



RF EXPOSURE EVALUATION REPORT

APPLICANT : Mitsui Bussan Electronics Ltd.
PRODUCT NAME : Mobile Digital Video Recorder
MODEL NAME : DV429CGW4
BRAND NAME : N/A
FCC ID : 2AS4L-DV429CGW4
STANDARD(S) : 47CFR 2.1091
: KDB 447498
RECEIPT DATE : 2019-04-18
TEST DATE : 2019-05-05
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REPORT No. : SZ19040220S01

Change history		
Version	Date	Reason of changed
1.0	2019-05-06	First edition

1. Technical Information

Note: Provide by manufacturer.

1.1 Applicant and Manufacturer Information

Applicant:	Mitsui Bussan Electronics Ltd.
Applicant Address:	Shiba Park Building, A-10F, 4-1, Shibakoen 2-chome, Minato-ku, Tokyo 105-0011, Japan
Manufacturer:	STONKAM CO., LTD
Manufacturer Address:	Floor 5, Building #3, Huangzhou Industrial Park, Chebei Road, Tianhe District, 510660 Guangzhou, China

1.2 Equipment under Test (EUT) Description

EUT Type:	Mobile Digital Video Recorder
Hardware Version:	V1.1
Software Version:	V1.0.0
Frequency Bands:	GSM850: 824.2MHz ~ 848.8MHz GSM1900: 1850.2MHz ~ 1910.8MHz WCDMA Band II: 1852.4MHz ~ 1907.6MHz WCDMA Band V: 826.4MHz ~ 846.6MHz LTE Band 2: 1850MHz ~ 1910MHz LTE Band 4: 1710MHz ~ 1755MHz LTE Band 5: 824MHz ~ 849MHz LTE Band 17: 704MHz ~ 716MHz
Modulation Mode:	GPRS: GMSK, EDGE: 8PSK WCDMA: QPSK/16QAM LTE: QPSK/16QAM/64QAM
Antenna Type:	PIFA Antenna
Antenna Gain:	GSM/WCDMA 850: -3.67dBi GSM/WCDMA 1900: -2.48dBi FDD-LTE: Band 2: -2.48dBi Band 4: -2.05dBi Band 5: -3.67dBi Band 17: -2.84dBi

Note :For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.



1.3 Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	V1.1	V1.0.0

1.4 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1091	Radio Frequency Radiation Exposure Evaluation: mobile devices
2	KDB 447498 D01v06	General RF Exposure Guidance



2. Device Category and RF Exposure Limit

Per user manual, Based on 47CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.

Mobile Devices:

47CFR 2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

GENERAL POPULATION / UNCONTROLLED EXPOSURE

The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(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/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz* = Plane-wave equivalent power density

3. RF Output Power

<GSM>

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GPRS 1 Tx slot	32.57	32.35	32.31	33.00	23.57	23.35	23.31	24.00
GPRS 2 Tx slots	32.51	32.30	32.25	33.00	26.51	26.30	26.25	27.00
GPRS 3 Tx slots	32.42	32.23	32.17	32.50	28.16	27.97	27.91	28.24
GPRS 4 Tx slots	32.26	32.10	32.03	32.50	29.26	29.10	29.03	29.50
EDGE 1 Tx slot	27.45	26.89	26.65	27.50	18.45	17.89	17.65	18.50
EDGE 2 Tx slots	27.30	26.76	26.57	27.50	21.30	20.76	20.57	21.50
EDGE 3 Tx slots	27.11	26.52	26.26	27.50	22.85	22.26	22.00	23.24
EDGE 4 Tx slots	26.91	26.37	26.03	27.00	23.91	23.37	23.03	24.00

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GPRS 1 Tx slot	30.68	30.64	30.47	31.00	21.68	21.64	21.47	22.00
GPRS 2 Tx slots	30.65	30.65	30.42	31.00	24.65	24.65	24.42	25.00
GPRS 3 Tx slots	30.52	30.54	30.31	31.00	26.26	26.28	26.05	26.74
GPRS 4 Tx slots	30.38	30.36	30.04	30.50	27.38	27.36	27.04	27.50
EDGE 1 Tx slot	26.85	26.77	26.42	27.00	17.85	17.77	17.42	18.00
EDGE 2 Tx slots	26.75	26.73	26.42	27.00	20.75	20.73	20.42	21.00
EDGE 3 Tx slots	26.62	26.57	26.25	27.00	22.36	22.31	21.99	22.74
EDGE 4 Tx slots	26.53	26.54	26.20	27.00	23.53	23.54	23.20	24.00

Note: According to KDB 447498 Section 4.3, SAR test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.



