 <p>CERTIFICATE 2518.08</p> <p>MS ISO/IEC 17025 TESTING SAMM NO. 0825</p>
<p>MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia Sdn Bhd, Plot 2A, Medan Bayan Lepas, Mukim 12 S.W.D, 11900 Bayan Lepas, Penang, Malaysia.</p>	<p>FCC / ISED TEST REPORT Report Revision : Rev.A</p>
<p>Date/s Tested : 03-August-2022 - 17-August-2022 Manufacturer/Location : Motorola Solutions Malaysia Sdn Bhd Manufacturer Address : Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia Requestor : CADOGAN SEAN Product Type : Hand-held Product Version (PMN) : APX N70 Model Number (HVIN) : H35UCT9PW8AN Frequency Band : Refer to section 1.4 Applicant Name : Motorola Solutions Inc Applicant Address : 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322. FCC Registrations : 461337 ISED Registrations : MY0001 Firmware Version (FVIN) : D00.00.45</p> <p>The equipment was tested accordance to the requirement listed below:</p> <p>(LTE Band 4) FCC 47 CFR Part 2 / 27 ISED RSS GEN / 139 PASS</p>	
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REVISION HISTORY

Revision History	Description	Date	Originator
Rev A.	Initial Report	23-August-2022	Lim Khay Kwang

1.0. Summary of Test Results

FCC Clause	ISED Clause	Test Item	Results	Remarks	Serial Number Tested
2.1046 27.50(d)(6)	RSS-Gen 6.12 RSS-139 4.1	Conducted RF Output Power	Pass	Meet the requirement of limit	022TYP0011
27.50(d)(5)	RSS-139 6.5	Peak-to-Average Power Ratio	Pass	Meet the requirement of limit	022TYP0011
2.1049 27.53(h)(3)	RSS-Gen 6.6	Occupied Bandwidth (26dBc, 99%)	Pass	Meet the requirement of limit	022TYP0011
2.1055 27.54	RSS-139 6.4	Frequency Stability	Pass	Meet the requirement of limit	022TYP0011
2.1051 27.53(h)(1)(3)	RSS-Gen 6.13 RSS-139 6.6	Band Edge Conducted Spurious Emission	Pass	Meet the requirement of limit	022TYP0011
2.1051 27.53(h)(1)	RSS-Gen 6.13 RSS-139 6.6	Conducted Spurious Emissions	Pass	Meet the requirement of limit	022TYP0011
2.1053 27.53 (h)	RSS-139 6.6	Radiated Spurious Emission: -29.8641 dBm (NF)	Pass	Meet the requirement of limit	022TYP0004
2.1049 27.50(d)(4)	RSS-139 6.5	Equivalent Isotropically Radiated Power (EIRP)	NA	NA	NA

1.1. Measurement Uncertainty

Measurement	Frequency	Expanded Uncertainty (k=1.96) (±dB)
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	5.01
	200MHz ~ 1000MHz	5.01
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.01
	18GHz ~ 25GHz	5.01

1.2. Equipment List

Description	Model	Serial Number	Calibration Date	Calibration Due Date
Broadband ATE 1 (RF Conducted Tests); Test Software Version: CMWRun v1.9.8				
Signal Analyzer	FSV40	101431	02-Dec-21	02-Dec-23
Chamber	SH-641	92003150	17-Sep-21	17-Sep-22
Wideband Radio Communication Tester	CMW500	154550	07-Mar-21	07-Mar-23
Power Supply	6652A	3541A02565	29-Jun-22	29-Jun-23
Radiated Spurious Emission (EMC Chamber 1); Test Software Version: EMC_FCC_RE_v1.6.4				
Drg Horn Freq.	SAS-571	720	06-Apr-21	06-Apr-23
Drg Horn Freq.	SAS-571	719	13-Sep-21	13-Sep-22
Advanced Power System - Dynamic Dc Power Supply, 120v, 16.7a, 2000w	N7976A	MY53410110	30-Jun-22	30-Jun-23
Signal Generator	SMB 100A	182511	4-Jun-21	4-Jun-24
Emi Test Receiver	ESW44	101731	5-Nov-21	5-Nov-22
5m SEMI-ANECHOIC CHAMBER	S800-HX	J2308	No Cal. Req'd	No Cal. Req'd
Bilog Antenna	CBL6112B	2863	22-Jun-22	22-Jun-23
Bilog Antenna	CBL6112D	30991	05-Oct-21	05-Oct-22
Data Logger Thermohyrometer	SDL500	A.016785	23-Jun-22	23-Jun-23
System Controller	SC104V	050806-1	No Cal. Req'd	No Cal. Req'd
Turntable Flush Mount 2m	FM2011	NA	No Cal. Req'd	No Cal. Req'd
Antenna Positioning Tower	TLT2	NA	No Cal. Req'd	No Cal. Req'd
Broad-Band Horn Antenna	BBHA9170	BBHA9170255	18-Feb-22	18-Feb-23
Preamplifier 18-40ghz	BBV9721	9721-007	No Cal. Req'd	No Cal. Req'd
Preamplifier	PAM-0118P	361	11-Sep-20	11-Sep-23
Loop Antenna	6502	00208416	08-Oct-21	08-Oct-22
Test Software	EMC_FCC_IC_BLUETOOTH_RE_TEST			

