FCC Test Report (Part 96)

Report No.:	RFBEIH-WTW-P21050758
FCC ID:	P27-SCE4255W
Test Model:	SCE4255W
Received Date:	May 19, 2021
Test Date:	Aug. 20 to Nov. 8, 2021
Issued Date:	Jan. 5, 2022
Applicant:	Sercomm Corp.
Address:	8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
FCC Registration / Designation Number:	281270 / TW0032

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Release Control Record

Issue No.	Description	Date Issued
RFBEIH-WTW-P21050758	Original release.	Jan. 5, 2022

1 Certificate of Conformity

Product:	Englewood
Brand:	Sercomm
Test Model:	SCE4255W
Sample Status:	Engineering sample
Applicant:	Sercomm Corp.
Test Date:	Aug. 20 to Nov. 8, 2021
Standards:	47 CFR FCC Part 96

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Celia Chen , **Date:** Jan. 5, 2022

Celia Chen / Supervisor

Approved by : Jeremy Lin , **Date:** Jan. 5, 2022

Jeremy Lin / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 96			
FCC Clause	Test Item	Result	Remarks
2.1046 96.41(b)	Maximum Average Output Power and Maximum EIRP	Pass	Meet the requirement of limit.
2.1046 96.41(b)	Maximum Power Spectral Density	Pass	Meet the requirement of limit.
2.1047 96.41(a)	Modulation Characteristics	N/A	Refer to Note 2
96.41(g)	Peak to Average Ratio	N/A	Refer to Note 2
2.1049	Emission Bandwidth	N/A	Refer to Note 2
2.1055	Frequency Stability	N/A	Refer to Note 2
2.1051 96.41(e)	Conducted Spurious Emissions	N/A	Refer to Note 2
2.1053 96.41(e)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -2.3dB at 7250.00MHz.
2.1046 96.41(c)(1)	Transmit Power Control (TPC)	N/A	Refer to Note 2

Note:
1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. Refer to Original report (BV CPS report No.: RF191202D01).

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~1000MHz	2.92 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Englewood	
Brand	Sercomm	
Test Model	SCE4255W	
Status of EUT	Engineering sample	
Power Supply Rating	12Vdc from adapter or 55Vdc from PoE	
Modulation Type	QPSK, 16QAM, 64QAM	
Operating Frequency	Channel Bandwidth 10MHz	TX: 3555 ~ 3695 MHz
		RX: 3555 ~ 3695 MHz
	Channel Bandwidth 20MHz	TX: 3560 ~ 3690 MHz
		RX: 3560 ~ 3690 MHz
	2-Carriers (10MHz)	TX: 3555 ~ 3695 MHz
		RX: 3555 ~ 3695 MHz
	2-Carriers (20MHz)	TX: 3560 ~ 3690 MHz
		RX: 3560 ~ 3690 MHz
Channel Bandwidth	10MHz & 20MHz	
Max. EIRP Power	**Per 10MHz**	
	Channel Bandwidth 10MHz	449.780 mW (26.53 dBm/10MHz)
	Channel Bandwidth 20MHz	213.796 mW (23.30 dBm/10MHz)
	CA (10MHz+10MHz)	416.869 mW (26.20 dBm/10MHz)
	CA (20MHz+20MHz)	190.985 mW (22.81 dBm/10MHz)
	Full Power	
	Channel Bandwidth 10MHz	449.780 mW (26.53 dBm/channel bandwidth)
	Channel Bandwidth 20MHz	446.684 mW (26.50 dBm/channel bandwidth)
	CA (10MHz+10MHz)	416.869 mW (26.20 dBm/channel bandwidth)
	CA (20MHz+20MHz)	361.410 mW (25.58 dBm/channel bandwidth)
Emission Designator	Channel Bandwidth 10MHz	QPSK: 8M94G7D
		16QAM: 8M94D7W
		64QAM: 8M96D7W
	Channel Bandwidth 20MHz	QPSK: 17M8G7D
		16QAM: 17M8D7W
		64QAM: 17M9D7W
	CA (10MHz+10MHz)	QPSK: 18M8G7D
		16QAM: 18M8D7W
		64QAM: 18M9D7W
	CA (20MHz+20MHz)	QPSK: 37M7G7D
		16QAM: 37M8D7W
		64QAM: 37M6D7W

Antenna Type	Refer to note as below
Antenna Connector	Refer to note as below
Accessory Device	Adapter, GPS Antenna
Data Cable Supplied	Shielded LAN cable (1.5m)

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of BV CPS report no.: RF191202D01. Difference compared with the original report is adding external antenna. Maximum Output Power, Power Spectral Density & Radiated Emission were performed for this addendum and the other data are described as original one.
2. The EUT provides 4 completed transmitters and 4 receivers. The antennas provided to the EUT, please refer to the following table: (additional as shaded area)

TX Antenna		Antenna Type	Antenna Connector	Antenna Gain (dBi)	Frequency Range
Internal	Ant 1	PIFA	I-PEX	5.30	3.5~3.7GHz
	Ant 2			5.26	
	Ant 3			5.48	
	Ant 4			5.68	
External	**Ant 1**	**Dipole**	**N-Type**	**5.0**	3.5~3.7GHz
	Ant 2			**5.0**	
	Ant 3			**5.0**	
	Ant 4			**5.0**	

Remark: After the evaluation of the external antennas to be connected either directly or through extension cables, the external antennas extended through cable was the worst case for final test and therefore only its test data was recorded in this report.

3. The EUT support single carrier and carrier aggregation (CA) in intra-band contiguous spectrum operation, the CA mode is operation in 10MHz+10MHz or 20MHz+20MHz channel bandwidth and MIMO technology.
4. The EUT uses following adapter.

Brand	APD
Model	WA-30P12FU
Input Power	100-240Vac, 50-60Hz, 0.9A
Output Power	12Vdc, 2.5A
Power Line	AC 2 Pin Non-shielded DC (2.0m)

5. According to the original worst case, the EUT was tested under **powered from Adapter** for final test.
6. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
7. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

Channel Bandwidth (MHz)	Channel
10	Low
	Middle
	High
20	Low
	Middle
	High
CA (10MHz+10MHz)	Low
	Middle
	High
CA (20MHz+20MHz)	Low
	Middle
	High

3.2.1 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.
The worst case was found when positioned on Z-plane. Following channel(s) was (were) selected for the final test as listed below:

SC MODE

Test Item	Available Frequency (MHz)	Tested Frequency (MHz)	Channel Bandwidth	Modulation
EIRP	3555 to 3695	3555, 3625, 3695	10MHz	QPSK, 16QAM, 64QAM
	3560 to 3690	3560, 3625, 3690	20MHz	QPSK, 16QAM, 64QAM
Power Spectral Density	3555 to 3695	3555, 3625, 3695	10MHz	QPSK, 16QAM, 64QAM
	3560 to 3690	3560, 3625, 3690	20MHz	QPSK, 16QAM, 64QAM
Radiated Emission Above 1GHz	3555 to 3695	3555, 3625, 3695	10MHz	QPSK
	3560 to 3690	3560, 3625, 3690	20MHz	QPSK
Radiated Emission Below 1GHz	3555 to 3695	3555	10MHz	QPSK
	3560 to 3690	3560	20MHz	QPSK

CA MODE

Test Item	Available Frequency (MHz)	Tested Frequency (MHz)	Channel Bandwidth	Modulaiton
EIRP	3555 to 3695	3555 + 3565, 3620 + 3630, 3685 + 3695	10MHz+10MHz	QPSK, 16QAM, 64QAM
	3560 to 3690	3560 + 3580, 3615 + 3635, 3670 + 3690	20MHz+20MHz	QPSK, 16QAM, 64QAM
Power Spectral Density	3555 to 3695	3555 + 3565, 3620 + 3630, 3685 + 3695	10MHz+10MHz	QPSK, 16QAM, 64QAM
	3560 to 3690	3560 + 3580, 3615 + 3635, 3670 + 3690	20MHz+20MHz	QPSK, 16QAM, 64QAM
Radiated Emission	3555 to 3695	3555 + 3565	10MHz+10MHz	QPSK
	3560 to 3690	3560 + 3580	20MHz+20MHz	QPSK

NOTE:

1. This device was tested under all RB configs/offsets. The worst case was found in full RB config/offset for all final tests.
2. All supported modulation types were evaluated. The Worst case of QPSK was selected. Therefore, the Radiated Emission was presented under QPSK mode only.
3. For radiated emission below 1GHz, low, mid and high channels were pre-tested in chamber. Low channel was found to be the worst case and therefore had been chosen for all final tests.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	20deg. C, 66%RH	120Vac, 60Hz	James Yang
Power Spectral Density	20deg. C, 66%RH	120Vac, 60Hz	James Yang
Radiated Emission	23deg. C, 69%RH	120Vac, 60Hz	Wade Huang