<WCDMA>

Band		WCDMA II			Tune-up Limit (dBm)
TX Channel		9612	9750	9888	
Rx Channel		10562	10700	10838	
Frequency (MHz)		1922.4	1950	1977.6	
3GPP Rel 99	RMC 12.2Kbps	23.87	23.34	23.55	24.50
3GPP Rel 6	HSDPA Subtest-1	23.26	22.68	22.56	24.50
3GPP Rel 6	HSDPA Subtest-2	23.62	22.89	23.12	24.50
3GPP Rel 6	HSDPA Subtest-3	23.08	22.37	22.51	24.00
3GPP Rel 6	HSDPA Subtest-4	23.13	22.46	22.49	24.00
3GPP Rel 6	HSUPA Subtest-1	23.24	22.35	22.66	24.50
3GPP Rel 6	HSUPA Subtest-2	21.88	21.80	21.42	22.50
3GPP Rel 6	HSUPA Subtest-3	21.55	21.41	21.50	23.50
3GPP Rel 6	HSUPA Subtest-4	22.33	22.25	22.45	22.50
3GPP Rel 6	HSUPA Subtest-5	23.34	23.04	22.84	24.50
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	21.32	21.64	21.17	22.00

Band		WCDMA V			Tune-up Limit (dBm)
TX Channel		2712	2788	2863	
Rx Channel		2937	3013	3088	
Frequency (MHz)		882.4	897.6	912.6	
3GPP Rel 99	RMC 12.2Kbps	24.32	24.91	24.45	25.00
3GPP Rel 6	HSDPA Subtest-1	23.53	23.67	23.64	25.00
3GPP Rel 6	HSDPA Subtest-2	23.96	24.02	23.89	25.00
3GPP Rel 6	HSDPA Subtest-3	23.25	23.49	23.38	24.50
3GPP Rel 6	HSDPA Subtest-4	23.50	23.57	23.51	24.50
3GPP Rel 6	HSUPA Subtest-1	22.79	22.47	22.55	25.00
3GPP Rel 6	HSUPA Subtest-2	21.05	21.04	21.16	23.00
3GPP Rel 6	HSUPA Subtest-3	21.02	21.55	21.66	24.00
3GPP Rel 6	HSUPA Subtest-4	21.64	22.19	22.27	23.00
3GPP Rel 6	HSUPA Subtest-5	22.31	22.09	22.14	25.00
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	20.85	21.23	21.35	22.50



<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				18700	18900	19100	
Frequency (MHz)				1860	1880	1900	
20	QPSK	1	0	23.37	22.99	23.37	24.5
20	QPSK	1	49	23.87	22.85	23.23	
20	QPSK	1	99	23.32	23.11	23.52	
20	QPSK	50	0	22.49	21.86	22.2	23.5
20	QPSK	50	24	22.5	21.78	22.03	
20	QPSK	50	50	22.41	21.96	21.56	
20	QPSK	100	0	22.53	21.86	22.06	
20	16QAM	1	0	22.27	22.43	22.54	23.5
20	16QAM	1	49	22.4	21.73	21.99	
20	16QAM	1	99	22.43	22.4	21.65	
20	16QAM	50	0	21.64	20.8	21.28	22.5
20	16QAM	50	24	21.48	20.78	21.06	
20	16QAM	50	50	21.38	20.91	20.72	
20	16QAM	100	0	21.55	20.85	21.19	
20	64QAM	1	0	22.36	22.07	22.2	22.5
20	64QAM	1	49	22.46	21.45	21.45	
20	64QAM	1	99	22.22	22.16	21.74	
20	64QAM	50	0	20.63	20.78	20.17	21.5
20	64QAM	50	24	20.55	20.74	20.98	
20	64QAM	50	50	21.44	20.91	20.54	
20	64QAM	100	0	20.51	20.8	20.98	
Channel				18675	18900	19125	Tune-up limit (dBm)
Frequency (MHz)				1857.5	1880	1902.5	
15	QPSK	1	0	23.15	22.86	23.37	24.5
15	QPSK	1	37	23.74	22.79	22.98	
15	QPSK	1	74	23.43	22.99	22.58	
15	QPSK	36	0	22.37	21.68	22.08	23.5
15	QPSK	36	20	22.45	21.57	21.72	