1.3. General Information

General Description of EUT

Product	ALOHA		
Brand	Motorola Solutions		
Test Model	H35UCT9PW8AN		
Power Supply Rating	7.5Vdc		
Mode of operation	LTE Band 4		
Modulation Type	QPSK, 16QAM		
Operating Frequency	LTE Band 4	Channel Bandwidth 1.4MHz	1710.7MHz~1754.3MHz
		Channel Bandwidth 3MHz	1711.5MHz~1753.5MHz
		Channel Bandwidth 5MHz	1712.5MHz~1752.5MHz
		Channel Bandwidth 10MHz	1715.0MHz~1750.0MHz
		Channel Bandwidth 15MHz	1717.5MHz~1747.5MHz
		Channel Bandwidth 20MHz	1720.0MHz~1745.0MHz

Max. Conducted Power	LTE Band 4 QPSK	Channel Bandwidth 1.4MHz	23.013dBm (0.200W)	
		Channel Bandwidth 3MHz	23.059dBm (0.202W)	
		Channel Bandwidth 5MHz	23.135dBm (0.206W)	
		Channel Bandwidth 10MHz	23.479dBm (0.223W)	
		Channel Bandwidth 15MHz	23.111dBm (0.205W)	
		Channel Bandwidth 20MHz	22.874dBm (0.194W)	
	LTE Band 4 16QAM	Channel Bandwidth 1.4MHz	22.129dBm (0.163W)	
		Channel Bandwidth 3MHz	22.521dBm (0.179W)	
		Channel Bandwidth 5MHz	22.269dBm (0.169W)	
		Channel Bandwidth 10MHz	22.73dBm (0.187W)	
		Channel Bandwidth 15MHz	22.283dBm (0.169W)	
		Channel Bandwidth 20MHz	22.379dBm (0.173W)	
Emission Designator	LTE Band 4		QPSK	16QAM
		Channel Bandwidth 1.4MHz	1M07G7D	1M08D7W
		Channel Bandwidth 3MHz	2M68G7D	2M68D7W
		Channel Bandwidth 5MHz	4M48G7D	4M47D7W
		Channel Bandwidth 10MHz	8M91G7D	8M95D7W
		Channel Bandwidth 15MHz	13M4G7D	13M4D7W
		Channel Bandwidth 20MHz	17M9G7D	17M8D7W
		Antenna Type	LTE Band 4	LTE MID-HIGH BAND MAIN ANTENNA (1.9dBi)
SW Version	D00.00.45			
HW Version	P1			

Note:

1. The EUT contains following accessory devices and data cable.

Item	Brand	Model or P/N	Specification
Li-Ion	Motorola	PMNN4817A	Hi Cap 4400mAH (using RN 2170 Li-Ion cell) Non-UL battery

Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	Product	Brand	Model No.	Serial No.	FCC ID
1	Wideband Radio Communication Tester	R&S	CMW500	154550	NA

NO.	Signal Cable Description of The above Support Units
1	NA

Note:

1. All power cords of the above support units are non-shielded.
2. Item 1 acted as a communication partner to transfer data.

EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

KDB 971168 D02 Misc OOB License Digital Systems v02r01

ANSI C63.26-2015

NOTE: All test items have been performed and recorded as per the above standards.

1.4. Channel number and frequency info.

Band	Bandwidth supported	Available Channel Number	Test Channel Number			Test Channel Frequency (MHz)		
			Low Channel	Mid Channel	High Channel	Low Channel	Mid Channel	High Channel
LTE Band 4	1.4 MHz	19957 ~ 20393	19957	20175	20393	1710.7	1732.5	1754.3
	3 MHz	19965 ~ 20386	19965	20175	20385	1711.5	1732.5	1753.5
	5 MHz	19975 ~ 20375	19975	20175	20375	1712.5	1732.5	1752.5
	10 MHz	20000 ~ 20350	20000	20175	20350	1715.0	1732.5	1750.0
	15 MHz	20025 ~ 20325	20025	20175	20325	1717.5	1732.5	1747.5
	20 MHz	20050 ~ 20300	20050	20175	20300	1720.0	1732.5	1745.0

1.5. Test Mode Applicability and Tested Channel Detail.

LTE Band 4

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Conducted RF Output Power	19957 ~ 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM	As per table 1.6.3
	19965 ~ 20386	19965, 20175, 20385	3 MHz		
	19975 ~ 20375	19975, 20175, 20375	5 MHz		
	20000 ~ 20350	20000, 20175, 20350	10 MHz		
	20025 ~ 20325	20025, 20175, 20325	15 MHz		
	20050 ~ 20300	20050, 20175, 20300	20 MHz		
Peak to Average Power Ratio	19957 ~ 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
	19965 ~ 20386	19965, 20175, 20385	3 MHz		15 RB / 0 RB Offset
	19975 ~ 20375	19975, 20175, 20375	5 MHz		25 RB / 0 RB Offset
	20000 ~ 20350	20000, 20175, 20350	10 MHz		50 RB / 0 RB Offset
	20025 ~ 20325	20025, 20175, 20325	15 MHz		75 RB / 0 RB Offset
	20050 ~ 20300	20050, 20175, 20300	20 MHz		100 RB / 0 RB Offset
Occupied Bandwidth	19957 ~ 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
	19965 ~ 20386	19965, 20175, 20385	3 MHz		15 RB / 0 RB Offset
	19975 ~ 20375	19975, 20175, 20375	5 MHz		25 RB / 0 RB Offset
	20000 ~ 20350	20000, 20175, 20350	10 MHz		50 RB / 0 RB Offset
	20025 ~ 20325	20025, 20175, 20325	15 MHz		75 RB / 0 RB Offset
	20050 ~ 20300	20050, 20175, 20300	20 MHz		100 RB / 0 RB Offset
Frequency Stability	19957 ~ 20393	20175	1.4 MHz	QPSK	6 RB / 0 RB Offset
	19965 ~ 20386	20175	3 MHz		15 RB / 0 RB Offset
	19975 ~ 20375	20175	5 MHz		25 RB / 0 RB Offset
	20000 ~ 20350	20175	10 MHz		50 RB / 0 RB Offset
	20025 ~ 20325	20175	15 MHz		75 RB / 0 RB Offset
	20050 ~ 20300	20175	20 MHz		100 RB / 0 RB Offset
Band Edge Conducted Spurious Emission	19957 ~ 20393	19957, 20393	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset 1 RB / 5 RB Offset 6 RB / 0 RB Offset
	19965 ~ 20386	19965, 20385	3 MHz		1 RB / 0 RB Offset 1 RB / 14 RB Offset 15 RB / 0 RB Offset

