FCC RADIO TEST REPORT

FCC ID	:	**UZ7MC27BJ**
Equipment	:	**Mobile computer**
Brand Name	:	**Zebra**
Model Name	:	**MC27BJ**
Applicant	:	**Zebra Technologies Corporation** **1 Zebra Plaza, Holtsville, NY 11742**
Manufacturer	:	**Zebra Technologies Corporation** **1 Zebra Plaza, Holtsville, NY 11742**
Standard	:	**FCC 47 CFR Part 2, 22(H), 24(E), 27**

The product was received on Sep. 22, 2020 and testing was started from Sep. 30, 2020 and completed on Oct. 02, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FG052913-03B	01	This is a variant report for MC27BJ (FCC ID: UZ7MC27BJ), and the differences between this model name and MC27BK (FCC ID: UZ7MC27BK) are NFC and camera. All the test cases were performed on original report which can be referred to Sporton Report Number FG052913-02B as appendix C. Based on the original report, the test cases were verified.	Nov. 06, 2020

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	§2.1046	Conducted Output Power	Not Required	-
	§22.913 (a)(2)	Effective Radiated Power (Band 5)	Not Required	
	§24.232 (c) §27.50 (h)(2)	Equivalent Isotropic Radiated Power (Band 2) (Band 7) (Band 38) (Band 41)		
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power (Band 4)		
-	§24.232 (d) §27.50 (d)(5)	Peak-to-Average Ratio	Not Required	-
-	§2.1049	Occupied Bandwidth	Not Required	-
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (h)	Conducted Band Edge Measurement (Band 2) (Band 4) (Band 5)	Not Required	-
	§2.1051 §27.53 (m)(4)	Conducted Band Edge Measurement (Band 7) (Band 38) (Band 41)		
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (h)	Conducted Spurious Emission (Band 2) (Band 4) (Band 5)	Not Required	-
	§2.1051 §27.53 (m)(4)	Conducted Spurious Emission (Band 7) (Band 38) (Band 41)		
-	§2.1055 §22.355 §24.235 §27.54	Frequency Stability Temperature & Voltage	Not Required	-

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1053 §22.917 (a) §24.238 (a) §27.53 (h)	Radiated Spurious Emission (Band 2) (Band 4) (Band 5)	Pass	Under limit 7.66 dB at 8016.000 MHz
	§2.1051 §27.53 (m)(4)	Radiated Spurious Emission (Band 7) (Band 38) (Band 41)		

Remark: Not required means after assessing, test items are not necessary to carry out.

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Wii Chang

Report Producer: Yimin Ho

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile computer
Brand Name	Zebra
Model Name	MC27BJ
FCC ID	UZ7MC27BJ
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/GNSS WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
HW Version	EV
SW Version	10-11-31.00-QG-U00-PRD-HEL-04
OS Version	Android 10
MFD	02JUN20
EUT Stage	Engineering sample

Remark: The above EUT's information was declared by manufacturer.

Specification of Accessories				
AC Adapter	**Brand Name**	Zebra	**Part Number**	PWR-WUA5V12W0US
Battery	**Brand Name**	Zebra	**Part Number**	BT-000418-10
USB Cable (TypeA plug to TypeC plug)	**Brand Name**	Zebra	**Part Number**	CBL-TC2X-USBC-01
Trigger Handle	**Brand Name**	Zebra	**Part Number**	TRG-MC2X-SNP1-01
Holster	**Brand Name**	Zebra	**Part Number**	SG-MC2X-HLSTR-01
Holster	**Brand Name**	Zebra	**Part Number**	SG-MC3021212-01R

1.2 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx Frequency	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz
Rx Frequency	LTE Band 2: 1930.7 MHz ~ 1989.3 MHz LTE Band 4: 2110.7 MHz ~ 2154.3 MHz LTE Band 5: 869.7 MHz ~ 893.3 MHz LTE Band 7: 2622.5 MHz ~ 2687.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz
Bandwidth	LTE Band 2: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 4: 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 5: 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 7: 5MHz / 10MHz / 15MHz / 20MHz LTE Band 38: 5MHz / 10MHz / 15MHz / 20MHz LTE Band 41: 5MHz / 10MHz / 15MHz / 20MHz
Antenna Type	PIFA Antenna
Antenna Gain	LTE Band 2: 3.35 dBi LTE Band 4: 3.04 dBi LTE Band 5: -1.94 dBi LTE Band 7: 2.80 dBi LTE Band 38: 2.80 dBi LTE Band 41: 2.80 dBi
Type of Modulation	QPSK / 16QAM / 64QAM

1.3 Modification of EUT

No modifications are made to the EUT during all test items.