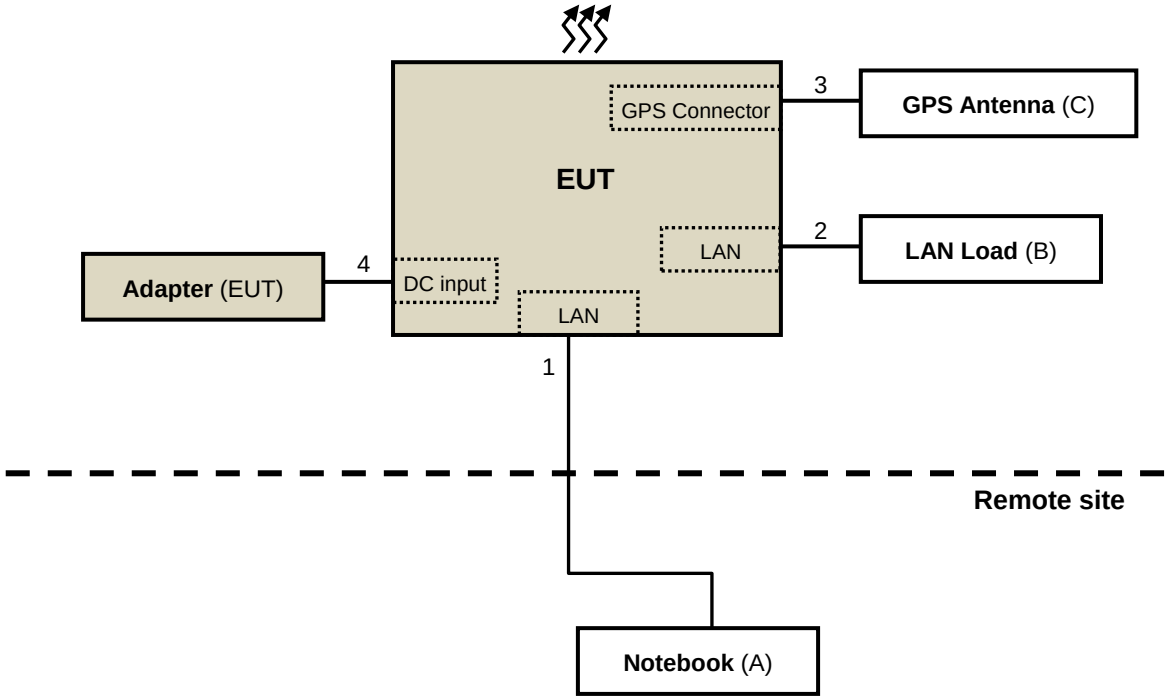
3.3 Description of Support Units

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.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5420	76WNBT1	NA	Provided by Lab
B.	LAN Load	NA	NA	NA	NA	Provided by Lab
C.	GPS Antenna	NA	NA	NA	NA	Supplied by applicant

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN cable	1	7.0	No	0	Provided by Lab
2.	LAN cable	1	1.5	Yes	0	Supplied by applicant
3.	GPS Antenna cable	1	5.0	No	0	Supplied by applicant
4.	DC power cord	1	2.0	No	0	Supplied by applicant

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards and References

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

Test Standards:
FCC 47 CFR Part 2
FCC 47 CFR Part 96
ANSI/TIA/EIA-603-D-2010
All test items have been performed and recorded as per the above standards.

References Test Guidance:
KDB 971168 D01 Power Meas License Digital Systems v03r01
KDB 940660 D01 Part 96 CBRS Eqpt v02
All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

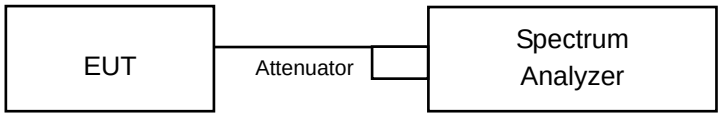
4.1 Maximum EIRP Measurement

4.1.1 Limits of Maximum EIRP Measurement

Device		Maximum EIRP (dBm/10 MHz)
☐	End User Device	23
☒	Category A CBSD	30
☐	Category B CBSD	47

4.1.2 Test Setup

Conducted Measurement Method



4.1.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Rohde & Schwarz	ESR3	102579	Jul. 05, 2021	Jul. 04, 2022
Spectrum Analyzer KEYSIGHT	N9020B	MY60110462	Dec. 18, 2020	Dec. 17, 2021
BILOG Antenna SCHWARZBECK	VULB9168	995	Nov. 28, 2020	Nov. 27, 2021
			Nov. 28, 2021	Nov. 27, 2022
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-404	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	995	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier EMCI	EMC330N	980783	Jan. 12, 2021	Jan. 11, 2022
Preamplifier EMCI	EMC118A45SE	980810	Jan. 12, 2021	Jan. 11, 2022
Preamplifier EMCI	EMC184045SE	980787	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMC104-SM-SM-(9000+2000+1000)	201230+ 201242+ 210101	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMCCFD400-NM-NM-(9000+300+500)	201252+ 201250+ 201245	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMC101G-KM-KM-(5000+3000+2000)	201261+201258+ 201249	Jan. 12, 2021	Jan. 11, 2022
Software BV CPS	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Turn Table Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208675	NA	NA
Antenna Tower KaiTuo	NA	NA	NA	NA
Antenna Tower Controller KaiTuo	KT-2000	NA	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	Jul. 12, 2021	Jul. 11, 2022

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in WM Chamber 7.

4.1.4 Test Procedures

Conducted Measurement Method

1. Connect the DUT transmitter output to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.
2. Set span to at least 1.5 times the OBW.
3. Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
4. Set VBW ≥ 3 × RBW.
5. Set number of points in sweep ≥ 2 × span / RBW.
6. Sweep time = auto-couple.
7. Detector = RMS (power averaging).
8. If the EUT can be configured to transmit continuously (i.e., burst duty cycle ≥ 98%), then set the trigger to free run.
9. If the EUT cannot be configured to transmit continuously (i.e., burst duty cycle < 98 %), then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Ensure that the sweep time is less than or equal to the transmission burst duration.
10. Trace average at least 100 traces in power averaging (i.e., RMS) mode.
11. Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.
12. For per 10MHz method, channel power integrating bandwidth 10MHz is used for bandwidth 5M, 10M, 15M and 20M.
13. For all power method, channel power integrating bandwidth 5MHz is used for bandwidth 5M, integrating bandwidth 10MHz is used for bandwidth 10M, integrating bandwidth 15MHz is used for bandwidth 15M, integrating bandwidth 20MHz is used for bandwidth 20M.

Maximum EIRP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

ERP or EIRP = $P_{Meas} + G_T$
where

ERP or EIRP	effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, e.g., dBm or dBW)
P_{Meas}	measured transmitter output power or PSD, in dBm or dBW
G_T	gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

4.1.5 Deviation from Test Standard

No deviation.

4.1.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.1.7 Test Results

SC MODE

Conducted Output Power & Per 10 MHz EIRP Power

Channel	Freq. (MHz)	Band / BW: 48 / 10M					
		QPSK					
		Conducted Output Power (dBm/10MHz)					EIRP (dBm/10MHz)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
Low	3555	9.40	8.35	9.80	10.21	15.51	**26.53**
Middle	3625	9.39	8.28	9.82	9.80	15.39	26.41
High	3695	9.05	8.07	9.58	9.66	15.16	26.18
Channel	Freq. (MHz)	16QAM					
		Conducted Output Power (dBm/10MHz)					EIRP (dBm/10MHz)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
Low	3555	9.34	8.29	9.73	10.13	15.45	26.47
Middle	3625	9.32	8.23	9.77	9.75	15.33	26.35
High	3695	9.12	8.13	9.62	9.70	15.21	26.23
Channel	Freq. (MHz)	64QAM					
		Conducted Output Power (dBm/10MHz)					EIRP (dBm/10MHz)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
Low	3555	9.18	8.13	9.56	9.94	15.27	26.29
Middle	3625	9.21	8.10	9.64	9.58	15.20	26.22
High	3695	9.20	8.26	9.71	9.74	15.29	26.31

Note:

1. Directional gain = 5dBi + 10log(4) = 11.02dBi
2. EIRP (dBm / 10MHz) = Total Conducted Output Power (dBm / 10MHz) + Directional Gain