	19975 ~ 20375	19975, 20375	5 MHz		1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
	20000 ~ 20350	20000, 20350	10 MHz		1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
	20025 ~ 20325	20025, 20325	15 MHz		1 RB / 0 RB Offset 1 RB / 74 RB Offset 75 RB / 0 RB Offset
	20050 ~ 20300	20050, 20300	20 MHz		1 RB / 0 RB Offset 1 RB / 99 RB Offset 100 RB / 0 RB Offset
Conducted Spurious Emission	19957 ~ 20393	19957, 20175, 20393	1.4 MHz	QPSK	3 RB / 2 RB Offset
	19965 ~ 20386	19965, 20175, 20385	3 MHz		1 RB / 0 RB Offset
	19975 ~ 20375	19975, 20175, 20375	5 MHz		1 RB / 0 RB Offset
	20000 ~ 20350	20000, 20175, 20350	10 MHz		1 RB / 49 RB Offset
	20025 ~ 20325	20025, 20175, 20325	15 MHz		1 RB / 0 RB Offset
	20050 ~ 20300	20050, 20175, 20300	20 MHz		1 RB / 0 RB Offset
Radiated Emission	20050 ~ 20300	20050	10 MHz	QPSK	1 RB / 0 RB Offset
	20050 ~ 20300	20175	10 MHz		1 RB / 49 RB Offset
	19965 ~ 20386	20385	10 MHz		1 RB / 49 RB Offset
Equivalent Isotropically Radiated Power (EIRP)	19957 ~ 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM	As per table 1.6.4
	19965 ~ 20386	19965, 20175, 20385	3 MHz		
	19975 ~ 20375	19975, 20175, 20375	5 MHz		
	20000 ~ 20350	20000, 20175, 20350	10 MHz		
	20025 ~ 20325	20025, 20175, 20325	15 MHz		
	20050 ~ 20300	20050, 20175, 20300	20 MHz		

NOTE:

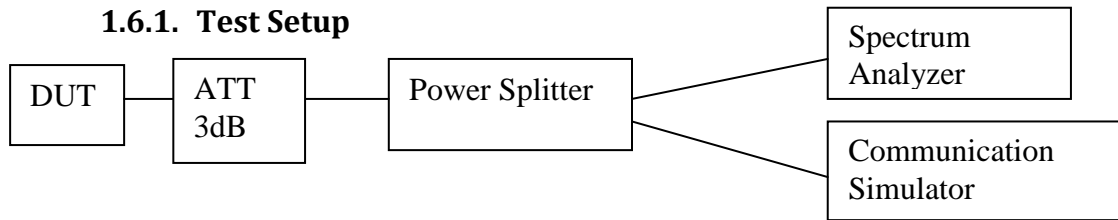
1. The Conducted RF Output Power for QPSK and 16QAM, measured value of QPSK mode is higher than 16QAM mode. Therefore, only Conducted Spurious Emission and Radiated Emission had been tested under QPSK modes.
2. Band Edge was performed with 1 and full Resource Block at the lowest and highest operating frequency band.
3. The Equivalent Isotropically Radiated Power (EIRP) was calculated from Conducted RF Output Power results in QPSK and 16QAM modulation.
4. Peak to Average and Occupied Bandwidth were performed with full Resource Block which is the worst case.
5. Frequency stability was performed with full Resource Block in QPSK modulation.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
Conducted RF Output Power	25°C, 50% RH	7.5V DC	Khay Kwang
Peak-to-Average Power Ratio	25°C, 50% RH	7.5V DC	Khay Kwang
Occupied Bandwidth	25°C, 50% RH	7.5V DC	Khay Kwang
Frequency Stability	-30°C ~ 60°C	7.5V DC	Khay Kwang
Band Edge Conducted Spurious Emission	25°C, 50% RH	7.5V DC	Khay Kwang
Conducted Spurious Emission	25°C, 50% RH	7.5V DC	Khay Kwang
Radiated Spurious Emission	25°C, 63.7% RH	7.5V DC	Qawiman&Nazrin
Equivalent Isotropically Radiated Power (EIRP)	25°C, 50% RH	7.5V DC	Khay Kwang

1.6. Conducted RF Output Power

1.6.1. Test Setup



1. The DUT transmitter output port was connected to communication simulator with above setup.
2. Path loss for the measurement included.
3. Set DUT to transmit maximum power through communication simulator
4. All the measurement was done at low, mid, high channel for each band and different modulation.
5. Record the average power into the test report.

1.6.2. Limits

FCC: Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.
 ISED: The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt.