1.4 Testing Location

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	03CH07-HY
Test Engineer	Jesse Wang, Stan Hsieh, Ken Wu
Temperature	23~25℃
Relative Humidity	50~56%

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190

1.5 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ANSI C63.26-2015
- ANSI / TIA-603-E
- FCC 47 CFR Part 2, 22(H), 24(E), 27
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 414788 D01 Radiated Test Site v01r01.

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
3. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

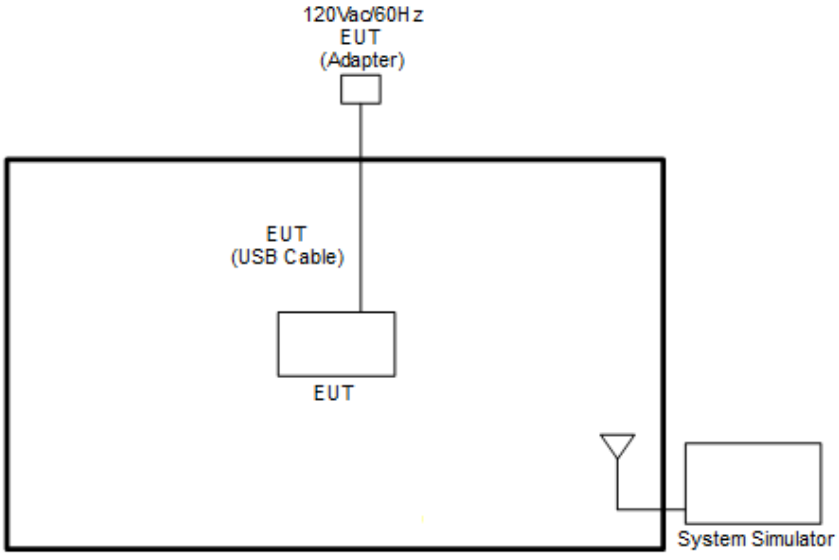
2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X Plane for LTE Band 2, 4; and Y Plane for LTE Band 5, 7, 38, 41) were recorded in this report.

Test Items	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Radiated Spurious Emission	2						v	v			v			v	v	v
	4						v	v			v			v	v	v
	5				v	-	-	v			v			v	v	v
	7	-	-				v	v			v			v	v	v
	38	-	-				v	v			v			v	v	v
	41	-	-				v	v			v			v	v	v
Remark	1. The mark "**v** " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.															

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

2.4 Frequency List of Low/Middle/High Channels

LTE Band 2 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	18700	18900	19100
	Frequency	1860	1880	1900
15	Channel	18675	18900	19125
	Frequency	1857.5	1880	1902.5
10	Channel	18650	18900	19150
	Frequency	1855	1880	1905
5	Channel	18625	18900	19175
	Frequency	1852.5	1880	1907.5
3	Channel	18615	18900	19185
	Frequency	1851.5	1880	1908.5
1.4	Channel	18607	18900	19193
	Frequency	1850.7	1880	1909.3

LTE Band 4 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	20050	20175	20300
	Frequency	1720	1732.5	1745
15	Channel	20025	20175	20325
	Frequency	1717.5	1732.5	1747.5
10	Channel	20000	20175	20350
	Frequency	1715	1732.5	1750
5	Channel	19975	20175	20375
	Frequency	1712.5	1732.5	1752.5
3	Channel	19965	20175	20385
	Frequency	1711.5	1732.5	1753.5
1.4	Channel	19957	20175	20393
	Frequency	1710.7	1732.5	1754.3

