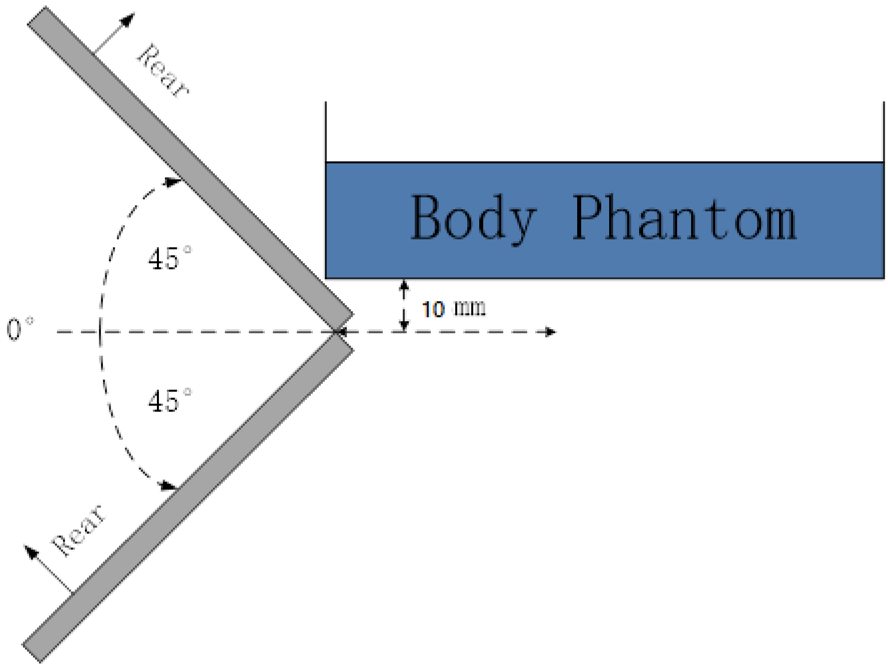
Per FCC KDB Publication 616217 D04v01r02, the influence of table tilt angles to proximity sensor triggering is determined by positioning each edge that contains a transmitting antenna, perpendicular to the flat phantom, at the smallest sensor triggering test distance by rotating the device around the edge next to the phantom in ≤ 10° increments until the tablet is ±45° or more from the vertical position at 0°.



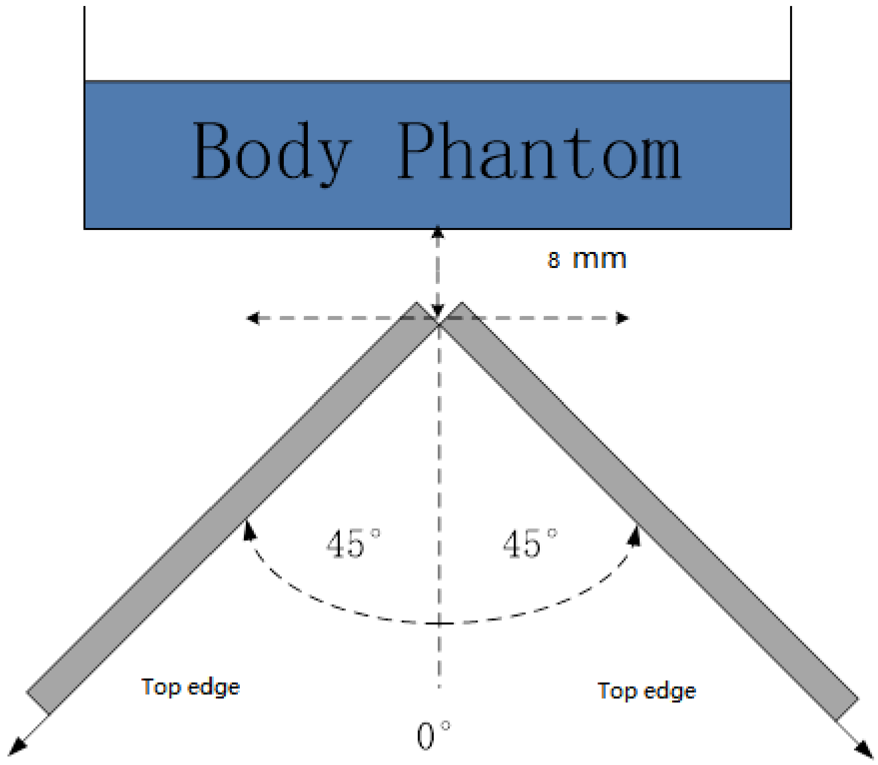
The rear evaluation for main antenna



The top edge evaluation for main antenna



The rear evaluation for WIFI antenna



The top evaluation for WIFI antenna

Based on the above evaluation, we come to the conclusion that the sensor triggering is not released and normal maximum output power is not restored within the ±45° range at the smallest sensor triggering test distance declared by manufacturer.

ANNEX L Accreditation Certificate

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 600118-0

Telecommunication Technology Labs, CAICT
Beijing
China

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

2017-08-22 through 2018-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program