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15	QPSK	36	39	22.33	21.67	21.6	
15	QPSK	75	0	22.27	21.61	21.83	
15	16QAM	1	0	22.48	21.99	21.92	
15	16QAM	1	37	22.28	22	22.07	23.5
15	16QAM	1	74	22.2	21.64	21.62	
15	16QAM	36	0	21.29	20.86	21.25	
15	16QAM	36	20	21.4	20.81	20.88	22.5
15	16QAM	36	39	21.32	20.87	20.75	
15	16QAM	75	0	21.35	20.77	20.8	
15	64QAM	1	0	22.13	21.99	21.45	22.5
15	64QAM	1	37	21.74	21.53	21.66	
15	64QAM	1	74	21.43	20.93	21.1	
15	64QAM	36	0	21.43	20.76	20.81	21.5
15	64QAM	36	20	21.41	20.86	20.62	
15	64QAM	36	39	21.28	20.72	20.94	
15	64QAM	75	0	21.15	20.52	20.86	
Channel				18650	18900	19150	Tune-up limit (dBm)
Frequency (MHz)				1855	1880	1905	
10	QPSK	1	0	23.08	22.61	22.88	24.5
10	QPSK	1	25	23.6	22.64	22.7	
10	QPSK	1	49	23.75	22.86	22.57	
10	QPSK	25	0	22.41	21.67	21.73	23.5
10	QPSK	25	12	22.38	21.66	21.7	
10	QPSK	25	25	22.47	21.78	21.62	
10	QPSK	50	0	22.29	21.56	21.69	
10	16QAM	1	0	21.98	22.11	21.99	23.5
10	16QAM	1	25	22.7	21.94	21.87	
10	16QAM	1	49	22.96	21.71	21.58	
10	16QAM	25	0	21.4	20.82	20.78	22.5
10	16QAM	25	12	21.53	20.75	20.78	
10	16QAM	25	25	21.64	20.81	20.71	
10	16QAM	50	0	21.36	20.67	20.71	
10	64QAM	1	0	22.26	21.91	21.99	22.5
10	64QAM	1	25	22.31	22.08	21.76	
10	64QAM	1	49	21.92	21.92	21.18	



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10	64QAM	25	0	20.64	20.84	20.75	21.5
10	64QAM	25	12	20.54	20.76	20.76	
10	64QAM	25	25	20.54	20.91	20.63	
10	64QAM	50	0	21.35	20.69	20.65	
Channel				18625	18900	19175	Tune-up limit (dBm)
Frequency (MHz)				1852.5	1880	1907.5	
5	QPSK	1	0	23.04	22.52	22.51	24.5
5	QPSK	1	12	23.56	22.65	22.64	
5	QPSK	1	24	23.61	22.73	22.75	
5	QPSK	12	0	22.26	21.76	21.59	23.5
5	QPSK	12	7	22.45	21.61	21.5	
5	QPSK	12	13	22.45	21.76	21.56	
5	QPSK	25	0	22.33	21.6	21.58	
5	16QAM	1	0	21.78	21.72	21.55	23.5
5	16QAM	1	12	22.14	21.97	21.78	
5	16QAM	1	24	22.87	22.03	22.45	
5	16QAM	12	0	21.35	20.85	20.73	22.5
5	16QAM	12	7	21.46	20.84	20.65	
5	16QAM	12	13	21.57	20.81	20.83	
5	16QAM	25	0	21.39	20.77	20.59	
5	64QAM	1	0	21.45	21.58	21.29	22.5
5	64QAM	1	12	22.38	21.45	21.2	
5	64QAM	1	24	21.75	21.69	21.16	
5	64QAM	12	0	21.33	20.96	20.9	21.5
5	64QAM	12	7	21.45	20.85	20.52	
5	64QAM	12	13	21.49	20.94	20.47	
5	64QAM	25	0	21.5	20.71	20.57	
Channel				18615	18900	19185	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1880	1908.5	
3	QPSK	1	0	23.2	22.58	22.63	24.5
3	QPSK	1	8	23.27	22.54	22.57	
3	QPSK	1	14	23.42	22.64	22.59	
3	QPSK	8	0	22.18	21.66	22.45	23.5
3	QPSK	8	4	22.34	21.68	21.53	