LTE Band 5 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
10	Channel	20450	20525	20600
	Frequency	829	836.5	844
5	Channel	20425	20525	20625
	Frequency	826.5	836.5	846.5
3	Channel	20415	20525	20635
	Frequency	825.5	836.5	847.5
1.4	Channel	20407	20525	20643
	Frequency	824.7	836.5	848.3

LTE Band 7 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	20850	21100	21350
	Frequency	2510	2535	2560
15	Channel	20825	21100	21375
	Frequency	2507.5	2535	2562.5
10	Channel	20800	21100	21400
	Frequency	2505	2535	2565
5	Channel	20775	21100	21425
	Frequency	2502.5	2535	2567.5

LTE Band 38 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	37850	38000	38150
	Frequency	2580.0	2595.0	2610.0
15	Channel	37825	38000	38175
	Frequency	2577.5	2595.0	2612.5
10	Channel	37800	38000	38200
	Frequency	2575.0	2595.0	2615.0
5	Channel	37775	38000	38225
	Frequency	2572.5	2595.0	2617.5

LTE Band 41 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	39750	40620	41490
	Frequency	2506.0	2593.0	2680.0
15	Channel	39725	40620	41515
	Frequency	2503.5	2593.0	2682.5
10	Channel	39700	40620	41540
	Frequency	2501.0	2593.0	2685.0
5	Channel	39675	40620	41565
	Frequency	2498.5	2593.0	2687.5

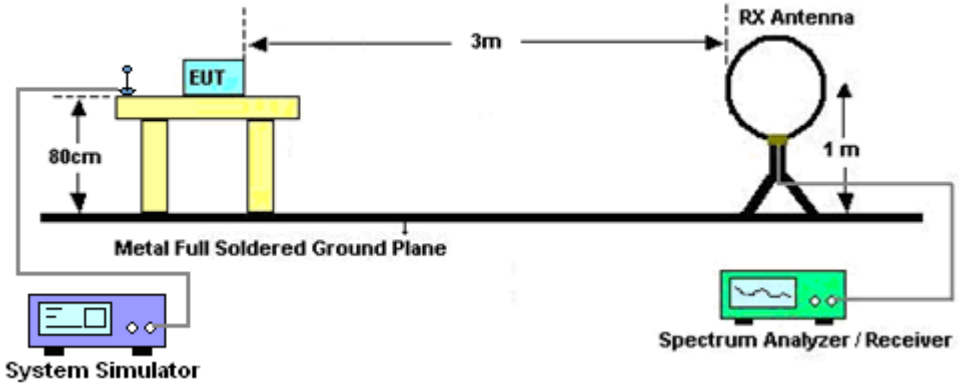
3 Radiated Test Items

3.1 Measuring Instruments

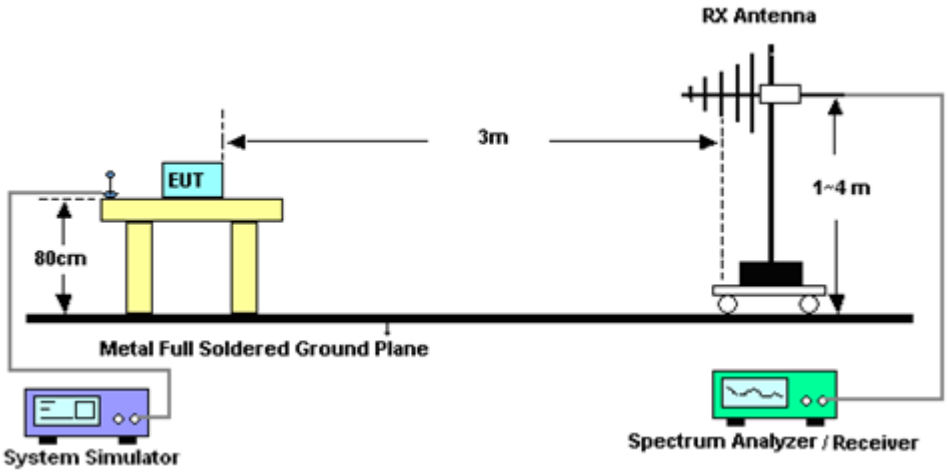
See list of measuring instruments of this test report.

