RF Exposure Evaluation Report

APPLICANT	**:**	**ZTE CORPORATION**
EQUIPMENT	**:**	**WCDMA/LTE CPE**
BRAND NAME	**:**	**ZTE**
MODEL NAME	**:**	**MF288**
FCC ID	**:**	**SRQ-MF288**
STANDARD	**:**	**47 CFR Part 2.1091**

We, Sporton International (Kunshan) Inc., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit. Without written approval of Sporton International (Kunshan) Inc., the test report shall not be reproduced except in full.

Mark Qu

Approved by: Mark Qu / Manager

NVLAP TESTING
NVLAP LAB CODE 600155-0

Sporton International (Kunshan) Inc.
No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China

Table of Contents

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA780901	Rev. 01	Initial issue of report	Sep. 30, 2017

1. Administration Data

1.1. Testing Laboratory

Testing Laboratory	
Test Site	Sporton International (Kunshan) Inc.
Test Site Location	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958

Applicant	
Company Name	ZTE CORPORATION
Address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

Manufacturer	
Company Name	ZTE CORPORATION
Address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

2. Description of Equipment Under Test (EUT)

<table>
<tr><th colspan="2">Product Feature & Specification</th></tr>
<tr><td>EUT Type</td><td>WCDMA/LTE CPE</td></tr>
<tr><td>Brand Name</td><td>ZTE</td></tr>
<tr><td>Model Name</td><td>MF288</td></tr>
<tr><td>FCC ID</td><td>SRQ-MF288</td></tr>
<tr><td>IMEI Code</td><td>866339030000611</td></tr>
<tr><td>Wireless Technology and Frequency Range</td><td>WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz
WCDMA Band V: 826.4 MHz ~ 846.6 MHz
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 12: 699.7 MHz ~ 715.3 MHz
LTE Band 13: 779.5 MHz ~ 784.5 MHz
LTE Band 25: 1850.7 MHz ~ 1914.3 MHz
LTE Band 26: 814.7 MHz ~ 848.3 MHz
LTE Band 30: 2307.5 MHz ~ 2312.5 MHz
LTE Band 66: 1710.7 MHz ~ 1779.3 MHz
WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz
WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz
WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz</td></tr>
<tr><td>Mode</td><td>RMC 12.2Kbps
HSDPA
HSUPA
HSPA+ (16QAM uplink is not supported)
LTE: QPSK, 16QAM, 64QAM
WLAN 2.4GHz 802.11b/g/n HT20/HT40
WLAN 5GHz 802.11a/n HT20/HT40
WLAN 5GHz 802.11ac VHT20/VHT40/VHT80</td></tr>
<tr><td>Antenna Type</td><td>WWAN : PIFA Antenna (Internal Antenna)
WWAN : Dipole Antenna (External Antenna)
WLAN: PIFA Antenna</td></tr>
<tr><td>Antenna Function for WLAN Transmitter</td><td>
<table>
<tr><th></th><th>Ant.1</th><th>Ant.2</th><th>Ant.3</th></tr>
<tr><td>WLAN 2.4GHz 802.11 b/g/n SISO</td><td>V</td><td>V</td><td>-</td></tr>
<tr><td>WLAN 2.4GHz 802.11 n MIMO</td><td>V</td><td>V</td><td>-</td></tr>
<tr><td>WLAN 5GHz 802.11 a/n/ac SISO</td><td>V</td><td>V</td><td>V</td></tr>
<tr><td>WLAN 5GHz 802.11 n/ac MIMO</td><td>V</td><td>V</td><td>V</td></tr>
</table>
</td></tr>
<tr><td>HW Version</td><td>MF288HW1.0</td></tr>
<tr><td>SW Version</td><td>MF288UIV1.0.3</td></tr>
<tr><td>EUT Stage</td><td>Identical Prototype</td></tr>
<tr><td colspan="2">Remark:
1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. This device has two antenna types of WWAN transmitter, external antenna as the primary mode, and internal antenna as the optional mode. EUT can support either external antenna operating mode or internal antenna operating mode, but it can’t transmit simultaneously.
3. For WLAN transmitter, WLAN 2.4GHz has two transmitters and WLAN 5GHz has three transmitters.</td></tr>
</table>