1.6.3. Conducted RF Output Power – LTE Band 4(1710-1755MHz)

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			19957	20175	20393	19957	20175	20393
			1710.7 MHz	1732.5 MHz	1754.3 MHz	1710.7 MHz	1732.5 MHz	1754.3 MHz
Band 4 / 1.4 MHz	1	0	22.935	22.962	22.905	21.896	22.053	22.092
	1	3	22.988	23.004	22.922	21.937	22.054	22.129
	1	5	22.902	22.952	22.91	21.914	22.064	22.092
	3	0	22.784	22.969	22.992	21.969	22.106	21.941
	3	2	22.884	23.004	23.013	22.068	22.125	21.973
	3	3	22.848	22.972	22.964	22.038	22.107	21.949
	6	0	21.797	21.922	21.971	20.891	20.99	20.98

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			19965	20175	20385	19965	20175	20385
			1711.5 MHz	1732.5 MHz	1753.5 MHz	1711.5 MHz	1732.5 MHz	1753.5 MHz
Band 4 / 3MHz	1	0	23.059	23.043	23.024	22.061	21.991	22.425
	1	7	22.968	22.88	23.054	22.062	21.848	22.521
	1	14	22.94	22.907	22.991	21.968	21.86	22.34
	8	0	21.96	21.903	22.093	20.912	20.881	21.182
	8	4	21.947	21.893	22.087	20.872	20.893	21.177
	8	7	21.972	21.874	22.066	20.911	20.834	21.143
	15	0	21.895	21.859	22.07	20.857	20.867	21.107

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			19975	20175	20375	19975	20175	20375
			1712.5MHz	1732.5MHz	1752.5MHz	1712.5MHz	1732.5MHz	1752.5MHz
Band 4 / 5MHz	1	0	23.135	23.121	23.054	22.122	22.269	22.2
	1	13	23.012	22.99	22.962	21.992	22.102	22.105
	1	25	22.893	22.926	22.929	21.903	22	22.085
	12	0	22.04	22.051	21.908	20.999	20.945	20.887
	12	6	22.016	21.991	21.88	20.983	20.887	20.858
	12	13	22.008	21.955	21.864	21.019	20.856	20.827
	25	0	22.04	22.004	21.916	20.971	20.979	20.889

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			20000	20175	20350	20000	20175	20350
			1715MHz	1732.5MHz	1750MHz	1715MHz	1732.5MHz	1750MHz
Band 4 / 10MHz	1	0	23.32	23.406	23.211	22.385	22.265	22.552
	1	25	22.953	23.03	22.917	22.082	21.952	22.258
	1	49	23.299	23.479	23.386	22.493	22.468	22.73
	25	0	21.919	22.014	21.999	21.045	21.086	21.017
	25	13	21.982	21.966	21.996	21.077	21.041	20.97
	25	25	22.129	22.04	22.082	21.154	21.084	21.081
	50	0	22.084	22.062	22.037	21.049	21.018	20.995

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			20025	20175	20325	20025	20175	20325
			1717.5MHz	1732.5MHz	1747.5MHz	1717.5MHz	1732.5MHz	1747.5MHz
Band 4 / 15MHz	1	0	23.104	23.111	22.763	22.283	22.059	21.827
	1	38	22.893	22.873	22.695	22.151	21.826	21.673
	1	74	22.796	22.805	22.635	22.048	21.826	21.584
	36	0	21.921	21.885	21.723	20.922	20.898	20.722
	36	19	21.91	21.83	21.715	20.912	20.858	20.706
	36	39	21.797	21.83	21.652	20.801	20.861	20.633
	75	0	21.897	21.809	21.687	20.908	20.789	20.681

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			20050	20175	20300	20050	20175	20300
			1720MHz	1732.5MHz	1745MHz	1720MHz	1732.5MHz	1745MHz
Band 4 / 20MHz	1	0	22.874	22.781	22.577	21.855	22.379	22.079
	1	49	22.854	22.753	22.603	21.788	22.313	22.021
	1	99	22.718	22.674	22.573	21.671	22.133	21.994
	50	0	21.958	21.843	21.732	20.927	20.781	20.725
	50	25	21.864	21.769	21.704	20.831	20.749	20.686
	50	50	21.733	21.772	21.611	20.696	20.757	20.603
	100	0	21.801	21.77	21.674	20.821	20.772	20.7

1.6.4. Equivalent Isotropically Radiated Power (EIRP) - LTE Band 4 (1710-1755MHz)

EIRP (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			19957	20175	20393	19957	20175	20393
			1710.7 MHz	1732.5 MHz	1754.3 MHz	1710.7 MHz	1732.5 MHz	1754.3 MHz
Band 4 / 1.4 MHz	1	0	24.835	24.862	24.805	23.796	23.953	23.992
	1	3	24.888	24.904	24.822	23.837	23.954	24.029
	1	5	24.802	24.852	24.81	23.814	23.964	23.992
	3	0	24.684	24.869	24.892	23.869	24.006	23.841
	3	2	24.784	24.904	24.913	23.968	24.025	23.873
	3	3	24.748	24.872	24.864	23.938	24.007	23.849
	6	0	23.697	23.822	23.871	22.791	22.89	22.88

EIRP (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			19965	20175	20385	19965	20175	20385
			1711.5 MHz	1732.5 MHz	1753.5 MHz	1711.5 MHz	1732.5 MHz	1753.5 MHz
Band 4 / 3MHz	1	0	24.959	24.943	24.924	23.961	23.891	24.325
	1	7	24.868	24.78	24.954	23.962	23.748	24.421
	1	14	24.84	24.807	24.891	23.868	23.76	24.24
	8	0	23.86	23.803	23.993	22.812	22.781	23.082
	8	4	23.847	23.793	23.987	22.772	22.793	23.077
	8	7	23.872	23.774	23.966	22.811	22.734	23.043
	15	0	23.795	23.759	23.97	22.757	22.767	23.007