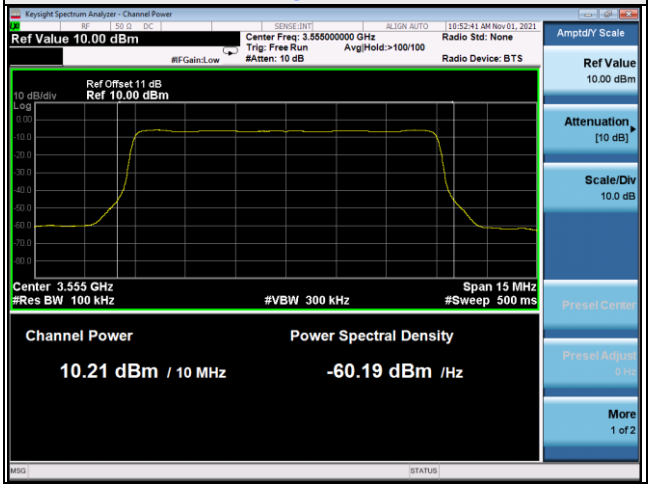
Channel	Freq. (MHz)	Band / BW: 48 / 20M					
		QPSK					
		Conducted Output Power (dBm/10MHz)					EIRP (dBm/10MHz)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
Low	3560	6.10	5.13	6.55	7.02	12.28	**23.30**
Middle	3625	6.02	4.97	6.42	6.64	12.08	23.10
High	3690	6.17	5.03	6.42	6.87	12.19	23.21
Channel	Freq. (MHz)	16QAM					
		Conducted Output Power (dBm/10MHz)					EIRP (dBm/10MHz)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
Low	3560	6.06	5.08	6.48	6.93	12.21	23.23
Middle	3625	5.97	4.89	6.38	6.59	12.03	23.05
High	3690	6.09	4.97	6.38	6.79	12.13	23.15
Channel	Freq. (MHz)	64QAM					
		Conducted Output Power (dBm/10MHz)					EIRP (dBm/10MHz)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
Low	3560	5.94	4.96	6.37	6.89	12.12	23.14
Middle	3625	5.88	4.79	6.23	6.49	11.91	22.93
High	3690	6.01	4.92	6.29	6.72	12.05	23.07

Note:

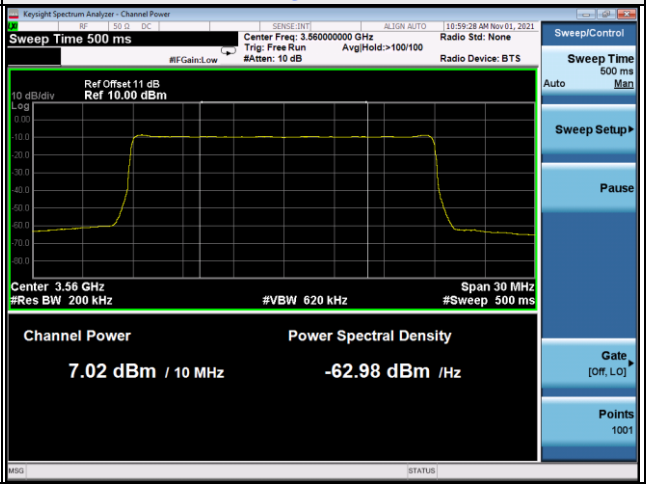
1. Directional gain = 5dBi + 10log(4) = 11.02dBi
2. EIRP (dBm / 10MHz) = Total Conducted Output Power (dBm / 10MHz) + Directional Gain

Spectrum Plot of Worst Value

10MHz / QPSK / Chain 3



20MHz / QPSK / Chain 3



SC MODE
For FULL EIRP Power

Channel	Freq. (MHz)	Band / BW: 48 / 10M					
		QPSK					
		Conducted Output Power (dBm/channel bandwidth)					EIRP (dBm/channel bandwidth)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
Low	3555	9.40	8.35	9.80	10.21	15.51	**26.53**
Middle	3625	9.39	8.28	9.82	9.80	15.39	26.41
High	3695	9.05	8.07	9.58	9.66	15.16	26.18
Channel	Freq. (MHz)	16QAM					
		Conducted Output Power (dBm/channel bandwidth)					EIRP (dBm/channel bandwidth)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
Low	3555	9.34	8.29	9.73	10.13	15.45	26.47
Middle	3625	9.32	8.23	9.77	9.75	15.33	26.35
High	3695	9.12	8.13	9.62	9.70	15.21	26.23
Channel	Freq. (MHz)	64QAM					
		Conducted Output Power (dBm/channel bandwidth)					EIRP (dBm/channel bandwidth)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
Low	3555	9.18	8.13	9.56	9.94	15.27	26.29
Middle	3625	9.21	8.10	9.64	9.58	15.20	26.22
High	3695	9.20	8.26	9.71	9.74	15.29	26.31

Note:

1. Directional gain = 5dBi + 10log(4) = 11.02dBi
2. EIRP (dBm/channel bandwidth) = Total Conducted Output Power (dBm/channel bandwidth) + Directional Gain

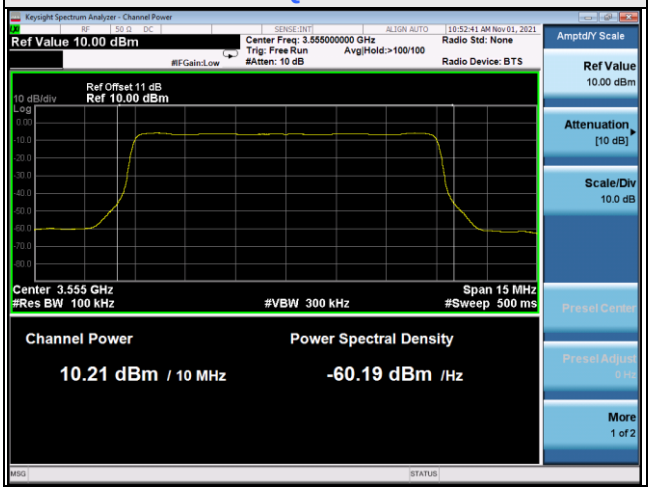
Channel	Freq. (MHz)	Band / BW: 48 / 20M					
		QPSK					
		Conducted Output Power (dBm/channel bandwidth)					EIRP (dBm/channel bandwidth)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
Low	3560	9.42	8.40	9.60	10.24	15.48	**26.50**
Middle	3625	9.45	8.15	9.39	9.66	15.22	26.24
High	3690	9.53	8.10	9.65	9.75	15.33	26.35
Channel	Freq. (MHz)	16QAM					
		Conducted Output Power (dBm/channel bandwidth)					EIRP (dBm/channel bandwidth)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
Low	3560	9.36	8.33	9.54	10.17	15.42	26.44
Middle	3625	9.39	8.04	9.31	9.59	15.14	26.16
High	3690	9.48	8.06	9.60	9.67	15.27	26.29
Channel	Freq. (MHz)	64QAM					
		Conducted Output Power (dBm/channel bandwidth)					EIRP (dBm/channel bandwidth)
		Chain 0	Chain 1	Chain 2	Chain 3	Total	
Low	3560	9.29	8.25	9.47	10.09	15.34	26.36
Middle	3625	9.41	8.11	9.33	9.58	15.17	26.19
High	3690	9.44	8.02	9.58	9.65	15.24	26.26

Note:

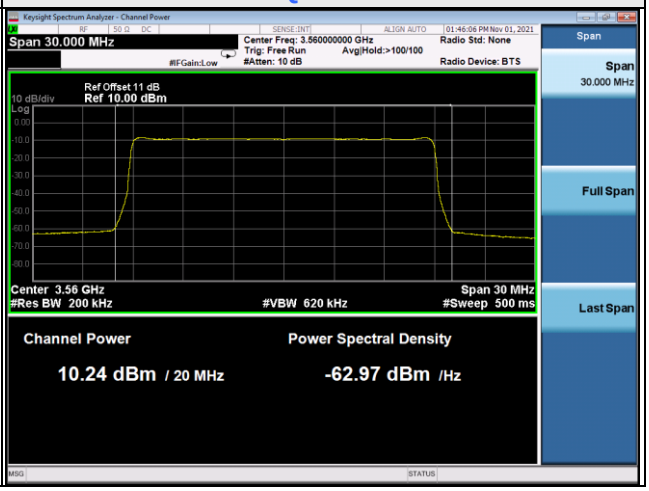
1. Directional gain = 5dBi + 10log(4) = 11.02dBi
2. EIRP (dBm/channel bandwidth) = Total Conducted Output Power (dBm/channel bandwidth) + Directional Gain

Spectrum Plot of Worst Value

10MHz / QPSK / Chain 3



20MHz / QPSK / Chain 3



CA MODE

Conducted Output Power & EIRP Power (dBm/10MHz)

Channel	Freq. (MHz)	Band / BW: 48 / 10MHz+10MHz							
		QPSK							
		Conducted Output Power (dBm/10MHz)							EIRP (dBm/10MHz)
		PCC			SCC			PCC + SCC Total	
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total		
Low	3555 + 3565	9.08	8.05	11.61	9.57	9.73	12.66	15.18	**26.20**
Middle	3620 + 3630	8.98	7.50	11.31	9.39	9.80	12.61	15.02	26.04
High	3685 + 3695	8.67	7.34	11.07	8.46	8.69	11.59	14.34	25.36
Channel	Freq. (MHz)	16QAM							
		Conducted Output Power (dBm/10MHz)							EIRP (dBm/10MHz)
		PCC			SCC			PCC + SCC Total	
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total		
Low	3555 + 3565	8.97	7.94	11.50	9.43	9.60	12.53	15.05	26.07
Middle	3620 + 3630	8.80	7.38	11.16	9.23	9.68	12.47	14.87	25.89
High	3685 + 3695	8.61	7.29	11.01	8.38	8.59	11.50	14.27	25.29
Channel	Freq. (MHz)	64QAM							
		Conducted Output Power (dBm/10MHz)							EIRP (dBm/10MHz)
		PCC			SCC			PCC + SCC Total	
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total		
Low	3555 + 3565	8.91	7.93	11.46	9.41	9.57	12.50	15.02	26.04
Middle	3620 + 3630	8.75	7.28	11.09	9.16	9.54	12.36	14.78	25.80
High	3685 + 3695	8.42	7.11	10.82	8.22	8.44	11.34	14.10	25.12