3. Maximum RF average output power among production units

<WCDMA>

Mode	Average Power (dBm)		
	WCDMA Band II	WCDMA Band IV	WCDMA Band V
RMC 12.2Kbps	23.00	23.00	23.00
HSDPA Subtest-1	22.00	22.00	22.00
HSDPA Subtest-2	22.00	22.00	22.00
HSDPA Subtest-3	21.50	21.50	21.50
HSDPA Subtest-4	21.50	21.50	21.50
HSUPA Subtest-1	22.00	22.00	22.00
HSUPA Subtest-2	20.00	20.00	20.00
HSUPA Subtest-3	21.00	21.00	21.00
HSUPA Subtest-4	20.00	20.00	20.00
HSUPA Subtest-5	22.00	22.00	22.00

<LTE>

Average Power (dBm)								
Modulation	BW (MHz)	RB Size	Target MPR	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12
QPSK	20	≤ 18	0	22.50	22.50	-	22.50	-
QPSK	20	> 18	0-1	21.50	21.50	-	21.50	-
16QAM	20	≤ 18	0-1	21.50	21.50	-	21.50	-
16QAM	20	> 18	0-2	20.50	20.50	-	20.50	-
64QAM	20	≤ 18	0-2	20.50	20.50	-	20.50	-
64QAM	20	> 18	0-3	19.50	19.50	-	19.50	-
QPSK	15	≤ 16	0	22.50	22.50	-	22.50	-
QPSK	15	> 16	0-1	21.50	21.50	-	21.50	-
16QAM	15	≤ 16	0-1	21.50	21.50	-	21.50	-
16QAM	15	> 16	0-2	20.50	20.50	-	20.50	-
64QAM	15	≤ 16	0-2	20.50	20.50	-	20.50	-
64QAM	15	> 16	0-3	19.50	19.50	-	19.50	-
QPSK	10	≤ 12	0	22.50	22.50	23.00	22.50	22.50
QPSK	10	> 12	0-1	21.50	21.50	22.00	21.50	21.50
16QAM	10	≤ 12	0-1	21.50	21.50	22.00	21.50	21.50
16QAM	10	> 12	0-2	20.50	20.50	21.00	20.50	20.50
64QAM	10	≤ 12	0-2	20.50	20.50	21.00	20.50	20.50
64QAM	10	> 12	0-3	19.50	19.50	20.00	19.50	19.50
QPSK	5	≤ 8	0	22.50	22.50	23.00	-	22.50
QPSK	5	> 8	0-1	21.50	21.50	22.00	-	21.50
16QAM	5	≤ 8	0-1	21.50	21.50	22.00	-	21.50
16QAM	5	> 8	0-2	20.50	20.50	21.00	-	20.50
64QAM	5	≤ 8	0-2	20.50	20.50	21.00	-	20.50
64QAM	5	> 8	0-3	19.50	19.50	20.00	-	19.50
QPSK	3	≤ 4	0	22.50	22.50	23.00	-	22.50
QPSK	3	> 4	0-1	21.50	21.50	22.00	-	21.50
16QAM	3	≤ 4	0-1	21.50	21.50	22.00	-	21.50
16QAM	3	> 4	0-2	20.50	20.50	21.00	-	20.50
64QAM	3	≤ 4	0-2	20.50	20.50	21.00	-	20.50
64QAM	3	> 4	0-3	19.50	19.50	20.00	-	19.50
QPSK	1.4	≤ 5	0	22.50	22.50	23.00	-	22.50
QPSK	1.4	> 5	0-1	21.50	21.50	22.00	-	21.50
16QAM	1.4	≤ 5	0-1	21.50	21.50	22.00	-	21.50
16QAM	1.4	> 5	0-2	20.50	20.50	21.00	-	20.50
64QAM	1.4	≤ 5	0-2	20.50	20.50	21.00	-	20.50
64QAM	1.4	> 5	0-3	19.50	19.50	20.00	-	19.50

Remark: The mark "-" in gray means that this bandwidth is not supported.