3.1.1 Test Setup

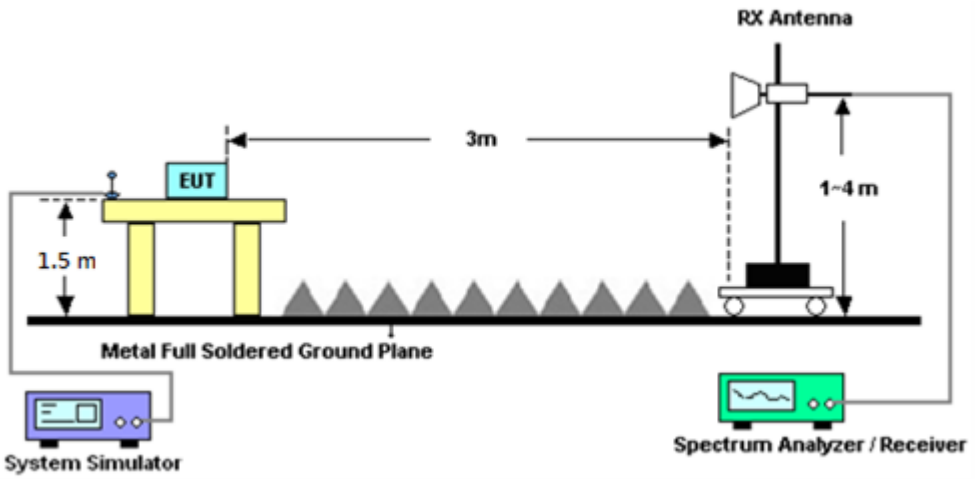
For radiated test below 30MHz



For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



3.1.2 Test Result of Radiated Test

Please refer to Appendix A.

Note:

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

3.2 Radiated Spurious Emission Measurement

3.2.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA-603-E. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For LTE Band 7, 38, 41

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.2.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI / TIA-603-E Section 2.2.12.

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

    For LTE Band 7, 38, 41

    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)

    EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain

    ERP (dBm) = EIRP - 2.15

4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	35419 & 03	30MHz~1GHz	Apr. 29, 2020	Sep. 30, 2020~ Oct. 02, 2020	Apr. 28, 2021	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Dec. 06, 2019	Sep. 30, 2020~ Oct. 02, 2020	Dec. 05, 2020	Radiation (03CH07-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz~26.5GHz	May 21, 2020	Sep. 30, 2020~ Oct. 02, 2020	May 20, 2021	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9030A	MY52350276	3Hz~44GHz	Jun. 09, 2020	Sep. 30, 2020~ Oct. 02, 2020	Jun. 08, 2021	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10MHz~1GHz	May 19, 2020	Sep. 30, 2020~ Oct. 02, 2020	May 18, 2021	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Nov. 01, 2019	Sep. 30, 2020~ Oct. 02, 2020	Oct. 31, 2020	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2858/2,80 1606/2	18GHz~40GHz	Feb. 25, 2020	Sep. 30, 2020~ Oct. 02, 2020	Feb. 24, 2021	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4, MY24971/4, MY15682/4	30MHz~1GHz	Feb. 25, 2020	Sep. 30, 2020~ Oct. 02, 2020	Feb. 24, 2021	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655/4, MY24971/4, MY15682/4	1GHz~18GHz	Feb. 25, 2020	Sep. 30, 2020~ Oct. 02, 2020	Feb. 24, 2021	Radiation (03CH07-HY)
Controller	ChainTek	Chaintek 3000	N/A	Control Turn table	N/A	Sep. 30, 2020~ Oct. 02, 2020	N/A	Radiation (03CH07-HY)
Controller	Max-Full	MF7802	MF780208368	Control Ant Mast	N/A	Sep. 30, 2020~ Oct. 02, 2020	N/A	Radiation (03CH07-HY)
Antenna Mast	Max-Full	MFA520BS	N/A	1m~4m	N/A	Sep. 30, 2020~ Oct. 02, 2020	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Sep. 30, 2020~ Oct. 02, 2020	N/A	Radiation (03CH07-HY)
USB Data Logger	TECPEL	TR-32	HE17XB2495	N/A	N/A	Sep. 30, 2020~ Oct. 02, 2020	N/A	Radiation (03CH07-HY)
Horn Antenna	EMCO	3117	00143261	1GHz~18GHz	Jan. 10, 2020	Sep. 30, 2020~ Oct. 02, 2020	Jan. 09, 2021	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	18GHz~40GHz	Nov. 26, 2019	Sep. 30, 2020~ Oct. 02, 2020	Nov. 25, 2020	Radiation (03CH07-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 13, 2019	Sep. 30, 2020~ Oct. 02, 2020	Dec. 12, 2020	Radiation (03CH07-HY)
Software	Audix	E3 6.2009-8-24	N/A	N/A	N/A	Sep. 30, 2020~ Oct. 02, 2020	N/A	Radiation (03CH07-HY)
Signal Generator	Anritsu	MG3710A	6261943042	2G / 3G / LTE / 5G FR1	May 10, 2020	Sep. 30, 2020~ Oct. 02, 2020	May 09, 2021	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.35**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.81**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.85**