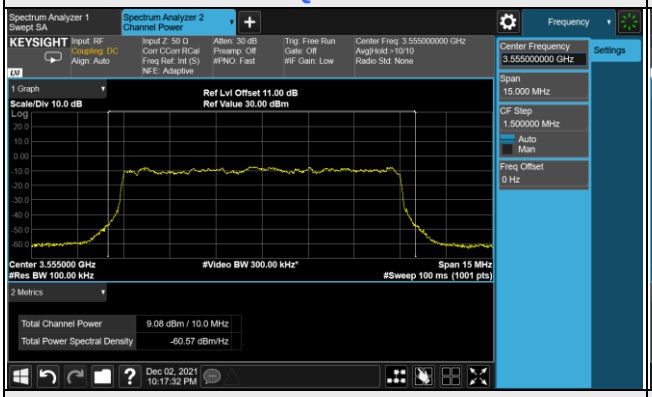
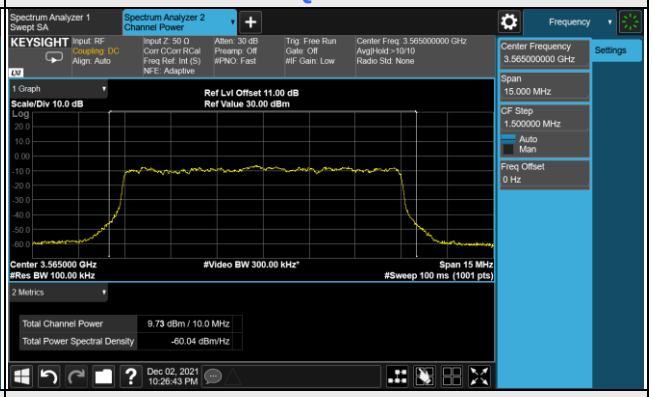
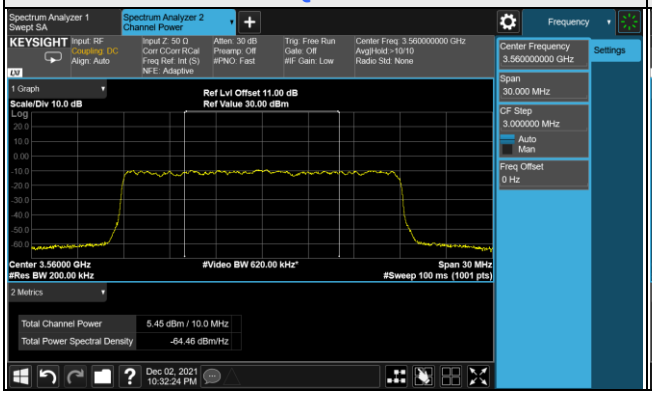
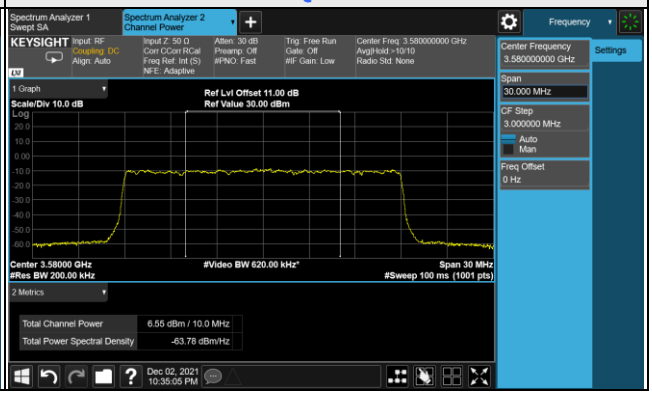
Note:

1. Directional gain = 5dBi + 10log(4) = 11.02dBi
2. EIRP (dBm / 10MHz) = Total Conducted Output Power (dBm / 10MHz) + Directional Gain

Channel	Freq. (MHz)	Band / BW: 48 / 20MHz+20MHz							
		QPSK							
		Conducted Output Power (dBm/10MHz)							EIRP (dBm/10MHz)
		PCC			SCC			PCC + SCC Total	
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total		
Low	3560 + 3580	5.45	4.57	8.04	6.23	6.55	9.40	11.79	**22.81**
Middle	3615 + 3635	5.87	4.69	8.33	5.78	6.29	9.05	11.72	22.74
High	3670 + 3690	6.30	5.00	8.71	5.20	5.60	8.41	11.57	22.59
Channel	Freq. (MHz)	16QAM							
		Conducted Output Power (dBm/10MHz)							EIRP (dBm/10MHz)
		PCC			SCC			PCC + SCC Total	
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total		
Low	3560 + 3580	5.39	4.51	7.98	6.19	6.50	9.36	11.73	22.75
Middle	3615 + 3635	5.72	4.53	8.18	5.61	6.12	8.88	11.55	22.57
High	3670 + 3690	6.13	4.84	8.54	5.05	5.44	8.26	11.41	22.43
Channel	Freq. (MHz)	64QAM							
		Conducted Output Power (dBm/10MHz)							EIRP (dBm/10MHz)
		PCC			SCC			PCC + SCC Total	
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total		
Low	3560 + 3580	5.29	4.42	7.89	6.08	6.41	9.26	11.64	22.66
Middle	3615 + 3635	5.66	4.49	8.12	5.58	6.08	8.85	11.51	22.53
High	3670 + 3690	6.06	4.81	8.49	4.99	5.37	8.19	11.36	22.38

Note:

1. Directional gain = 5dBi + 10log(4) = 11.02dBi
2. EIRP (dBm / 10MHz) = Total Conducted Output Power (dBm / 10MHz) + Directional Gain

Spectrum Plot of Worst Value	
10MHz+10MHz / QPSK / PCC / Chain 0	**10MHz+10MHz / QPSK / SCC / Chain 3**
	
20MHz+20MHz / QPSK / PCC / Chain 0	**20MHz+20MHz / QPSK / SCC / Chain 3**
	

CA MODE
For FULL EIRP Power

Channel	Freq. (MHz)	Band / BW: 48 / 10MHz+10MHz							
		QPSK							
		Conducted Output Power (dBm/channel bandwidth)							EIRP (dBm/channel bandwidth)
		PCC			SCC			PCC + SCC Total	
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total		
Low	3555 + 3565	9.08	8.05	11.61	9.57	9.73	12.66	15.18	**26.20**
Middle	3620 + 3630	8.98	7.50	11.31	9.39	9.80	12.61	15.02	26.04
High	3685 + 3695	8.67	7.34	11.07	8.46	8.69	11.59	14.34	25.36
Channel	Freq. (MHz)	16QAM							
		Conducted Output Power (dBm/channel bandwidth)							EIRP (dBm/channel bandwidth)
		PCC			SCC			PCC + SCC Total	
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total		
Low	3555 + 3565	8.97	7.94	11.50	9.43	9.60	12.53	15.05	26.07
Middle	3620 + 3630	8.80	7.38	11.16	9.23	9.68	12.47	14.87	25.89
High	3685 + 3695	8.61	7.29	11.01	8.38	8.59	11.50	14.27	25.29
Channel	Freq. (MHz)	64QAM							
		Conducted Output Power (dBm/channel bandwidth)							EIRP (dBm/channel bandwidth)
		PCC			SCC			PCC + SCC Total	
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total		
Low	3555 + 3565	8.91	7.93	11.46	9.41	9.57	12.50	15.02	26.04
Middle	3620 + 3630	8.75	7.28	11.09	9.16	9.54	12.36	14.78	25.80
High	3685 + 3695	8.42	7.11	10.82	8.22	8.44	11.34	14.10	25.12

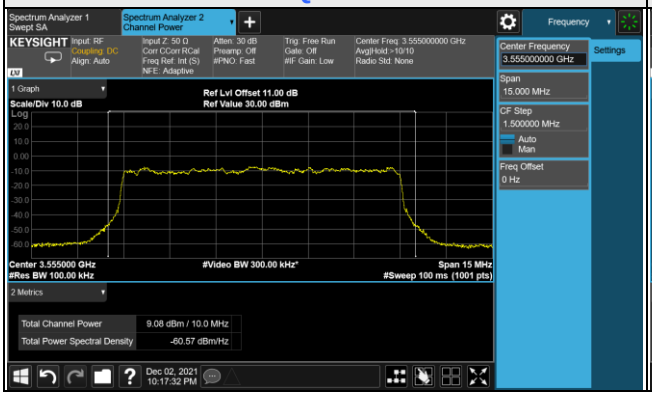
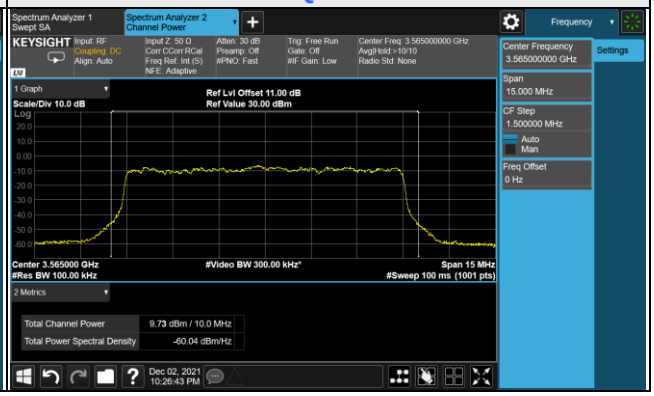
Note:

1. Directional gain = 5dBi + 10log(4) = 11.02dBi
2. EIRP (dBm/channel bandwidth) = Total Conducted Output Power (dBm/channel bandwidth) + Directional Gain

Channel	Freq. (MHz)	Band / BW: 48 / 20MHz+20MHz							
		QPSK							
		Conducted Output Power (dBm/channel bandwidth)							EIRP (dBm/channel bandwidth)
		PCC			SCC			PCC + SCC Total	
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total		
Low	3560 + 3580	8.77	7.61	11.24	8.66	9.00	11.84	14.56	**25.58**
Middle	3615 + 3635	8.49	7.35	10.97	8.43	8.79	11.62	14.32	25.34
High	3670 + 3690	9.09	7.85	11.52	7.92	8.30	11.12	14.34	25.36
Channel	Freq. (MHz)	16QAM							
		Conducted Output Power (dBm/channel bandwidth)							EIRP (dBm/channel bandwidth)
		PCC			SCC			PCC + SCC Total	
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total		
Low	3560 + 3580	8.60	7.46	11.08	8.49	8.84	11.68	14.40	25.42
Middle	3615 + 3635	8.37	7.26	10.86	8.32	8.69	11.52	14.21	25.23
High	3670 + 3690	8.98	7.74	11.41	7.78	8.17	10.99	14.22	25.24
Channel	Freq. (MHz)	64QAM							
		Conducted Output Power (dBm/channel bandwidth)							EIRP (dBm/channel bandwidth)
		PCC			SCC			PCC + SCC Total	
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total		
Low	3560 + 3580	8.52	7.39	11.00	8.41	8.77	11.60	14.32	25.34
Middle	3615 + 3635	8.30	7.21	10.80	8.22	8.59	11.42	14.13	25.15
High	3670 + 3690	8.86	7.66	11.31	7.75	8.13	10.95	14.15	25.17

Note:

1. Directional gain = 5dBi + 10log(4) = 11.02dBi
2. EIRP (dBm/channel bandwidth) = Total Conducted Output Power (dBm/channel bandwidth) + Directional Gain

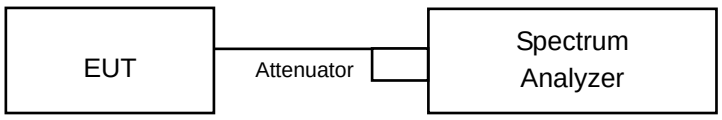
Spectrum Plot of Worst Value	
10MHz+10MHz / QPSK / PCC / Chain 0	**10MHz+10MHz / QPSK / SCC / Chain 3**
	

4.2 Maximum Power Spectral Density Measurement

4.2.1 Limits of Maximum Power Spectral Density Measurement

Device		Maximum PSD (dBm/MHz)
☐	End User Device	n/a
☒	Category A CBSD	20
☐	Category B CBSD	37

4.2.2 Test Setup



4.2.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.2.4 Test Procedure

1. Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.
2. Set instrument center frequency to OBW center frequency.
3. Set span to 2 × to 3 × the OBW.
4. Set the RBW to the specified reference bandwidth (often 1 MHz).
5. Set VBW ≥ 3 × RBW.
6. Detector = RMS (power averaging).
7. Ensure that the number of measurement points in the sweep ≥ 2 × span/RBW.
8. Sweep time = auto couple.
9. Employ trace averaging (RMS) mode over a minimum of 100 traces.
10. Use the peak marker function to determine the maximum amplitude level within the reference bandwidth (PSD).

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.2.7 Test Results

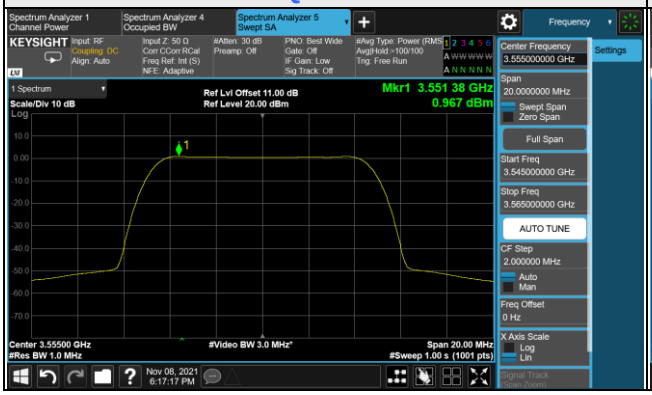
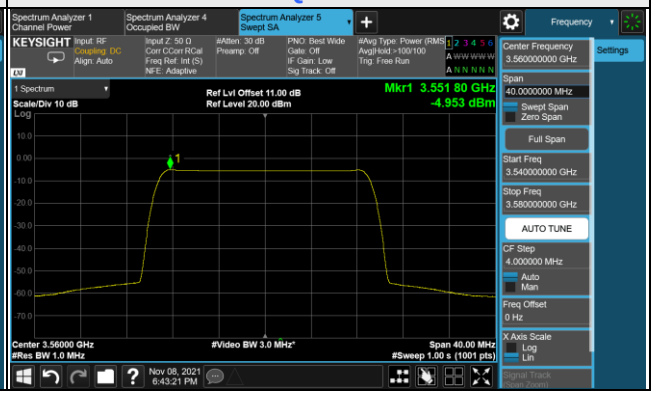
SC MODE

Channel	Freq. (MHz)	10MHz							
		QPSK							
		Conducted Power Density (dBm/MHz)					EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3	Total			
Low	3555	0.96	-1.14	0.50	0.95	6.42	17.44	20.0	Pass
Middle	3625	0.94	-1.20	0.47	0.73	6.33	17.35	20.0	Pass
High	3695	0.76	-1.38	0.41	0.58	6.19	17.21	20.0	Pass
Channel	Freq. (MHz)	16QAM							
		Conducted Power Density (dBm/MHz)					EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3	Total			
Low	3555	0.93	-1.25	0.39	0.86	6.34	17.36	20.00	Pass
Middle	3625	0.81	-1.29	0.38	0.67	6.24	17.26	20.00	Pass
High	3695	0.73	-1.37	0.31	0.66	6.18	17.20	20.00	Pass
Channel	Freq. (MHz)	64QAM							
		Conducted Power Density (dBm/MHz)					EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3	Total			
Low	3555	0.84	-1.32	0.36	0.75	6.26	17.28	20.00	Pass
Middle	3625	0.83	-1.33	0.24	0.42	6.13	17.15	20.00	Pass
High	3695	0.81	-1.39	0.19	0.59	6.15	17.17	20.00	Pass

Channel	Freq. (MHz)	20MHz							
		QPSK							
		Conducted Power Density (dBm/MHz)					EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3	Total			
Low	3560	-4.95	-7.15	-5.75	-5.07	0.37	11.39	20.00	Pass
Middle	3625	-5.05	-7.19	-5.83	-5.39	0.23	11.25	20.00	Pass
High	3690	-4.96	-7.26	-5.79	-5.17	0.33	11.35	20.00	Pass
Channel	Freq. (MHz)	16QAM							
		Conducted Power Density (dBm/MHz)					EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3	Total			
Low	3560	-5.00	-7.18	-5.83	-5.12	0.32	11.34	20.00	Pass
Middle	3625	-5.09	-7.28	-5.91	-5.41	0.17	11.19	20.00	Pass
High	3690	-5.07	-7.22	-5.88	-5.27	0.24	11.26	20.00	Pass
Channel	Freq. (MHz)	64QAM							
		Conducted Power Density (dBm/MHz)					EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3	Total			
Low	3560	-5.08	-7.23	-5.93	-5.17	0.25	11.27	20.00	Pass
Middle	3625	-5.16	-7.31	-6.02	-5.39	0.13	11.15	20.00	Pass
High	3690	-5.03	-7.26	-6.00	-5.24	0.22	11.24	20.00	Pass

Note:

1. Directional gain = 5dBi + 10log(4) = 11.02dBi
2. EIRP PSD (dBm/MHz) = Total Conducted Power Density (dBm/MHz) + Directional Gain