Average Power (dBm)								
Modulation	BW (MHz)	RB Size	Target MPR	LTE Band 13	LTE Band 25	LTE Band 26	LTE Band 30	LTE Band 66
QPSK	20	≤ 18	0	-	22.50	-	-	22.50
QPSK	20	> 18	0-1	-	21.50	-	-	21.50
16QAM	20	≤ 18	0-1	-	21.50	-	-	21.50
16QAM	20	> 18	0-2	-	20.50	-	-	20.50
64QAM	20	≤ 18	0-2	-	20.50	-	-	20.50
64QAM	20	> 18	0-3	-	19.50	-	-	19.50
QPSK	15	≤ 16	0	-	22.50	23.00	-	22.50
QPSK	15	> 16	0-1	-	21.50	22.00	-	21.50
16QAM	15	≤ 16	0-1	-	21.50	22.00	-	21.50
16QAM	15	> 16	0-2	-	20.50	21.00	-	20.50
64QAM	15	≤ 16	0-2	-	20.50	21.00	-	20.50
64QAM	15	> 16	0-3	-	19.50	20.00	-	19.50
QPSK	10	≤ 12	0	23.00	22.50	23.00	22.50	22.50
QPSK	10	> 12	0-1	22.00	21.50	22.00	21.50	21.50
16QAM	10	≤ 12	0-1	22.00	21.50	22.00	21.50	21.50
16QAM	10	> 12	0-2	21.00	20.50	21.00	20.50	20.50
64QAM	10	≤ 12	0-2	21.00	20.50	21.00	20.50	20.50
64QAM	10	> 12	0-3	20.00	19.50	20.00	19.50	19.50
QPSK	5	≤ 8	0	23.00	22.50	23.00	22.50	22.50
QPSK	5	> 8	0-1	22.00	21.50	22.00	21.50	21.50
16QAM	5	≤ 8	0-1	22.00	21.50	22.00	21.50	21.50
16QAM	5	> 8	0-2	21.00	20.50	21.00	20.50	20.50
64QAM	5	≤ 8	0-2	21.00	20.50	21.00	20.50	20.50
64QAM	5	> 8	0-3	20.00	19.50	20.00	19.50	19.50
QPSK	3	≤ 4	0	-	22.50	23.00	-	22.50
QPSK	3	> 4	0-1	-	21.50	22.00	-	21.50
16QAM	3	≤ 4	0-1	-	21.50	22.00	-	21.50
16QAM	3	> 4	0-2	-	20.50	21.00	-	20.50
64QAM	3	≤ 4	0-2	-	20.50	21.00	-	20.50
64QAM	3	> 4	0-3	-	19.50	20.00	-	19.50
QPSK	1.4	≤ 5	0	-	22.50	23.00	-	22.50
QPSK	1.4	> 5	0-1	-	21.50	22.00	-	21.50
16QAM	1.4	≤ 5	0-1	-	21.50	22.00	-	21.50
16QAM	1.4	> 5	0-2	-	20.50	21.00	-	20.50
64QAM	1.4	≤ 5	0-2	-	20.50	21.00	-	20.50
64QAM	1.4	> 5	0-3	-	19.50	20.00	-	19.50

Remark: The mark "-" in gray means that this bandwidth is not supported.

<table>
<tr><th colspan="2">Summarized necessary items addressed in KDB 941225 D05 v02r05</th></tr>
<tr><td>FCC ID</td><td>SRQ-MF288</td></tr>
<tr><td>EUT</td><td>WCDMA/LTE CPE</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>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 12: 699.7 MHz ~ 715.3 MHz
LTE Band 13: 779.5 MHz ~ 784.5 MHz
LTE Band 25: 1850.7 MHz ~ 1914.3 MHz
LTE Band 26: 814.7 MHz ~ 848.3 MHz
LTE Band 30: 2307.5 MHz ~ 2312.5 MHz
LTE Band 66: 1710.7 MHz ~ 1779.3 MHz</td></tr>
<tr><td>Channel Bandwidth</td><td>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 12:1.4MHz, 3MHz, 5MHz, 10MHz
LTE Band 13: 5MHz, 10MHz
LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz
LTE Band 30: 5MHz, 10MHz
LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz</td></tr>
<tr><td>Uplink modulations used</td><td>QPSK, 16QAM and 64QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Data Only</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>
Table 6.2.3.3-1: Maximum Power Reduction (MPR) for Power Class 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth configuration [RB]</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
</table>
Table 6.2.3_3.3-1: Maximum Power Reduction (MPR) for Power Class 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth configuration [RB]</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr>
</table>
</td></tr>
<tr><td>LTE A-MPR</td><td>In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)</td></tr>
<tr><td>Spectrum plots for RB configuration</td><td>A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.</td></tr>
</table>