Appendix A. Test Results of Radiated Test

LTE Band 2

LTE Band 2 / 20MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3702	-56.73	-13	-43.73	-77.27	-63.3	1.67	8.24	H
	5556	-53.63	-13	-40.63	-78.62	-60.7	2.66	9.72	H
	7410	-54.44	-13	-41.44	-81.53	-63.6	2.46	11.62	H
									H
									H
									H
	3702	-54.53	-13	-41.53	-74.39	-61.1	1.67	8.24	V
	5556	-52.53	-13	-39.53	-77.35	-59.6	2.66	9.72	V
	7410	-53.64	-13	-40.64	-81.28	-62.8	2.46	11.62	V
									V
									V
									V
Middle	3744	-55.89	-13	-42.89	-76.62	-62.5	1.68	8.29	H
	5616	-53.45	-13	-40.45	-78.49	-60.5	2.69	9.75	H
	7488	-53.96	-13	-40.96	-81.15	-63.3	2.43	11.78	H
									H
									H
									H
									H
	3744	-55.29	-13	-42.29	-75.68	-61.9	1.68	8.29	V
	5616	-53.35	-13	-40.35	-78.34	-60.4	2.69	9.75	V
	7488	-53.96	-13	-40.96	-81.15	-63.3	2.43	11.78	V
									V
									V
									V
									V

Highest	3780	-58.46	-13	-45.46	-78.83	-65.1	1.69	8.34	H
	5676	-53.36	-13	-40.36	-78.38	-60.4	2.73	9.77	H
	7566	-53.27	-13	-40.27	-81.05	-62.7	2.41	11.84	H
									H
									H
									H
									H
	3780	-53.56	-13	-40.56	-74.22	-60.2	1.69	8.34	V
	5676	-52.56	-13	-39.56	-77.72	-59.6	2.73	9.77	V
	7566	-53.07	-13	-40.07	-80.89	-62.5	2.41	11.84	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 4

LTE Band 4 / 20MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3420	-54.43	-13	-41.43	-74.99	-60.5	1.58	7.65	H
	5136	-50.82	-13	-37.82	-74.37	-58.1	2.42	9.70	H
	6840	-54.43	-13	-41.43	-81.22	-62.4	2.64	10.61	H
									H
									H
									H
									H
	3420	-54.03	-13	-41.03	-74.63	-60.1	1.58	7.65	V
	5136	-47.72	-13	-34.72	-71.3	-55	2.42	9.70	V
	6840	-55.13	-13	-42.13	-81.7	-63.1	2.64	10.61	V
									V
									V
									V
									V
Middle	3450	-55.71	-13	-42.71	-76.46	-61.9	1.59	7.78	H
	5172	-48.24	-13	-35.24	-71.66	-55.5	2.44	9.70	H
	6890	-54.16	-13	-41.16	-81.17	-62.2	2.63	10.67	H
									H
									H
									H
									H
	3450	-54.01	-13	-41.01	-74.43	-60.2	1.59	7.78	V
	5172	-47.84	-13	-34.84	-71.06	-55.1	2.44	9.70	V
	6890	-54.76	-13	-41.76	-81.49	-62.8	2.63	10.67	V
									V
									V
									V
									V