Spectrum Plot of Worst Value	
10MHz / QPSK / Chain 0	**20MHz / QPSK / Chain 0**
	

CA MODE

Channel	Freq. (MHz)	10MHz+10MHz									
		QPSK									
		Conducted Power Density (dBm/MHz)							EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass/Fail
		PCC			SCC			PCC + SCC Total			
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total				
Low	3555 + 3565	1.08	-1.17	3.11	0.24	0.24	3.25	6.19	17.21	20.00	Pass
Middle	3620 + 3630	0.92	-2.03	2.70	0.03	0.11	3.08	5.91	16.93	20.00	Pass
High	3685 + 3695	0.79	-1.88	2.67	-0.53	-0.32	2.59	5.64	16.66	20.00	Pass
Channel	Freq. (MHz)	16QAM									
		Conducted Power Density (dBm/MHz)							EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass/Fail
		PCC			SCC			PCC + SCC Total			
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total				
Low	3555 + 3565	0.92	-1.25	2.98	0.16	0.11	3.15	6.07	17.09	20.00	Pass
Middle	3620 + 3630	0.82	-1.65	2.77	-0.18	-0.12	2.86	5.83	16.85	20.00	Pass
High	3685 + 3695	0.51	-1.88	2.49	-0.97	-0.85	2.10	5.31	16.33	20.00	Pass
Channel	Freq. (MHz)	64QAM									
		Conducted Power Density (dBm/MHz)							EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass/Fail
		PCC			SCC			PCC + SCC Total			
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total				
Low	3555 + 3565	0.87	-1.33	2.92	0.11	0.08	3.11	6.02	17.04	20.00	Pass
Middle	3620 + 3630	0.62	-1.67	2.63	-0.32	0.01	2.86	5.76	16.78	20.00	Pass
High	3685 + 3695	0.37	-1.86	2.41	-1.22	-1.12	1.84	5.14	16.16	20.00	Pass

Note:

1. Directional gain = 5dBi + 10log(4) = 11.02dBi
2. EIRP PSD (dBm/MHz) = Total Conducted Power Density (dBm/MHz) + Directional Gain

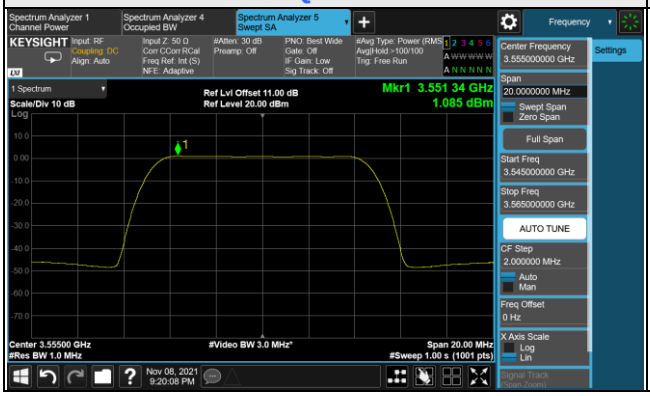
Channel	Freq. (MHz)	20MHz+20MHz									
		QPSK									
		Conducted Power Density (dBm/MHz)							EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass/Fail
		PCC			SCC			PCC + SCC Total			
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total				
Low	3560 + 3580	-6.42	-7.47	-3.90	-6.00	-5.57	-2.77	-0.29	10.73	20.00	Pass
Middle	3615 + 3635	-6.44	-7.32	-3.85	-6.12	-5.87	-2.98	-0.38	10.64	20.00	Pass
High	3670 + 3690	-6.12	-7.01	-3.53	-6.88	-6.47	-3.66	-0.59	10.43	20.00	Pass
Channel	Freq. (MHz)	16QAM									
		Conducted Power Density (dBm/MHz)							EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass/Fail
		PCC			SCC			PCC + SCC Total			
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total				
Low	3560 + 3580	-6.51	-7.48	-3.96	-6.11	-5.60	-2.84	-0.35	10.67	20.00	Pass
Middle	3615 + 3635	-6.32	-7.53	-3.87	-6.37	-5.58	-2.86	-0.33	10.69	20.00	Pass
High	3670 + 3690	-5.91	-7.29	-3.54	-6.84	-6.33	-3.57	-0.54	10.48	20.00	Pass
Channel	Freq. (MHz)	64QAM									
		Conducted Power Density (dBm/MHz)							EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Pass/Fail
		PCC			SCC			PCC + SCC Total			
		Chain 0	Chain 1	Total	Chain 2	Chain 3	Total				
Low	3560 + 3580	-6.71	-7.52	-4.09	-6.22	-5.80	-2.99	-0.50	10.52	20.00	Pass
Middle	3615 + 3635	-6.66	-7.56	-4.08	-6.59	-6.12	-3.34	-0.68	10.34	20.00	Pass
High	3670 + 3690	-6.17	-7.37	-3.72	-7.05	-6.63	-3.82	-0.76	10.26	20.00	Pass

Note:

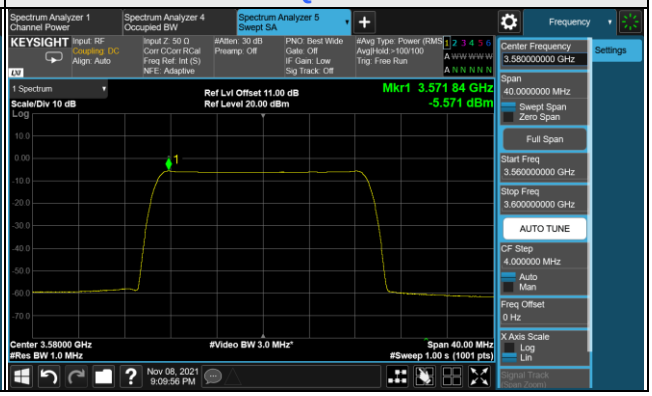
1. Directional gain = 5dBi + 10log(4) = 11.02dBi
2. EIRP PSD (dBm/MHz) = Total Conducted Power Density (dBm/MHz) + Directional Gain

Spectrum Plot of Worst Value

10MHz+10MHz / QPSK / PCC / Chain 0



20MHz+20MHz / QPSK / SCC / Chain 3



4.3 Radiated Emission Measurement

4.3.1 Limits of Radiated Emission Measurement

The power of any emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

4.3.2 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.3.3 Test Procedures

a. Substitution method is used for EIRP measurement. In the semi-anechoic chamber, EUT placed on the 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

b. EIRP = Output power level – TX cable loss + Antenna gain of substitution horn. Correction Factor (includes EIRP and ERP unit conversion factor) = Antenna gain of substitution horn. – Tx cable loss.
Measurement method refers to ANSI C63.26 section 5.5 and 5.2.7.
EIRP (dBm) = E (dBμV/m) + 20log(D) - 104.8; where D is the measurement distance (in the far field region) in m.
ERP (dBm) = E (dBμV/m) + 20log(D) - 104.8 - 2.15; where D is the measurement distance (in the far field region) in m.

Note:

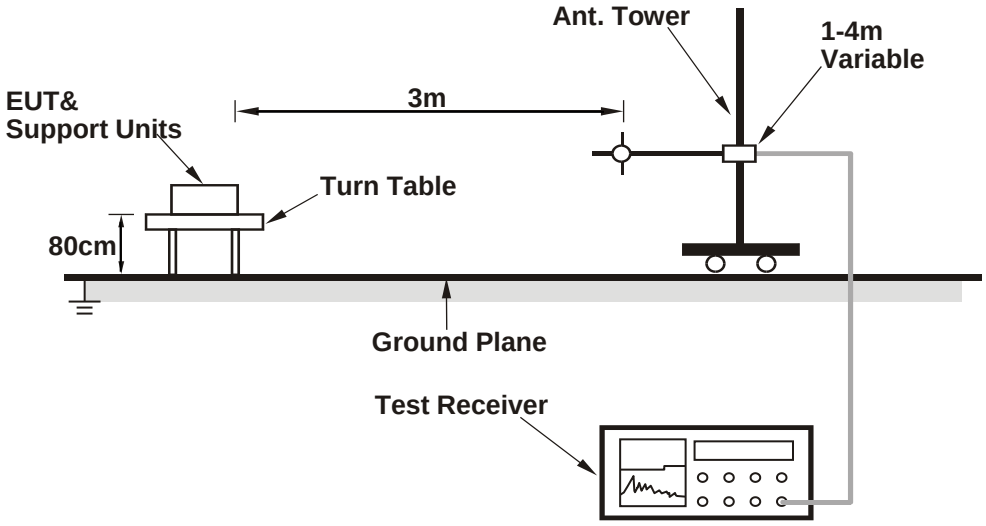
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.3.4 Deviation from Test Standard

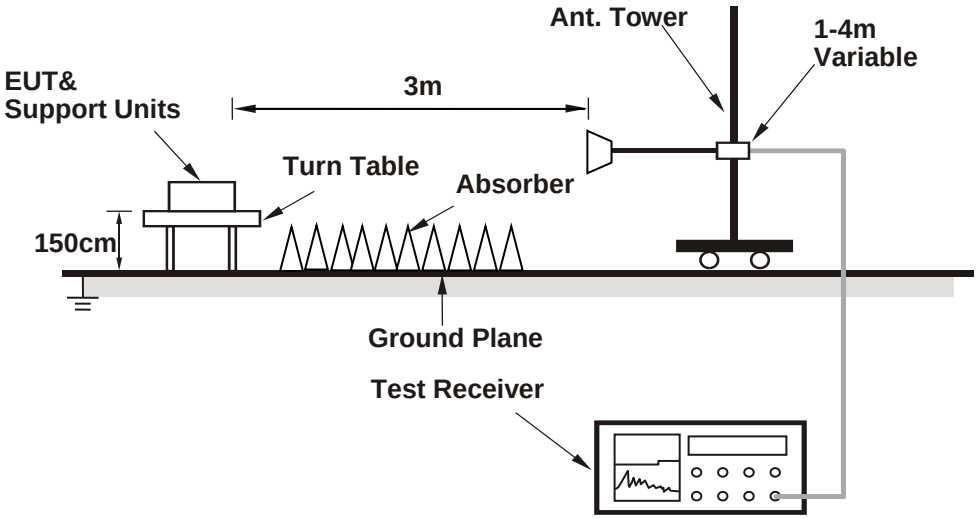
No deviation.