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 5								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844
LTE Band 7								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560
LTE Band 12								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711
LTE Band 13				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	23205	779.5	23230	782
M	23230	782		
H	23255	784.5		

LTE Band 25												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905

LTE Band 26										
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5

LTE Band 30				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	27685	2307.5	27710	2310
M	27710	2310		
H	27735	2312.5		

LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

<2.4GHz WLAN>

Frequency	Mode	Maximum Average Power (dBm)		
		Ant.1	Ant.2	Ant.1+2
WLAN 2.4GHz	802.11b	18.50	18.50	-
	802.11g	16.50	16.50	-
	802.11n-HT20	15.50	15.50	18.50
	802.11n-HT40	15.50	15.50	18.50

Remark: The mark "-" in gray means that this configuration is not supported.

<5GHz WLAN>

Frequency	Mode	Maximum Average Power (dBm)			
		Ant.1	Ant.2	Ant.3	Ant.1+2+3
WLAN 5.2GHz	802.11a	16.50	16.50	16.50	-
	802.11n-HT20	10.00	9.50	8.50	14.50
	802.11n-HT40	12.00	11.50	10.50	16.00
	802.11ac VHT20	8.00	8.00	6.00	12.50
	802.11ac VHT40	10.00	9.50	8.50	14.00
	802.11ac VHT80	12.50	12.50	11.00	17.00
WLAN 5.8GHz	802.11a	16.50	16.50	16.50	-
	802.11n-HT20	16.00	14.50	15.00	20.00
	802.11n-HT40	15.50	14.50	14.50	20.00
	802.11ac VHT20	13.50	12.50	12.50	17.50
	802.11ac VHT40	13.50	12.50	12.50	18.00
	802.11ac VHT80	14.00	13.00	13.00	18.00

Remark: The mark "-" in gray means that this configuration is not supported.

4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:
S = Power Density
P = Output Power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna

5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

<WWAN With Internal Antenna>

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
WCDMA Band II	1852.4	2.06	23.00	25.06	0.32	320.63	0.064	1.000	0.064
WCDMA Band IV	1712.4	2.33	23.00	25.33	0.34	341.19	0.068	1.000	0.068
WCDMA Band V	826.4	1.02	23.00	24.02	0.25	252.35	0.050	0.551	0.091
LTE Band 2	1850.7	2.06	22.50	24.56	0.29	285.76	0.057	1.000	0.057
LTE Band 4	1710.7	2.33	22.50	24.83	0.30	304.09	0.061	1.000	0.061
LTE Band 5	824.7	1.02	23.00	24.02	0.25	252.35	0.050	0.550	0.091
LTE Band 7	2502.5	2.92	22.50	25.42	0.35	348.34	0.069	1.000	0.069
LTE Band 12	699.7	1.02	22.50	23.52	0.22	224.91	0.045	0.466	**0.096**
LTE Band 13	779.5	0.83	23.00	23.83	0.24	241.55	0.048	0.520	0.093
LTE Band 25	1850.7	2.06	22.50	24.56	0.29	285.76	0.057	1.000	0.057
LTE Band 26	814.7	1.02	23.00	24.02	0.25	252.35	0.050	0.543	0.092
LTE Band 30	2307.5	1.30	22.50	23.80	0.24	239.88	0.048	1.000	0.048
LTE Band 66	1710.7	2.33	22.50	24.83	0.30	304.09	0.061	1.000	0.061

Note: For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.