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3	QPSK	8	7	22.36	21.64	21.58	
3	QPSK	15	0	22.28	21.61	21.68	
3	16QAM	1	0	22.21	21.61	21.54	
3	16QAM	1	8	22.05	21.59	21.68	23.5
3	16QAM	1	14	22.44	21.69	21.66	
3	16QAM	8	0	21.14	20.54	20.54	
3	16QAM	8	4	21.33	20.65	20.56	22.5
3	16QAM	8	7	21.32	20.66	20.52	
3	16QAM	15	0	21.38	20.81	20.55	
3	64QAM	1	0	22.09	21.86	21.28	22.5
3	64QAM	1	8	22.34	22.07	21.36	
3	64QAM	1	14	22.45	21.9	21.13	
3	64QAM	8	0	21.11	20.67	20.41	21.5
3	64QAM	8	4	21.33	20.57	20.39	
3	64QAM	8	7	21.37	20.7	20.35	
3	64QAM	15	0	21.36	20.72	20.32	
Channel				18607	18900	19193	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1880	1909.3	
1.4	QPSK	1	0	23.01	22.5	22.51	24.5
1.4	QPSK	1	3	23.09	22.56	22.51	
1.4	QPSK	1	5	23.21	22.5	22.53	
1.4	QPSK	3	0	23.1	22.59	22.52	
1.4	QPSK	3	1	23.17	22.6	22.51	
1.4	QPSK	3	3	23.13	22.56	22.51	
1.4	QPSK	6	0	22.08	21.69	21.56	23.5
1.4	16QAM	1	0	21.99	21.78	21.53	23.5
1.4	16QAM	1	3	21.87	21.56	21.52	
1.4	16QAM	1	5	22.03	21.58	21.52	
1.4	16QAM	3	0	22.09	21.71	21.56	
1.4	16QAM	3	1	22.02	21.9	21.51	
1.4	16QAM	3	3	22.17	21.7	21.77	
1.4	16QAM	6	0	21.24	20.72	20.57	22.5
1.4	64QAM	1	0	22.15	22.03	20.98	22.5
1.4	64QAM	1	3	22.19	21.66	21.21	
1.4	64QAM	1	5	22.29	21.68	21.04	



1.4	64QAM	3	0	22.11	21.8	21.22	
1.4	64QAM	3	1	22.16	22.07	21.23	
1.4	64QAM	3	3	22.22	21.33	21.11	
1.4	64QAM	6	0	21.11	20.67	20.36	21.5

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20050	20175	20300	
Frequency (MHz)				1720	1732.5	1745	
20	QPSK	1	0	22.89	22.97	22.99	24.5
20	QPSK	1	49	22.78	23.29	22.77	
20	QPSK	1	99	23.03	22.88	22.52	
20	QPSK	50	0	21.51	22.05	21.83	23.5
20	QPSK	50	24	21.57	22.05	21.63	
20	QPSK	50	50	21.75	22.02	21.56	
20	QPSK	100	0	21.59	22	21.55	
20	16QAM	1	0	21.7	21.96	21.76	23.5
20	16QAM	1	49	22.25	22.06	22.01	
20	16QAM	1	99	22.34	21.67	21.98	
20	16QAM	50	0	20.59	21.11	21.03	22.5
20	16QAM	50	24	20.56	21.06	20.64	
20	16QAM	50	50	20.66	20.99	20.53	
20	16QAM	100	0	20.61	20.97	20.6	
20	64QAM	1	0	21.96	22.45	22.18	22.5
20	64QAM	1	49	22.18	22.05	21.67	
20	64QAM	1	99	22.44	22.29	20.9	
20	64QAM	50	0	20.66	21.05	20.97	21.5
20	64QAM	50	24	20.7	21.08	20.65	
20	64QAM	50	50	20.81	20.95	20.3	
20	64QAM	100	0	20.8	21.05	20.56	
Channel				20025	20175	20325	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1732.5	1747.5	
15	QPSK	1	0	22.77	23.16	23.01	