4.3.5 Test Set Up

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.3.6 Test Results

SC MODE

Below 1GHz Data：

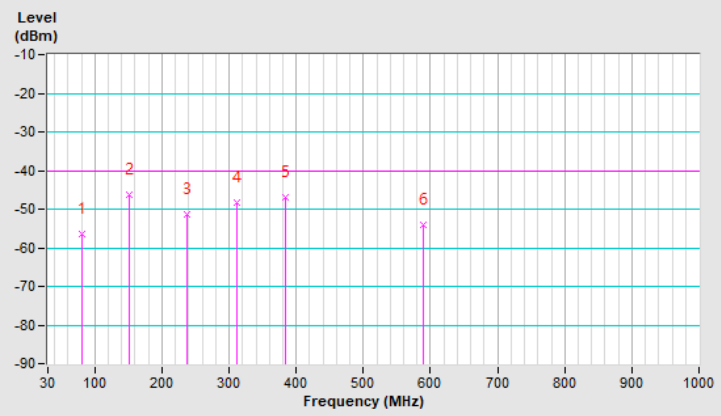
Channel Bandwidth: 10MHz

Channel	CH 10M-1：3555 MHz	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	81.41	-56.3	-40.0	-16.3	2.00 H	103	63.2	-119.5
2	152.22	-46.3	-40.0	-6.3	1.00 H	94	67.2	-113.5
3	237.58	-51.3	-40.0	-11.3	1.50 H	161	64.3	-115.6
4	312.27	-48.2	-40.0	-8.2	1.00 H	97	64.8	-113.0
5	384.05	-46.9	-40.0	-6.9	1.50 H	194	64.4	-111.3
6	589.69	-54.1	-40.0	-14.1	1.00 H	261	52.5	-106.6

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

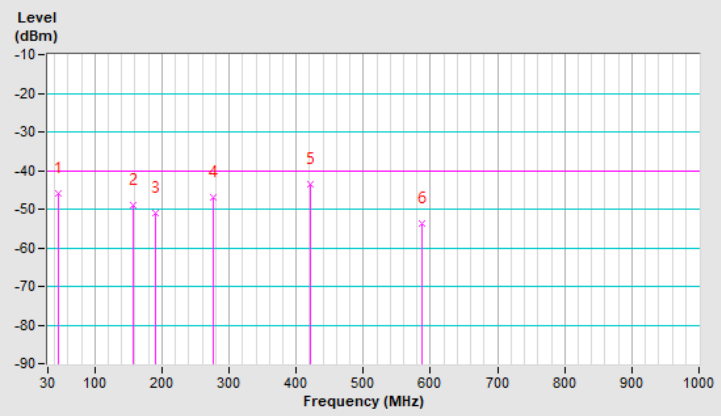


Channel	CH 10M-1：3555 MHz	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	46.49	-45.8	-40.0	-5.8	1.50 V	241	68.2	-114.0
2	157.07	-48.9	-40.0	-8.9	1.00 V	68	64.6	-113.5
3	190.05	-50.9	-40.0	-10.9	2.00 V	100	65.5	-116.4
4	276.38	-47.0	-40.0	-7.0	1.00 V	301	67.1	-114.1
5	421.88	-43.6	-40.0	-3.6	1.50 V	236	66.7	-110.3
6	587.75	-53.6	-40.0	-13.6	1.00 V	198	53.1	-106.7

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



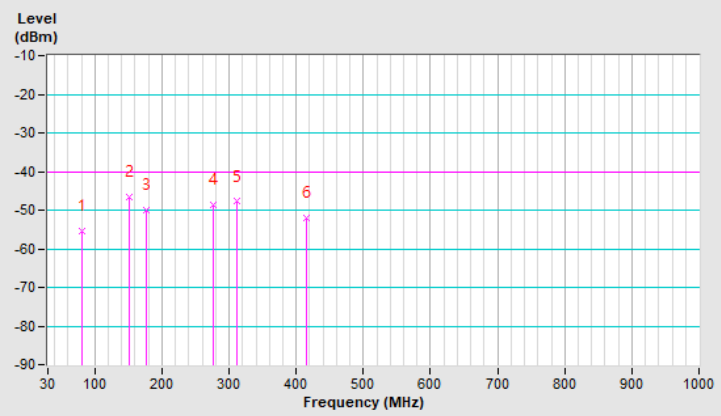
Channel Bandwidth: 20MHz

Channel	CH 20M-1：3560 MHz	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	81.41	-55.5	-40.0	-15.5	1.00 H	210	64.0	-119.5
2	152.22	-46.5	-40.0	-6.5	1.50 H	321	67.0	-113.5
3	176.47	-49.9	-40.0	-9.9	1.00 H	64	64.9	-114.8
4	276.38	-48.5	-40.0	-8.5	2.00 H	316	65.6	-114.1
5	312.27	-47.8	-40.0	-7.8	1.00 H	17	65.2	-113.0
6	416.06	-51.9	-40.0	-11.9	1.50 H	94	58.6	-110.5

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

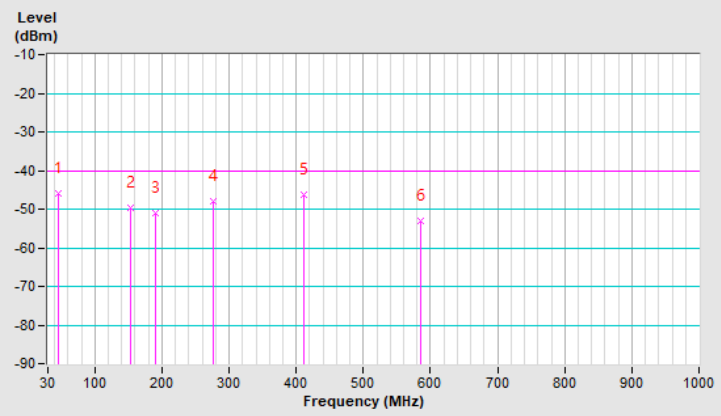


Channel	CH 20M-1：3560 MHz	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	45.52	-46.0	-40.0	-6.0	1.00 V	51	68.0	-114.0
2	154.16	-49.5	-40.0	-9.5	1.50 V	94	63.9	-113.4
3	190.05	-51.1	-40.0	-11.1	1.00 V	103	65.3	-116.4
4	276.38	-47.9	-40.0	-7.9	2.00 V	79	66.2	-114.1
5	411.21	-46.2	-40.0	-6.2	1.00 V	297	64.5	-110.7
6	585.81	-52.9	-40.0	-12.9	1.50 V	15	53.9	-106.8

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



Above 1GHz Data：

Channel Bandwidth: 10MHz

Channel	CH 10M-1：3555 MHz	Frequency Range	1 GHz ~ 40 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7110.00	-44.2	-40.0	-4.2	1.00 H	43	44.3	-88.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7110.00	-43.8	-40.0	-3.8	1.07 V	1	44.7	-88.5

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Channel	CH 10M-2：3625 MHz	Frequency Range	1 GHz ~ 40 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7250.00	-43.0	-40.0	-3.0	1.40 H	49	45.2	-88.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7250.00	-42.4	-40.0	-2.4	2.41 V	357	45.8	-88.2

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Channel	CH 10M-3：3695 MHz	Frequency Range	1 GHz ~ 40 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7390.00	-44.4	-40.0	-4.4	1.43 H	67	43.6	-88.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7390.00	-44.3	-40.0	-4.3	1.57 V	7	43.7	-88.0

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Channel Bandwidth: 20MHz

Channel	CH 20M-1：3560 MHz	Frequency Range	1 GHz ~ 40 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7120.00	-42.9	-40.0	-2.9	1.01 H	348	45.6	-88.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7120.00	-42.4	-40.0	-2.4	1.00 V	357	46.1	-88.5

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Channel	CH 20M-2：3625 MHz	Frequency Range	1 GHz ~ 40 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7250.00	-42.9	-40.0	-2.9	1.52 H	24	45.3	-88.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	**7250.00**	**-42.3**	**-40.0**	**-2.3**	**1.01 V**	**356**	**45.9**	**-88.2**