<WWAN With External Antenna>

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
WCDMA Band II	1852.4	2.77	23.00	25.77	0.38	377.57	0.075	1.000	0.075
WCDMA Band IV	1712.4	2.67	23.00	25.67	0.37	368.98	0.073	1.000	0.073
WCDMA Band V	826.4	1.82	23.00	24.82	0.30	303.39	0.060	0.551	0.110
LTE Band 2	1850.7	2.77	22.50	25.27	0.34	336.51	0.067	1.000	0.067
LTE Band 4	1710.7	2.67	22.50	25.17	0.33	328.85	0.065	1.000	0.065
LTE Band 5	824.7	1.82	23.00	24.82	0.30	303.39	0.060	0.550	0.110
LTE Band 7	2502.5	2.58	22.50	25.08	0.32	322.11	0.064	1.000	0.064
LTE Band 12	699.7	1.16	22.50	23.66	0.23	232.27	0.046	0.466	0.099
LTE Band 13	779.5	0.67	23.00	23.67	0.23	232.81	0.046	0.520	0.089
LTE Band 25	1850.7	2.77	22.50	25.27	0.34	336.51	0.067	1.000	0.067
LTE Band 26	814.7	1.82	23.00	24.82	0.30	303.39	0.060	0.543	**0.111**
LTE Band 30	2307.5	1.44	22.50	23.94	0.25	247.74	0.049	1.000	0.049
LTE Band 66	1710.7	2.67	22.50	25.17	0.33	328.85	0.065	1.000	0.065

Note: For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.

<WLAN Normal Mode>

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
WLAN2.4GHz 802.11b Ant.1	2412	2.46	18.50	20.96	0.12	124.74	0.025	1.000	0.025
WLAN2.4GHz 802.11g Ant.1	2412	2.46	16.50	18.96	0.08	78.70	0.016	1.000	0.016
WLAN2.4GHz 802.11n-HT20 Ant.1	2412	2.46	15.50	17.96	0.06	62.52	0.012	1.000	0.012
WLAN2.4GHz 802.11n-HT40 Ant.1	2422	2.46	15.50	17.96	0.06	62.52	0.012	1.000	0.012
WLAN2.4GHz 802.11b Ant.2	2412	2.87	18.50	21.37	0.14	137.09	0.027	1.000	0.027
WLAN2.4GHz 802.11g Ant.2	2412	2.87	16.50	19.37	0.09	86.50	0.017	1.000	0.017
WLAN2.4GHz 802.11n-HT20 Ant.2	2412	2.87	15.50	18.37	0.07	68.71	0.014	1.000	0.014
WLAN2.4GHz 802.11n-HT40 Ant.2	2422	2.87	15.50	18.37	0.07	68.71	0.014	1.000	0.014
WLAN2.4GHz 802.11n-HT20 Ant.1+2	2412	2.87	18.50	21.37	0.14	137.09	0.027	1.000	0.027
WLAN2.4GHz 802.11n-HT40 Ant.1+2	2422	2.87	18.50	21.37	0.14	137.09	0.027	1.000	0.027
WLAN5.2GHz 802.11a Ant.1	5180	2.97	16.50	19.47	0.09	88.51	0.018	1.000	0.018
WLAN5.2GHz 802.11n-HT20 Ant.1	5180	2.97	10.00	12.97	0.02	19.82	0.004	1.000	0.004
WLAN5.2GHz 802.11n-HT40 Ant.1	5190	2.97	12.00	14.97	0.03	31.41	0.006	1.000	0.006
WLAN5.2GHz 802.11ac VHT20 Ant.1	5180	2.97	8.00	10.97	0.01	12.50	0.002	1.000	0.002
WLAN5.2GHz 802.11ac VHT40 Ant.1	5190	2.97	10.00	12.97	0.02	19.82	0.004	1.000	0.004
WLAN5.2GHz 802.11ac VHT80 Ant.1	5210	2.97	12.50	15.47	0.04	35.24	0.007	1.000	0.007
WLAN5.2GHz 802.11a Ant.2	5180	2.53	16.50	19.03	0.08	79.98	0.016	1.000	0.016
WLAN5.2GHz 802.11n-HT20 Ant.2	5180	2.53	9.50	12.03	0.02	15.96	0.003	1.000	0.003
WLAN5.2GHz 802.11n-HT40 Ant.2	5190	2.53	11.50	14.03	0.03	25.29	0.005	1.000	0.005
WLAN5.2GHz 802.11ac VHT20 Ant.2	5180	2.53	8.00	10.53	0.01	11.30	0.002	1.000	0.002
WLAN5.2GHz 802.11ac VHT40 Ant.2	5190	2.53	9.50	12.03	0.02	15.96	0.003	1.000	0.003
WLAN5.2GHz 802.11ac VHT80 Ant.2	5210	2.53	12.50	15.03	0.03	31.84	0.006	1.000	0.006
WLAN5.2GHz 802.11a Ant.3	5180	2.93	16.50	19.43	0.09	87.70	0.017	1.000	0.017
WLAN5.2GHz 802.11n-HT20 Ant.3	5180	2.93	8.50	11.43	0.01	13.90	0.003	1.000	0.003
WLAN5.2GHz 802.11n-HT40 Ant.3	5190	2.93	10.50	13.43	0.02	22.03	0.004	1.000	0.004
WLAN5.2GHz 802.11ac VHT20 Ant.3	5180	2.93	6.00	8.93	0.01	7.82	0.002	1.000	0.002
WLAN5.2GHz 802.11ac VHT40 Ant.3	5190	2.93	8.50	11.43	0.01	13.90	0.003	1.000	0.003
WLAN5.2GHz 802.11ac VHT80 Ant.3	5210	2.93	11.00	13.93	0.02	24.72	0.005	1.000	0.005
WLAN5.2GHz 802.11n-HT20 Ant.1+2+3	5180	2.97	14.50	17.47	0.06	55.85	0.011	1.000	0.011
WLAN5.2GHz 802.11n-HT40 Ant.1+2+3	5190	2.97	16.00	18.97	0.08	78.89	0.016	1.000	0.016
WLAN5.2GHz 802.11ac VHT20 Ant.1+2+3	5180	2.97	12.50	15.47	0.04	35.24	0.007	1.000	0.007
WLAN5.2GHz 802.11ac VHT40 Ant.1+2+3	5190	2.97	14.00	16.97	0.05	49.77	0.010	1.000	0.010
WLAN5.2GHz 802.11ac VHT80 Ant.1+2+3	5210	2.97	17.00	19.97	0.10	99.31	0.020	1.000	0.020