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15	QPSK	1	37	22.81	23.12	22.51	
15	QPSK	1	74	23.08	22.84	22.65	
15	QPSK	36	0	21.54	21.93	21.68	23.5
15	QPSK	36	20	21.62	21.95	21.56	
15	QPSK	36	39	21.71	21.92	21.65	
15	QPSK	75	0	21.59	21.83	21.56	
15	16QAM	1	0	21.66	22.25	22.15	23.5
15	16QAM	1	37	21.74	21.77	21.57	
15	16QAM	1	74	21.93	21.79	21.52	
15	16QAM	36	0	20.57	21.08	20.7	22.5
15	16QAM	36	20	20.58	21.11	20.56	
15	16QAM	36	39	20.68	21.05	20.56	
15	16QAM	75	0	20.54	20.95	20.52	
15	64QAM	1	0	21.85	22.38	22.42	22.5
15	64QAM	1	37	21.54	21.92	21.4	
15	64QAM	1	74	21.53	21.12	20.68	
15	64QAM	36	0	20.56	21.04	20.39	21.5
15	64QAM	36	20	20.61	21.06	20.36	
15	64QAM	36	39	20.53	21.08	20.43	
15	64QAM	75	0	20.56	21.05	20.39	
Channel				20000	20175	20350	Tune-up limit (dBm)
Frequency (MHz)				1715	1732.5	1750	
10	QPSK	1	0	22.98	23.1	22.69	24.5
10	QPSK	1	25	22.81	23.11	22.56	
10	QPSK	1	49	22.7	23.1	22.65	
10	QPSK	25	0	21.63	22.1	21.59	23.5
10	QPSK	25	12	21.62	22.15	21.52	
10	QPSK	25	25	21.69	22.12	21.56	
10	QPSK	50	0	21.5	21.91	21.61	
10	16QAM	1	0	22.09	22.33	21.66	23.5
10	16QAM	1	25	21.68	22.18	21.57	
10	16QAM	1	49	21.96	22.15	21.56	
10	16QAM	25	0	21.1	21.21	20.53	22.5
10	16QAM	25	12	20.53	21.14	20.51	
10	16QAM	25	25	20.67	21.16	20.56	



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10	16QAM	50	0	20.52	21.09	21	
10	64QAM	1	0	22.1	22.22	21.51	22.5
10	64QAM	1	25	21.76	22.26	21.32	
10	64QAM	1	49	21.59	22.37	21.44	
10	64QAM	25	0	20.59	21.32	20.9	21.5
10	64QAM	25	12	20.62	21.27	20.61	
10	64QAM	25	25	20.7	21.19	20.44	
10	64QAM	50	0	20.42	21.05	20.6	
Channel				19975	20175	20375	Tune-up limit (dBm)
Frequency (MHz)				1712.5	1732.5	1752.5	
5	QPSK	1	0	22.95	23.08	22.56	24.5
5	QPSK	1	12	22.82	23.19	22.55	
5	QPSK	1	24	22.81	23.04	22.53	
5	QPSK	12	0	21.69	22.24	22.49	23.5
5	QPSK	12	7	21.78	22.31	22.45	
5	QPSK	12	13	21.53	22.22	22.3	
5	QPSK	25	0	21.61	22.21	22.4	
5	16QAM	1	0	21.58	22.16	21.56	23.5
5	16QAM	1	12	21.58	22.09	21.52	
5	16QAM	1	24	21.57	21.99	21.51	
5	16QAM	12	0	21.23	21.37	21.47	22.5
5	16QAM	12	7	20.76	21.34	21.44	
5	16QAM	12	13	20.57	21.28	21.15	
5	16QAM	25	0	20.54	21.27	21.45	
5	64QAM	1	0	22.05	22.09	21.36	22.5
5	64QAM	1	12	22.2	22.11	21.78	
5	64QAM	1	24	21.8	21.98	21.28	
5	64QAM	12	0	21.07	21.34	20.46	21.5
5	64QAM	12	7	20.65	21.24	20.45	
5	64QAM	12	13	20.54	21.34	20.38	
5	64QAM	25	0	20.56	21.33	20.37	
Channel				19965	20175	20385	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1732.5	1753.5	
3	QPSK	1	0	22.93	23.09	22.52	24.5