EIRP (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			19975	20175	20375	19975	20175	20375
			1712.5MHz	1732.5MHz	1752.5MHz	1712.5MHz	1732.5MHz	1752.5MHz
Band 4 / 5MHz	1	0	25.035	25.021	24.954	24.022	24.169	24.1
	1	13	24.912	24.89	24.862	23.892	24.002	24.005
	1	25	24.793	24.826	24.829	23.803	23.9	23.985
	12	0	23.94	23.951	23.808	22.899	22.845	22.787
	12	6	23.916	23.891	23.78	22.883	22.787	22.758
	12	13	23.908	23.855	23.764	22.919	22.756	22.727
	25	0	23.94	23.904	23.816	22.871	22.879	22.789

EIRP (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			20000	20175	20350	20000	20175	20350
			1715MHz	1732.5MHz	1750MHz	1715MHz	1732.5MHz	1750MHz
Band 4 / 10MHz	1	0	25.22	25.306	25.111	24.285	24.165	24.452
	1	25	24.853	24.93	24.817	23.982	23.852	24.158
	1	49	25.199	25.379	25.286	24.393	24.368	24.63
	25	0	23.819	23.914	23.899	22.945	22.986	22.917
	25	13	23.882	23.866	23.896	22.977	22.941	22.87
	25	25	24.029	23.94	23.982	23.054	22.984	22.981
	50	0	23.984	23.962	23.937	22.949	22.918	22.895

EIRP (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			20025	20175	20325	20025	20175	20325
			1717.5MHz	1732.5MHz	1747.5MHz	1717.5MHz	1732.5MHz	1747.5MHz
Band 4 / 15MHz	1	0	25.004	25.011	24.663	24.183	23.959	23.727
	1	38	24.793	24.773	24.595	24.051	23.726	23.573
	1	74	24.696	24.705	24.535	23.948	23.726	23.484
	36	0	23.821	23.785	23.623	22.822	22.798	22.622
	36	19	23.81	23.73	23.615	22.812	22.758	22.606
	36	39	23.697	23.73	23.552	22.701	22.761	22.533
	75	0	23.797	23.709	23.587	22.808	22.689	22.581

EIRP (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			20050	20175	20300	20050	20175	20300
			1720MHz	1732.5MHz	1745MHz	1720MHz	1732.5MHz	1745MHz
Band 4 / 20MHz	1	0	24.774	24.681	24.477	23.755	24.279	23.979
	1	49	24.754	24.653	24.503	23.688	24.213	23.921
	1	99	24.618	24.574	24.473	23.571	24.033	23.894
	50	0	23.858	23.743	23.632	22.827	22.681	22.625
	50	25	23.764	23.669	23.604	22.731	22.649	22.586
	50	50	23.633	23.672	23.511	22.596	22.657	22.503
	100	0	23.701	23.67	23.574	22.721	22.672	22.6

The maximum ERP/EIRP from the measured RF output power is given in Equation as follows:

$$\mathbf{EIRP = P_{Meas} + G_T}$$

$$\mathbf{ERP = EIRP - 2.15}$$

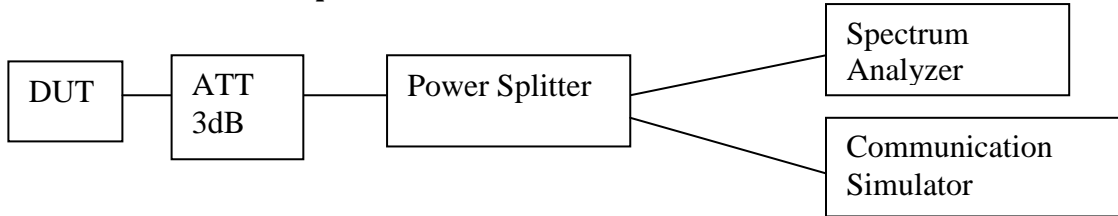
Where, ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively
(Expressed in the same units as P_{Meas}, e.g., dBm)

P_{Meas} measured transmitter output power, in dBm

G_T gain of the transmitting antenna, in dBi (EIRP)

1.1. Peak-to-Average Power Ratio

1.1.1. Test Setup



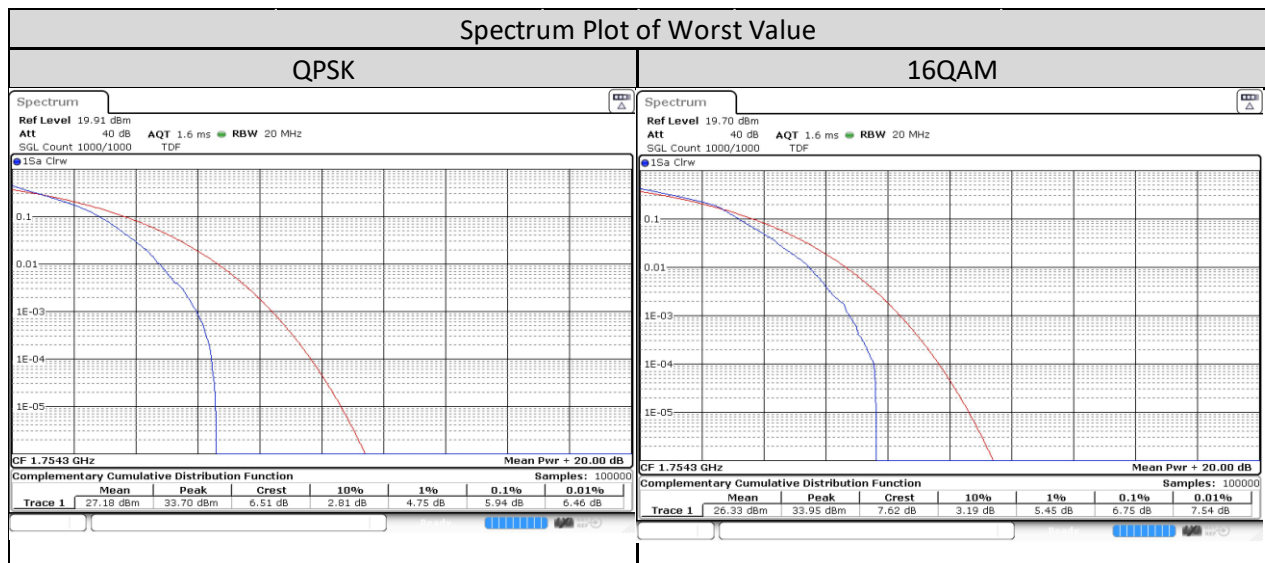
1. The DUT transmitter output port was connected to communication simulator with above setup.
2. Path loss for the measurement included.
3. Set DUT to transmit maximum power through communication simulator
4. Set the CCDF (Complementary Cumulative Distribution Function) option in the spectrum analyzer.
5. Spectrum Analyzer setting, RBW = 20MHz.
6. Recorded the maximum PAR level associated with a probability of 0.1% as Peak to Average Ratio.
7. All the measurement was done at low, mid, high channel for each band and different modulation.