Highest	3474	-54.21	-13	-41.21	-75.48	-60.5	1.60	7.89	H
	5208	-49.76	-13	-36.76	-73.07	-57	2.46	9.70	H
	6940	-54.38	-13	-41.38	-81.52	-62.5	2.61	10.73	H
									H
									H
									H
									H
	3474	-53.11	-13	-40.11	-73.51	-59.4	1.60	7.89	V
	5208	-49.36	-13	-36.36	-72.67	-56.6	2.46	9.70	V
	6940	-54.08	-13	-41.08	-81.09	-62.2	2.61	10.73	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 5

LTE Band 5 / 10MHz / QPSK									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1648	-52.84	-13	-39.84	-65.04	-54.6	0.98	4.89	H
	2472	-44.23	-13	-31.23	-61.55	-46.11	1.28	5.32	H
	3296	-58.18	-13	-45.18	-77.69	-61.59	1.54	7.10	H
									H
									H
									H
									H
	1648	-47.41	-13	-34.41	-60.08	-49.17	0.98	4.89	V
	2472	-48.74	-13	-35.74	-66.5	-50.62	1.28	5.32	V
	3296	-57.20	-13	-44.20	-77.04	-60.61	1.54	7.10	V
									V
									V
									V
									V
Middle	1664	-53.55	-13	-40.55	-65.9	-55.26	0.98	4.84	H
	2496	-44.73	-13	-31.73	-62.1	-46.68	1.29	5.39	H
	3334	-58.18	-13	-45.18	-77.8	-61.75	1.55	7.27	H
									H
									H
									H
									H
	1664	-47.27	-13	-34.27	-60.09	-48.98	0.98	4.84	V
	2496	-49.91	-13	-36.91	-67.73	-51.86	1.29	5.39	V
	3334	-58.15	-13	-45.15	-78.1	-61.72	1.55	7.27	V
									V
									V
									V
									V

Highest	1680	-54.07	-13	-41.07	-66.56	-55.72	0.99	4.80	H
	2520	-48.12	-13	-35.12	-65.5	-50.09	1.30	5.42	H
	3356	-58.40	-13	-45.40	-78.28	-62.06	1.56	7.37	H
									H
									H
									H
									H
	1680	-48.60	-13	-35.60	-61.55	-50.25	0.99	4.80	V
	2520	-51.33	-13	-38.33	-69.17	-53.3	1.30	5.42	V
	3356	-57.91	-13	-44.91	-77.95	-61.57	1.56	7.37	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 7

LTE Band 7 / 20MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	5004	-55.17	-25	-30.17	-78.68	-62.53	2.34	9.70	H
	7506	-41.87	-25	-16.87	-69.72	-51.25	2.43	11.80	H
	10008	-43.54	-25	-18.54	-75.75	-53.05	2.70	12.20	H
									H
									H
									H
									H
	5004	-56.03	-25	-31.03	-79.51	-63.39	2.34	9.70	V
	7506	-41.63	-25	-16.63	-69.61	-51.01	2.43	11.80	V
	10008	-45.08	-25	-20.08	-77.16	-54.59	2.70	12.20	V
									V
									V
									V
									V
Middle	5052	-54.66	-25	-29.66	-78.37	-61.99	2.37	9.70	H
	7578	-50.41	-25	-25.41	-78.33	-59.85	2.40	11.85	H
	10098	-46.15	-25	-21.15	-78.59	-55.69	2.70	12.24	H
									H
									H
									H
									H
	5052	-56.35	-25	-31.35	-79.87	-63.68	2.37	9.70	V
	7578	-51.53	-25	-26.53	-79.62	-60.97	2.40	11.85	V
	10098	-48.81	-25	-23.81	-81.13	-58.35	2.70	12.24	V
									V
									V
									V
									V