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3	QPSK	1	8	22.97	23.19	22.56	
3	QPSK	1	14	22.9	23.21	22.53	
3	QPSK	8	0	21.91	22.36	22.48	23.5
3	QPSK	8	4	21.93	22.32	21.51	
3	QPSK	8	7	21.9	22.33	22.35	
3	QPSK	15	0	21.9	22.36	22.42	
3	16QAM	1	0	22.19	22.07	21.55	23.5
3	16QAM	1	8	22.1	22.16	22.52	
3	16QAM	1	14	21.9	22.5	21.55	
3	16QAM	8	0	20.94	21.02	20.51	22.5
3	16QAM	8	4	20.9	21.28	21.53	
3	16QAM	8	7	20.71	21.32	21.52	
3	16QAM	15	0	20.88	21.38	21.52	
3	64QAM	1	0	22.13	22.31	21.2	22.5
3	64QAM	1	8	21.75	21.56	21.42	
3	64QAM	1	14	21.88	22.25	21.4	
3	64QAM	8	0	20.95	21.37	20.47	21.5
3	64QAM	8	4	20.89	21.33	20.45	
3	64QAM	8	7	20.79	21.28	20.55	
3	64QAM	15	0	20.8	21.4	20.42	
Channel				19957	20175	20393	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1732.5	1754.3	
1.4	QPSK	1	0	22.96	23.19	22.54	24.5
1.4	QPSK	1	3	23.06	23.27	22.65	
1.4	QPSK	1	5	23.01	23.28	22.58	
1.4	QPSK	3	0	22.97	23.19	22.56	
1.4	QPSK	3	1	23.06	23.22	22.5	
1.4	QPSK	3	3	23.02	23.28	22.56	
1.4	QPSK	6	0	22.56	22.43	22.41	23.5
1.4	16QAM	1	0	21.95	22.53	21.74	23.5
1.4	16QAM	1	3	22.05	22.54	21.63	
1.4	16QAM	1	5	21.81	22.16	21.7	
1.4	16QAM	3	0	22.16	22.5	21.68	
1.4	16QAM	3	1	22.09	22.43	21.58	
1.4	16QAM	3	3	21.98	22.48	21.53	



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1.4	16QAM	6	0	21.02	21.45	20.58	22.5
1.4	64QAM	1	0	22.02	22.22	21.47	22.5
1.4	64QAM	1	3	21.93	22.26	21.79	
1.4	64QAM	1	5	22.11	22.21	21.51	
1.4	64QAM	3	0	21.84	22.47	21.56	
1.4	64QAM	3	1	21.83	22.4	21.57	
1.4	64QAM	3	3	21.89	22.44	21.48	
1.4	64QAM	6	0	20.96	21.39	20.45	21.5

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20450	20525	20600	
Frequency (MHz)				829	836.5	844	
10	QPSK	1	0	22.61	22.28	22.45	23.5
10	QPSK	1	25	22.53	22.66	22.63	
10	QPSK	1	49	22.56	22.75	22.51	
10	QPSK	25	0	21.7	21.67	21.54	22.5
10	QPSK	25	12	21.72	21.65	21.66	
10	QPSK	25	25	21.63	21.7	21.61	
10	QPSK	50	0	21.52	21.59	21.58	
10	16QAM	1	0	21.82	21.76	21.96	22.5
10	16QAM	1	25	21.55	21.89	21.85	
10	16QAM	1	49	21.65	21.33	21.76	
10	16QAM	25	0	20.59	20.52	20.5	21.5
10	16QAM	25	12	20.58	20.69	20.59	
10	16QAM	25	25	20.61	20.6	20.42	
10	16QAM	50	0	20.6	20.43	20.33	
10	64QAM	1	0	21.45	21.45	21.48	21.5
10	64QAM	1	25	21.47	21.43	21.3	
10	64QAM	1	49	21.44	21.4	20.35	
10	64QAM	25	0	20.39	20.3	20.45	20.5
10	64QAM	25	12	20.4	20.2	20.35	
10	64QAM	25	25	20.36	20.35	20.25	
10	64QAM	50	0	20.35	20.38	20.33	