1.1.2. Test Limit

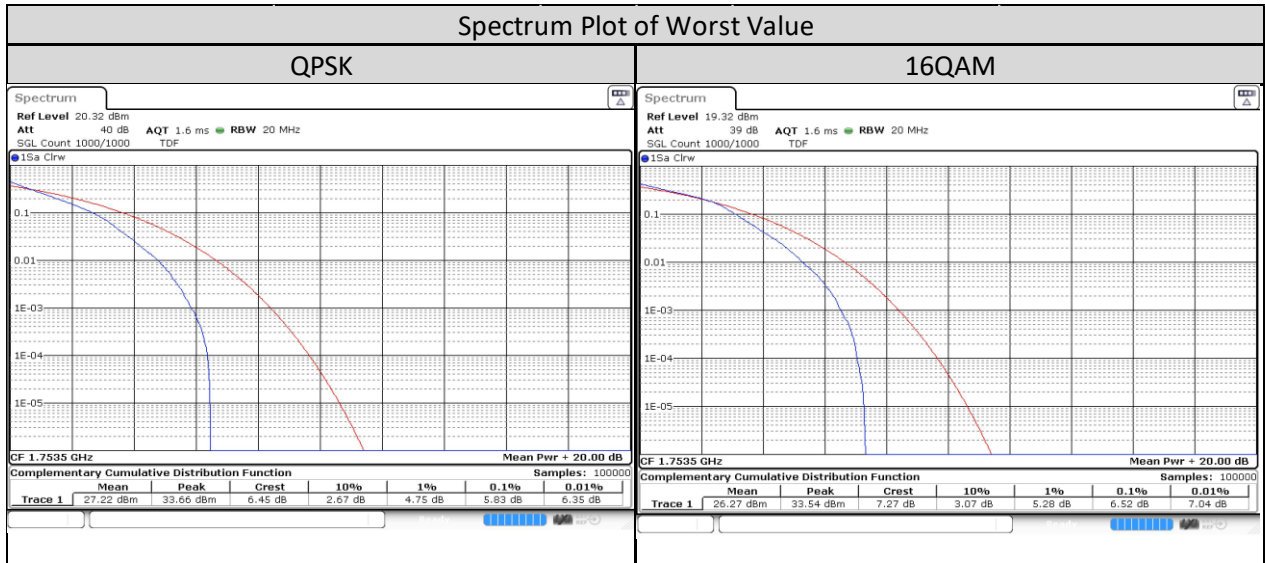
In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

1.1.3. Peak-to-Average Power Ratio - LTE Band 4 (1710-1755MHz)

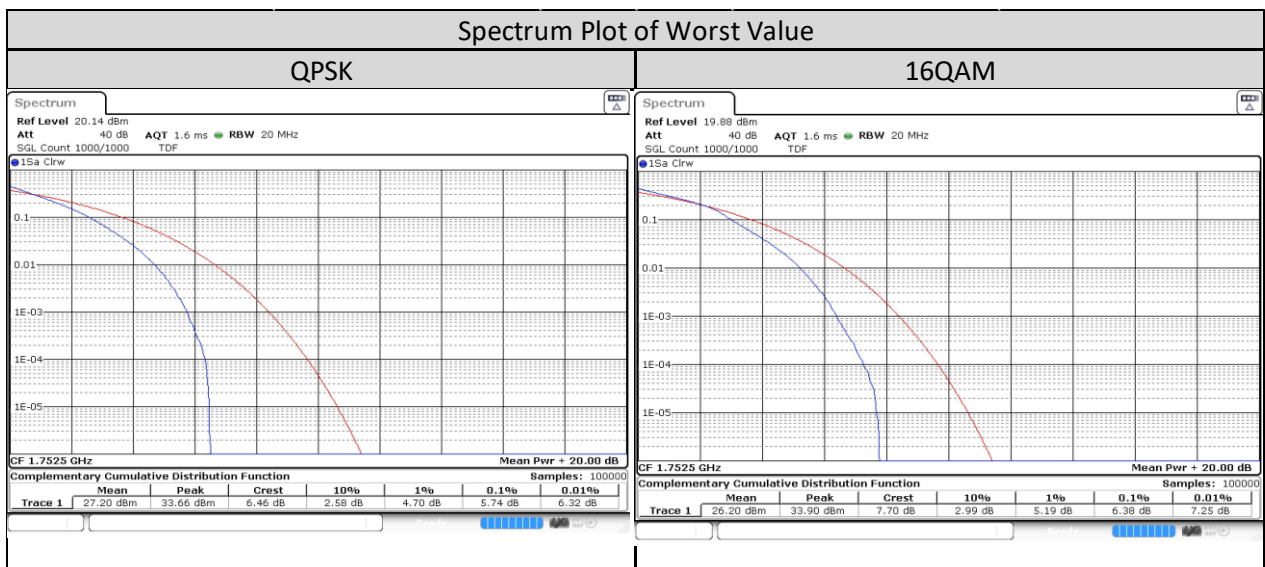
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 4/1.4MHz/6/0	Low CH 19957	1710.7 MHz	5.304	6.377
	Mid CH 20175	1732.5 MHz	5.507	6.058
	High CH 20393	1754.3 MHz	5.942	6.754