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Channel	CH 20M-3：3690 MHz	Frequency Range	1 GHz ~ 40 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7380.00	-43.3	-40.0	-3.3	1.25 H	25	44.7	-88.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7380.00	-42.8	-40.0	-2.8	1.22 V	3	45.2	-88.0

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

CA MODE

Below 1GHz Data：

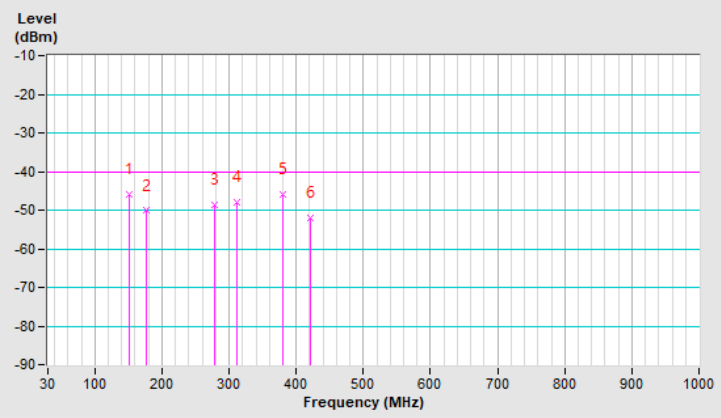
Channel Bandwidth: 10MHz+10MHz

Channel	CH 10M+10M-1： 3555 MHz + 3565 MHz	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	152.22	-45.9	-40.0	-5.9	1.50 H	103	67.6	-113.5
2	176.47	-50.2	-40.0	-10.2	1.00 H	99	64.6	-114.8
3	278.32	-48.8	-40.0	-8.8	2.00 H	184	65.2	-114.0
4	311.30	-48.1	-40.0	-8.1	1.00 H	59	64.9	-113.0
5	380.17	-46.0	-40.0	-6.0	1.50 H	111	65.3	-111.3
6	420.91	-52.0	-40.0	-12.0	1.00 H	297	58.4	-110.4

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

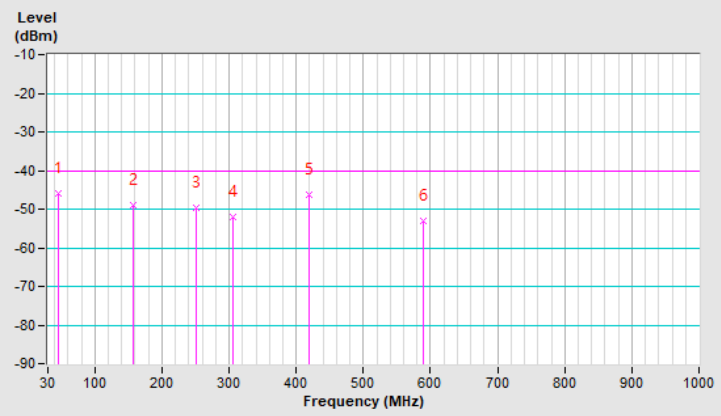


Channel	CH 10M+10M-1： 3555 MHz + 3565 MHz	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	45.52	-45.9	-40.0	-5.9	1.50 V	159	68.1	-114.0
2	157.07	-49.1	-40.0	-9.1	1.00 V	47	64.4	-113.5
3	251.16	-49.8	-40.0	-9.8	1.50 V	306	65.3	-115.1
4	305.48	-52.1	-40.0	-12.1	1.00 V	48	61.2	-113.3
5	419.94	-46.3	-40.0	-6.3	2.00 V	167	64.1	-110.4
6	588.72	-52.9	-40.0	-12.9	1.00 V	58	53.7	-106.6

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



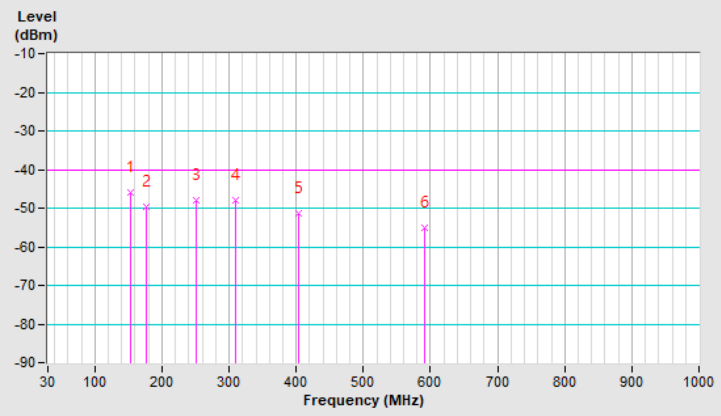
Channel Bandwidth: 20MHz+20MHz

Channel	CH 20M+20M-1： 3560 MHz + 3580 MHz	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	154.16	-46.0	-40.0	-6.0	1.00 H	17	67.4	-113.4
2	176.47	-49.8	-40.0	-9.8	2.00 H	3	65.0	-114.8
3	250.19	-47.8	-40.0	-7.8	1.00 H	89	67.3	-115.1
4	309.36	-47.9	-40.0	-7.9	1.50 H	108	65.3	-113.2
5	404.42	-51.3	-40.0	-11.3	1.00 H	97	59.5	-110.8
6	591.63	-55.0	-40.0	-15.0	1.50 H	222	51.6	-106.6

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

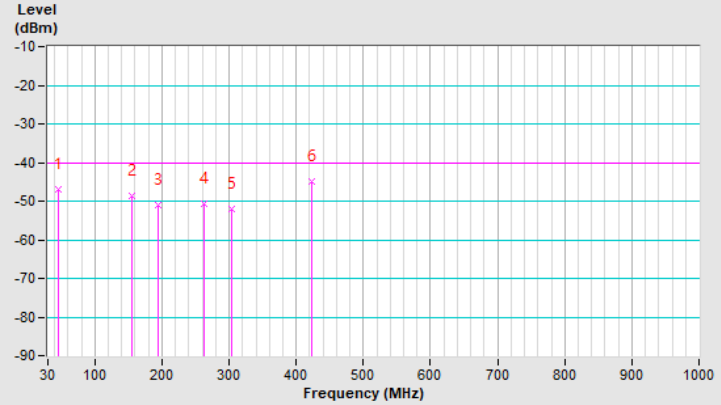


Channel	CH 20M+20M-1： 3560 MHz + 3580 MHz	Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	45.52	-46.8	-40.0	-6.8	1.00 V	102	67.2	-114.0
2	155.13	-48.6	-40.0	-8.6	1.50 V	244	64.9	-113.5
3	194.90	-51.0	-40.0	-11.0	1.00 V	316	66.0	-117.0
4	262.80	-50.7	-40.0	-10.7	1.50 V	127	64.1	-114.8
5	304.51	-51.9	-40.0	-11.9	1.00 V	99	61.5	-113.4
6	423.82	-44.8	-40.0	-4.8	2.00 V	45	65.5	-110.3

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.



Above 1GHz Data：

Channel Bandwidth: 10MHz+10MHz

Channel	CH 10M+10M-1： 3555 MHz + 3565 MHz	Frequency Range	1 GHz ~ 40 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7110.00	-43.8	-40.0	-3.8	1.30 H	10	44.7	-88.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7110.00	-44.1	-40.0	-4.1	1.56 V	79	44.4	-88.5

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Channel	CH 10M+10M-2： 3620 MHz + 3630 MHz	Frequency Range	1 GHz ~ 40 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7250.00	-43.3	-40.0	-3.3	1.44 H	0	44.9	-88.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7250.00	-43.1	-40.0	-3.1	1.38 V	1	45.1	-88.2

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Channel	CH 10M+10M-3： 3685 MHz + 3695 MHz	Frequency Range	1 GHz ~ 40 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7390.00	-44.0	-40.0	-4.0	1.89 H	66	44.0	-88.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7390.00	-43.6	-40.0	-3.6	1.55 V	16	44.4	-88.0

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Channel Bandwidth: 20MHz+20MHz

Channel	CH 20M+20M-1： 3560 MHz + 3580 MHz	Frequency Range	1 GHz ~ 40 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7120.00	-44.1	-40.0	-4.1	1.37 H	80	44.4	-88.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7120.00	-43.9	-40.0	-3.9	1.21 V	2	44.6	-88.5

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Channel	CH 20M+20M-2： 3615 MHz + 3635 MHz	Frequency Range	1 GHz ~ 40 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7250.00	-43.7	-40.0	-3.7	1.36 H	47	44.5	-88.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7250.00	-43.3	-40.0	-3.3	1.11 V	13	44.9	-88.2

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Channel	CH 20M+20M-3： 3670 MHz + 3690 MHz	Frequency Range	1 GHz ~ 40 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7380.00	-43.7	-40.0	-3.7	1.33 H	26	44.3	-88.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	7380.00	-43.4	-40.0	-3.4	1.44 V	31	44.6	-88.0

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.

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