Channel				20425	20525	20625	Tune-up limit (dBm)
Frequency (MHz)				826.5	836.5	846.5	
5	QPSK	1	0	22.65	22.38	22.6	23.5
5	QPSK	1	12	22.66	22.56	22.62	
5	QPSK	1	24	22.6	22.45	22.62	
5	QPSK	12	0	21.71	21.63	21.71	22.5
5	QPSK	12	7	21.71	21.57	21.54	
5	QPSK	12	13	21.64	21.63	21.61	
5	QPSK	25	0	21.56	21.51	21.54	
5	16QAM	1	0	21.53	21.5	21.32	22.5
5	16QAM	1	12	21.37	21.52	21.42	
5	16QAM	1	24	21.36	21.53	21.65	
5	16QAM	12	0	20.71	20.48	20.71	21.5
5	16QAM	12	7	20.51	20.68	20.62	
5	16QAM	12	13	20.54	20.76	20.56	
5	16QAM	25	0	20.42	20.61	20.56	
5	64QAM	1	0	21.45	21.38	21.39	21.5
5	64QAM	1	12	21.46	21.46	21.31	
5	64QAM	1	24	21.26	21.25	21.34	
5	64QAM	12	0	20.45	20.41	20.36	20.5
5	64QAM	12	7	20.49	20.4	20.39	
5	64QAM	12	13	20.36	20.38	20.36	
5	64QAM	25	0	20.42	20.49	20.35	
Channel				20415	20525	20635	Tune-up limit (dBm)
Frequency (MHz)				825.5	836.5	847.5	
3	QPSK	1	0	22.54	22.45	22.7	23.5
3	QPSK	1	8	22.43	22.67	22.57	
3	QPSK	1	14	22.49	22.53	22.7	
3	QPSK	8	0	21.75	21.6	21.5	22.5
3	QPSK	8	4	21.64	21.65	21.64	
3	QPSK	8	7	21.67	21.65	21.64	
3	QPSK	15	0	21.71	21.62	21.64	
3	16QAM	1	0	21.94	21.5	21.51	22.5
3	16QAM	1	8	21.81	21.58	21.34	



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3	16QAM	1	14	21.48	21.36	21.53	
3	16QAM	8	0	20.45	20.55	20.63	21.5
3	16QAM	8	4	20.59	20.37	20.51	
3	16QAM	8	7	20.63	20.6	20.63	
3	16QAM	15	0	20.6	20.74	20.68	
3	64QAM	1	0	21.45	21.34	21.43	21.5
3	64QAM	1	8	20.45	20.45	21.45	
3	64QAM	1	14	21.31	21.41	21.47	
3	64QAM	8	0	20.35	20.27	20.34	20.5
3	64QAM	8	4	20.39	20.26	20.39	
3	64QAM	8	7	20.42	20.38	20.36	
3	64QAM	15	0	20.26	20.31	20.42	
Channel				20407	20525	20643	Tune-up limit (dBm)
Frequency (MHz)				824.7	836.5	848.3	
1.4	QPSK	1	0	22.51	22.49	22.59	23.5
1.4	QPSK	1	3	22.66	22.64	22.58	
1.4	QPSK	1	5	22.62	22.61	22.57	
1.4	QPSK	3	0	22.54	22.57	22.53	
1.4	QPSK	3	1	22.6	22.55	22.58	
1.4	QPSK	3	3	22.66	22.64	22.6	
1.4	QPSK	6	0	21.66	21.6	21.59	22.5
1.4	16QAM	1	0	21.97	21.78	21.57	22.5
1.4	16QAM	1	3	21.79	21.85	21.24	
1.4	16QAM	1	5	21.38	21.79	21.91	
1.4	16QAM	3	0	21.59	21.57	21.62	
1.4	16QAM	3	1	21.65	21.46	21.67	
1.4	16QAM	3	3	21.69	21.62	21.57	
1.4	16QAM	6	0	20.6	20.62	20.72	21.5
1.4	64QAM	1	0	20.84	21.35	21.29	21.5
1.4	64QAM	1	3	21.25	20.31	21.41	
1.4	64QAM	1	5	21.45	21.46	21.43	
1.4	64QAM	3	0	20.52	21.31	21.06	
1.4	64QAM	3	1	20.56	20.31	21.45	
1.4	64QAM	3	3	20.85	20.68	20.65	
1.4	64QAM	6	0	20.41	20.45	20.36	20.5