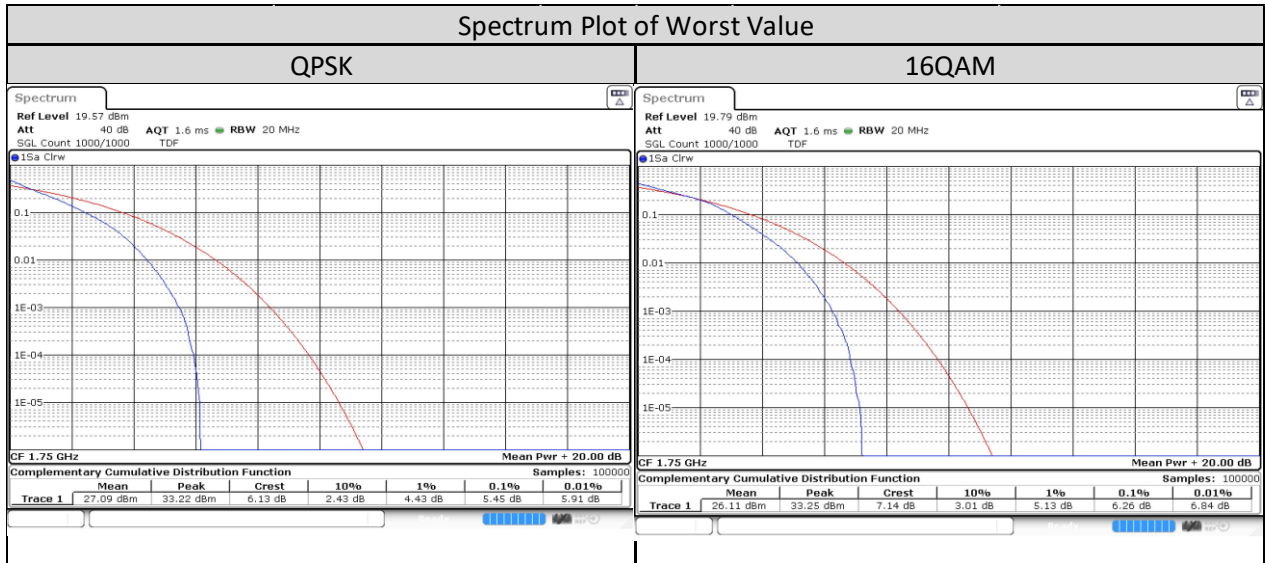
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 4/3MHz/15/0	Low CH 19965	1711.5 MHz	5.217	6.087
	Mid CH 20175	1732.5 MHz	5.536	6.29
	High CH 20385	1753.5 MHz	5.826	6.522



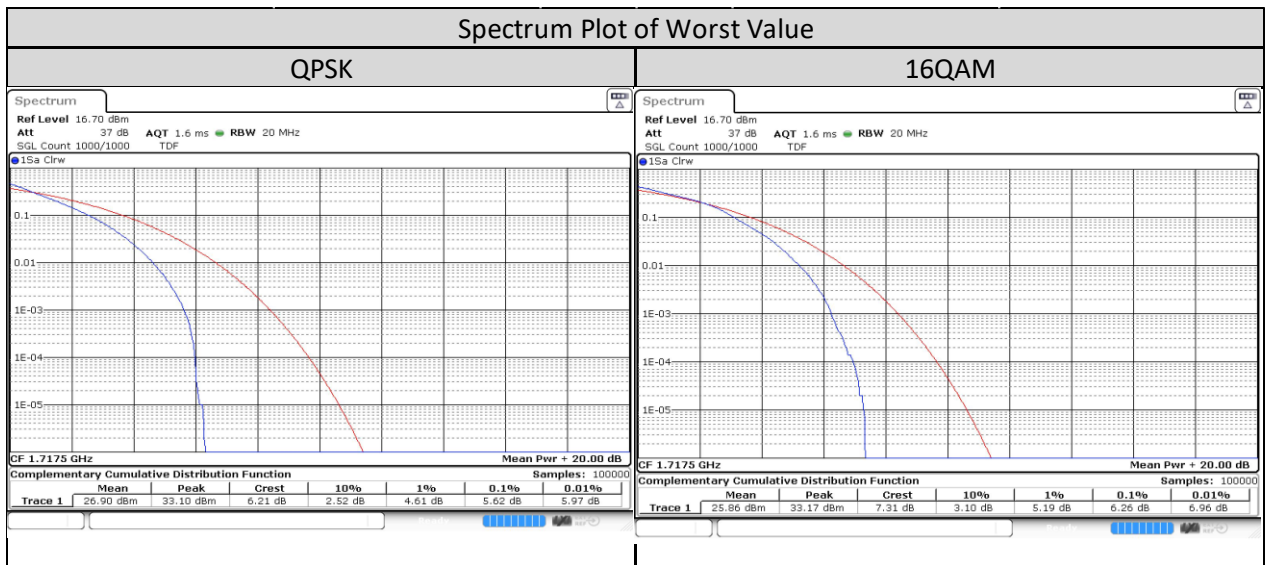
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 4/5MHz/25/0	Low CH 19975	1712.5 MHz	5.13	5.884
	Mid CH 20175	1732.5 MHz	5.333	6.203
	High CH 20375	1752.5 MHz	5.739	6.377