WLAN5.8GHz 802.11a Ant.1	5745	2.67	16.50	19.17	0.08	82.60	0.016	1.000	0.016
WLAN5.8GHz 802.11n-HT20 Ant.1	5745	2.67	16.00	18.67	0.07	73.62	0.015	1.000	0.015
WLAN5.8GHz 802.11n-HT40 Ant.1	5755	2.67	15.50	18.17	0.07	65.61	0.013	1.000	0.013
WLAN5.8GHz 802.11ac-VHT20 Ant.1	5745	2.67	13.50	16.17	0.04	41.40	0.008	1.000	0.008
WLAN5.8GHz 802.11ac-VHT40 Ant.1	5755	2.67	13.50	16.17	0.04	41.40	0.008	1.000	0.008
WLAN5.8GHz 802.11ac VHT80 Ant.1	5775	2.67	14.00	16.67	0.05	46.45	0.009	1.000	0.009
WLAN5.8GHz 802.11a Ant.2	5745	2.95	16.50	19.45	0.09	88.10	0.018	1.000	0.018
WLAN5.8GHz 802.11n-HT20 Ant.2	5745	2.95	14.50	17.45	0.06	55.59	0.011	1.000	0.011
WLAN5.8GHz 802.11n-HT40 Ant.2	5755	2.95	14.50	17.45	0.06	55.59	0.011	1.000	0.011
WLAN5.8GHz 802.11ac-VHT20 Ant.2	5745	2.95	12.50	15.45	0.04	35.08	0.007	1.000	0.007
WLAN5.8GHz 802.11ac-VHT40 Ant.2	5755	2.95	12.50	15.45	0.04	35.08	0.007	1.000	0.007
WLAN5.8GHz 802.11ac VHT80 Ant.2	5775	2.95	13.00	15.95	0.04	39.36	0.008	1.000	0.008
WLAN5.8GHz 802.11a Ant.3	5745	2.01	16.50	18.51	0.07	70.96	0.014	1.000	0.014
WLAN5.8GHz 802.11n-HT20 Ant.3	5745	2.01	15.00	17.01	0.05	50.23	0.010	1.000	0.010
WLAN5.8GHz 802.11n-HT40 Ant.3	5755	2.01	14.50	16.51	0.04	44.77	0.009	1.000	0.009
WLAN5.8GHz 802.11ac-VHT20 Ant.3	5745	2.01	12.50	14.51	0.03	28.25	0.006	1.000	0.006
WLAN5.8GHz 802.11ac-VHT40 Ant.3	5755	2.01	12.50	14.51	0.03	28.25	0.006	1.000	0.006
WLAN5.8GHz 802.11ac VHT80 Ant.3	5775	2.01	13.00	15.01	0.03	31.70	0.006	1.000	0.006
WLAN5.8GHz 802.11n-HT20 Ant.1+2+3	5745	2.95	20.00	22.95	0.20	197.24	0.039	1.000	0.039
WLAN5.8GHz 802.11n-HT40 Ant.1+2+3	5755	2.95	20.00	22.95	0.20	197.24	0.039	1.000	0.039
WLAN5.8GHz 802.11ac-VHT20 Ant.1+2+3	5745	2.95	17.50	20.45	0.11	110.92	0.022	1.000	0.022
WLAN5.8GHz 802.11ac-VHT40 Ant.1+2+3	5755	2.95	18.00	20.95	0.12	124.45	0.025	1.000	0.025
WLAN5.8GHz 802.11ac VHT80 Ant.1+2+3	5775	2.95	18.00	20.95	0.12	124.45	0.025	1.000	0.025