Highest	5100	-53.56	-25	-28.56	-77.5	-60.87	2.39	9.70	H
	7656	-46.53	-25	-21.53	-74.68	-56.04	2.38	11.89	H
	10206	-46.43	-25	-21.43	-79.08	-56.02	2.70	12.28	H
									H
									H
									H
									H
	5100	-54.97	-25	-29.97	-78.6	-62.28	2.39	9.70	V
	7656	-51.31	-25	-26.31	-79.71	-60.82	2.38	11.89	V
	10206	-48.52	-25	-23.52	-81.14	-58.11	2.70	12.28	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 38

LTE Band 38 / 20MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	5142	-53.34	-25	-28.34	-77.3	-60.62	2.42	9.70	H
	7716	-39.26	-25	-14.26	-67.48	-48.83	2.36	11.93	H
	10278	-48.39	-25	-23.39	-81.27	-58.01	2.69	12.31	H
									H
									H
									H
									H
	5142	-53.87	-25	-28.87	-77.82	-61.15	2.42	9.70	V
	7716	-42.76	-25	-17.76	-71.34	-52.33	2.36	11.93	V
	10278	-48.76	-25	-23.76	-81.4	-58.38	2.69	12.31	V
									V
									V
									V
									V
Middle	5172	-52.48	-25	-27.48	-76.5	-59.74	2.44	9.70	H
	7758	-38.55	-25	-13.55	-66.92	-48.16	2.35	11.95	H
	10350	-48.42	-25	-23.42	-81.54	-58.07	2.69	12.34	H
									H
									H
									H
									H
	5172	-52.59	-25	-27.59	-76.48	-59.85	2.44	9.70	V
	7758	-42.16	-25	-17.16	-70.72	-51.77	2.35	11.95	V
	10350	-48.73	-25	-23.73	-81.67	-58.38	2.69	12.34	V
									V
									V
									V
									V

Highest	5202	-51.98	-25	-26.98	-76.12	-59.23	2.45	9.70	H
	7806	-39.53	-25	-14.53	-68.02	-49.18	2.33	11.98	H
	10404	-47.97	-25	-22.97	-81.18	-57.64	2.69	12.36	H
									H
									H
									H
									H
	5202	-53.98	-25	-28.98	-77.98	-61.23	2.45	9.70	V
	7806	-41.49	-25	-16.49	-70.27	-51.14	2.33	11.98	V
	10404	-47.99	-25	-22.99	-81.08	-57.66	2.69	12.36	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 41

LTE Band 41 / 20MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	4992	-55.15	-25	-30.15	-78.64	-62.5	2.33	9.68	H
	7494	-41.74	-25	-16.74	-69.35	-51.1	2.43	11.79	H
	9990	-41.69	-25	-16.69	-73.61	-51.2	2.69	12.21	H
									H
									H
									H
									H
	4992	-57.15	-25	-32.15	-80.28	-64.5	2.33	9.68	V
	7494	-45.04	-25	-20.04	-72.56	-54.4	2.43	11.79	V
	9990	-43.49	-25	-18.49	-75.12	-53	2.69	12.21	V
									V
									V
									V
									V
Middle	5166	-48.46	-25	-23.46	-76.41	-55.73	2.43	9.70	H
	7752	-38.79	-25	-13.79	-67.16	-48.39	2.35	11.95	H
	10332	-48.42	-25	-23.42	-81.48	-58.06	2.69	12.33	H
									H
									H
									H
									H
	5166	-53.46	-25	-28.46	-77.3	-60.73	2.43	9.70	V
	7752	-41.44	-25	-16.44	-70.06	-51.04	2.35	11.95	V
	10332	-48.88	-25	-23.88	-81.8	-58.52	2.69	12.33	V
									V
									V
									V
									V

Highest	5340	-47.03	-25	-22.03	-71.45	-54.2	2.53	9.70	H
	8016	-32.66	-25	-7.66	-61.05	-42.5	2.27	12.11	H
	10680	-47.75	-25	-22.75	-81.68	-57.5	2.69	12.44	H
									H
									H
									H
									H
	5340	-47.33	-25	-22.33	-71.5	-54.5	2.53	9.70	V
	8016	-33.86	-25	-8.86	-63.04	-43.7	2.27	12.11	V
	10680	-47.65	-25	-22.65	-81.32	-57.4	2.69	12.44	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Appendix C. Original Report

Please refer to Sporton report number FG052913-02B as below.