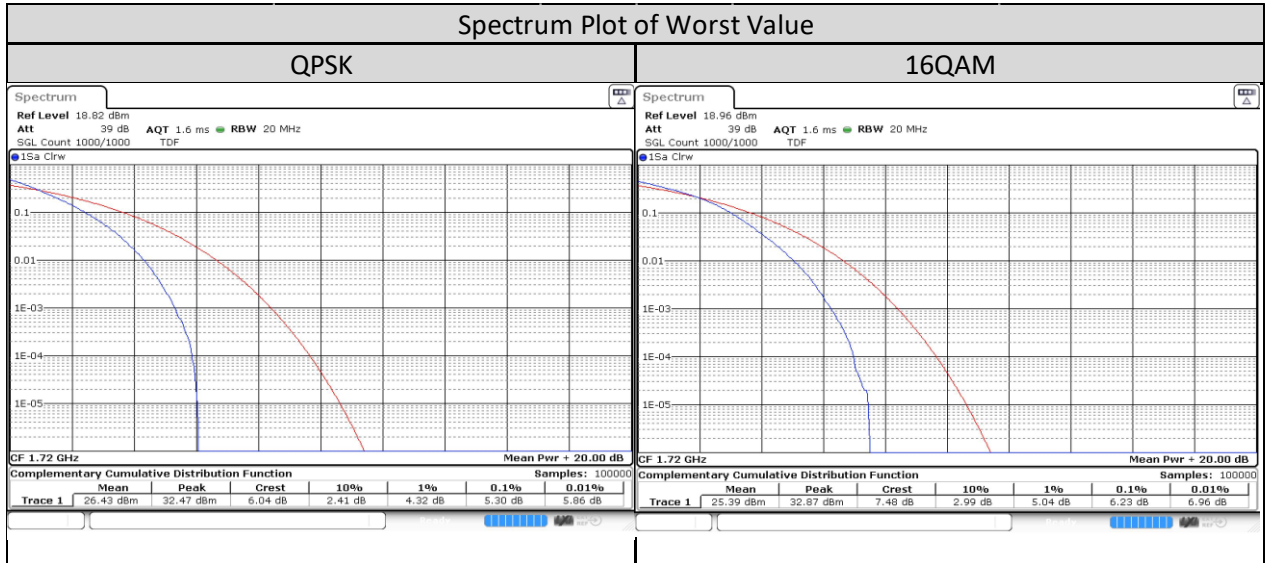
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 4/10MHz/50/0	Low CH 20000	1715 MHz	5.043	5.913
	Mid CH 20175	1732.5 MHz	5.275	6.145
	High CH 20350	1750 MHz	5.449	6.261



LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 4/15MHz/75/0	Low CH 20025	1717.5 MHz	5.623	6.261
	Mid CH 20175	1732.5 MHz	5.565	6.174
	High CH 20325	1747.5 MHz	5.536	6.203

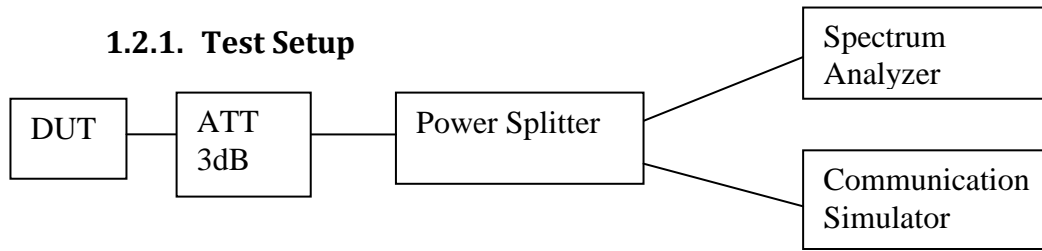


LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 4/ 20MHz/100/0	Low CH 20050	1720 MHz	5.304	6.232
	Mid CH 20175	1732.5 MHz	5.188	6.145
	High CH 20300	1745 MHz	5.188	6.174



1.2. Occupied Bandwidth

1.2.1. Test Setup



- 1) The DUT transmitter output port was connected to communication simulator with above setup.
- 2) Path loss for the measurement included.
- 3) For LTE measurement, set DUT to transmit maximum power & full RB size through communication simulator.
- 4) For LTE measurement, set DUT to transmit maximum power through communication simulator.
- 5) Spectrum Analyzer setting, RBW is 1% of OBW and VBW is 3 times of RBW.
- 6) Measure & record -26dBc and 99% occupied bandwidth (BW).
- 7) All the measurement was done at low, mid, high channel for each band and different modulation.

1.2.2. Test Limit

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

1.2.3. Occupied Bandwidth - LTE Band 4 (1710-1755MHz)

LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 4/1.4MHz/6/0	Low CH 19957	1710.7 MHz	1.217	1.189
	Mid CH 20175	1732.5 MHz	1.206	1.208
	High CH 20393	1754.3 MHz	1.186	1.194