Note: For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.

<WLAN Beamforming Mode>

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
WLAN2.4GHz 802.11n-HT20 Ant.1+2	2412	5.68	18.50	24.18	0.26	261.82	0.052	1.000	**0.052**
WLAN2.4GHz 802.11n-HT40 Ant.1+2	2422	5.68	18.50	24.18	0.26	261.82	0.052	1.000	0.052
WLAN5.2GHz 802.11n-HT20 Ant.1+2+3	5180	7.59	14.50	22.09	0.16	161.81	0.032	1.000	0.032
WLAN5.2GHz 802.11n-HT40 Ant.1+2+3	5190	7.59	16.00	23.59	0.23	228.56	0.045	1.000	0.045
WLAN5.2GHz 802.11ac VHT20 Ant.1+2+3	5180	7.59	12.50	20.09	0.10	102.09	0.020	1.000	0.020
WLAN5.2GHz 802.11ac VHT40 Ant.1+2+3	5190	7.59	14.00	21.59	0.14	144.21	0.029	1.000	0.029
WLAN5.2GHz 802.11ac VHT80 Ant.1+2+3	5210	7.59	17.00	24.59	0.29	287.74	0.057	1.000	0.057
WLAN5.8GHz 802.11n-HT20 Ant.1+2+3	5745	7.33	20.00	27.33	0.54	540.75	0.108	1.000	**0.108**
WLAN5.8GHz 802.11n-HT40 Ant.1+2+3	5755	7.33	20.00	27.33	0.54	540.75	0.108	1.000	0.108
WLAN5.8GHz 802.11ac-VHT20 Ant.1+2+3	5745	7.33	17.50	24.83	0.30	304.09	0.061	1.000	0.061
WLAN5.8GHz 802.11ac-VHT40 Ant.1+2+3	5755	7.33	18.00	25.33	0.34	341.19	0.068	1.000	0.068
WLAN5.8GHz 802.11ac VHT80 Ant.1+2+3	5775	7.33	18.00	25.33	0.34	341.19	0.068	1.000	0.068

Note:

1. The EUT supports beamforming for 802.11n/ac modes.
2. The directional gain calculation is following F)2)e)ii) of KDB 662911 D01 v02r01.
3. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.

5.2. Collocated Power Density Calculation

Power Density / Limit				Σ(Power Density / Limit) of	
1	2	3	4		
WWAN With Internal	WWAN With External	2.4GHz WLAN	5GHz WLAN	1+3+4	2+3+4
0.096	0.111	0.052	0.108	0.256	0.271

Note:

1. For colocation analysis, LTE Band 12 for internal antenna and LTE Band 26 for external antenna are chosen for summation due to the highest (power density/limit) among all WWAN wireless modes.
2. For WLAN, chose the worst power density value among WLAN to do co-located with WWAN analysis.
3. Σ(Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)].

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.