<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				23780	23790	23800	
Frequency (MHz)				709	710	711	
10	QPSK	1	0	23.96	23.58	23.4	24
10	QPSK	1	25	22.89	22.57	22.94	
10	QPSK	1	49	22.64	22.35	22.36	
10	QPSK	25	0	22.39	22.13	21.92	23
10	QPSK	25	12	21.89	21.4	21.05	
10	QPSK	25	25	21.56	21.53	21.42	
10	QPSK	50	0	21.49	21.06	21.09	
10	16QAM	1	0	22.53	22.53	22.61	23
10	16QAM	1	25	21.82	21.9	21.16	
10	16QAM	1	49	21.53	21.56	21.73	
10	16QAM	25	0	21.32	21.2	20.94	22
10	16QAM	25	12	20.86	20.56	20.39	
10	16QAM	25	25	20.86	20.47	20.38	
10	16QAM	50	0	20.47	20.31	20.45	
10	64QAM	1	0	21.75	21.99	21.85	22
10	64QAM	1	25	21.89	21.69	21.32	
10	64QAM	1	49	20.35	20.32	20.32	
10	64QAM	25	0	20.98	20.82	20.82	21
10	64QAM	25	12	20.97	20.63	20.31	
10	64QAM	25	25	20.84	20.46	20.35	
10	64QAM	50	0	20.56	20.37	20.31	
Channel				23755	23790	23825	Tune-up limit (dBm)
Frequency (MHz)				706.5	710	713.5	
5	QPSK	1	0	23.75	23.09	22.65	24
5	QPSK	1	12	23.53	22.67	22.45	
5	QPSK	1	24	23.07	23.56	22.46	
5	QPSK	12	0	22.66	22	22.45	23
5	QPSK	12	7	22.52	21.49	21.65	



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5	QPSK	12	13	22.29	21.63	21.52	
5	QPSK	25	0	22.38	21.3	21.56	
5	16QAM	1	0	22.76	22.23	21.96	23
5	16QAM	1	12	22.51	21.83	21.52	
5	16QAM	1	24	22.11	22.05	21.85	
5	16QAM	12	0	21.71	21.03	20.41	22
5	16QAM	12	7	21.57	20.57	20.36	
5	16QAM	12	13	21.25	20.39	20.41	
5	16QAM	25	0	21.24	20.43	20.36	
5	64QAM	1	0	21.63	21.96	20.73	22
5	64QAM	1	12	21.86	21.41	20.36	
5	64QAM	1	24	21.75	20.4	20.51	
5	64QAM	12	0	20.52	20.49	20.65	21
5	64QAM	12	7	20.58	20.67	20.78	
5	64QAM	12	13	20.65	20.39	20.36	
5	64QAM	25	0	20.46	20.57	20.74	

4. RF Exposure Evaluation

Standalone transmission evaluation:

Bands	Frequency (MHz)	Antenna Gain (dBi)	Maximum Tune-up Limit (dBm)	EIRP (mW)	Power density (mW/cm ²)	Limit for MPE (mW/cm ²)
GSM 850	824.2	-3.67	29.50	382.82	0.076	0.549
GSM 1900	1850.2	-2.48	27.50	317.69	0.063	1.0
WCDMA Band II	1922.4	-2.48	24.50	159.22	0.032	1.0
WCDMA Band V	897.6	-3.67	25.00	135.83	0.027	0.598
LTE Band 2	1860	-2.48	24.50	159.22	0.032	1.0
LTE Band 4	1732.5	-2.05	24.50	175.79	0.035	1.0
LTE Band 5	836.5	-3.67	23.50	96.16	0.019	0.558
LTE Band 17	709	-2.84	24.00	130.62	0.026	0.473

Note:

1. According to KDB 447498, SAR test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

2. MPE calculation method

$$\text{Power Density} = \text{EIRP} / 4\pi R^2$$

Where: EIRP = P+G

P = Output Power (dBm)

G = Antenna Gain (dBi)

R = Separation Distance (20cm)



Annex A General Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China



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Annex B Photographs of the EUT

EUT Front View

EUT Back View